

MINIMUM REQUIREMENTS

FOR

DIPLOMA IN INFORMATION TECHNOLOGY

PROGRAMME



Council for Technical Education and Vocational Training

Polytechnic Division

Sanothimi, Bhaktapur

NEPAL

2023

प्राविधिक शिक्षा तथा व्यावसायिक तालीम परिषद् सानोठिमी भक्तपुरबाट सञ्चालन गरिने डिप्लोमा इन **Information Technology** ३ वर्षे कार्यक्रमको सम्बन्धन स्वीकृति दिन आवश्यक भौतिक पूर्वाधार, मानव संसाधन र प्रयोगात्मक अभ्यासका लागि निर्धारण भएको न्यूनतम पूर्वाधार निर्देशिक (Minimum Requirements) तयारको क्रममा परिषद् कार्यालयको मिति २०७९/०६/१५ गतेको निर्णयानुसार गठित कार्य टोलीको विवरण ।

कार्यटोली

१. देवेश चन्द्र देवकोटा	निर्देशक	संयोजक
२. सुरज कुमार हेक्का	विषय विज्ञ	सदस्य
२. अनुप भुजु	विषय विज्ञ	सदस्य
३. रिता सिल्पकार	विषय विज्ञ	सदस्य
४. श्रीधर नेपाल	हेल्थ कोअर्डिनेटर.	सदस्य

मिति २०७९/०८/२६

१. भवन तथा पूर्वाधारहरू

- १.१ भवन: काठमाडौं उपत्यका भित्र न्युनतम ५ रोपनी तथा देशका अन्य स्थानको हकमा १० रोपनी जग्गामा बनेको भौतिक पूर्वाधार सहितको कक्षाकोठा, अफिस, ल्याव, प्रयोगशाला र पुस्तकालय लगायत सबै सुविधाका लागि सुरक्षित भवन हुनु पर्नेछ । वहुतले (घेरै तल्ला भएको) भवन भएमा थप कार्यक्रमको लागि जग्गा थप नभएपनि सञ्चालन गर्न सकिने छ । बढीमा ४८ जना प्रशिक्षार्थीहरू राखी शैद्धान्तिक कक्षा सञ्चालन गर्नुपर्ने छ ।
- १.२ कक्षा कोठा: प्रति विद्यार्थी ०.७५ वर्ग मिटरको दरले ३ वर्षे कार्यक्रमको लागि (प्रथम, द्वितीय र तृतीय वर्ष) ३ वटा कक्षा कोठा हुनु पर्नेछ । कक्षा कोठामा प्रशिक्षक र विद्यार्थीको लागि आवश्यक टेबल, डेक्स तथा कुर्चीको व्यवस्था हुनुपर्नेछ ।
- १.३ प्रयोगशाला/वर्कसप: सामान्य विज्ञानको लागि आवश्यक प्रयोगशालाहरू (Physics, Chemistry, Computer, Drawing, Mechanical and Electrical Workshop) तथा एउटा भन्दा बढी कार्यक्रम संचालन भएका संस्थाहरूमा अन्य कार्यक्रमको लागि समेत प्रयोगशालाहरू संयुक्त हुनेछन् । संस्थाले पाठ्यक्रमले तोके अनुसार प्रयोगशालाहरूको प्रयोग गर्नु पर्नेछ र सम्पूर्ण विद्यार्थीहरूलाई प्रयोगात्मक अभ्यास गराउने सुनिश्चित समय तालीका हुनु पर्नेछ । Chemistry ल्यावमा आवश्यक Tap, Sink, Basin सहित Water Supply को व्यवस्था हुनु पर्नेछ ।
- १.४ विषयगत प्रयोगशाला: छुट्टा छुट्टै विषयगत प्रयोगशालाहरू हुनु पर्नेछ । प्रयोगशालाको क्षेत्रफल प्रति विद्यार्थी कम्तीमा १ वर्ग मिटर हुनु पर्नेछ । कार्यक्रम संचालनको लागि तालीका नं १ मा उल्लेख भए बमोजिमका प्रयोगशालाहरू हुनुपर्नेछ । दोस्रो र तेस्रो वर्षको प्रयोगात्मक अभ्यासका लागि Computer र Electronics lab मा आवश्यक सम्पूर्ण समग्रीहरूको व्यवस्था गरिएको हुनुपर्ने छ । छैठौं सेमेष्टरको मेजर प्रोजेक्टको लागि आवश्यक आई.टि. विज्ञवाट सुपरिवेक्षण तथा प्रशिक्षणको व्यवस्था मिलाईएको हुनुपर्ने छ ।
- १.५ लाइब्रेरी कक्ष: ४०वर्ग मिटर क्षेत्रफलको पुस्तकालय कक्ष हुनु पर्नेछ । एउटा भन्दा बढी कार्यक्रम संचालन हुने संस्थामा प्रत्येक थप कार्यक्रमको लागि १५ वर्ग मिटर क्षेत्रफल हुनु पर्नेछ । पुस्तकालयमा पाठ्यक्रममा उल्लेख भए बमोजिमका प्रत्येक विषयको लागि विद्यार्थी संख्याको कम्तीमा ५० प्रतिशत पाठ्यपुस्तक हुनु पर्नेछ । प्रत्येक विषयको कम्तीमा ५ वटा Reference Books र इमेल इन्टरनेटको सुविधा विद्यार्थीहरूको सहज पहुँच हुने गरी व्यवस्थापन गर्नु पर्नेछ ।
- १.६ प्रशिक्षक कक्ष: प्रशिक्षकहरूको लागि अध्ययन र प्रशिक्षण तयारीको लागि प्रति प्रशिक्षक कम्तीमा २.० वर्ग मिटर क्षेत्रफल सहित बस्ने व्यवस्था हुनुपर्नेछ ।
- १.७ प्राचार्य र विभागिय प्रमुख कक्ष: संस्थामा प्राचार्य र विभागिय प्रमुखको लागि छुट्टै कार्य कक्षको व्यवस्था हुनु पर्नेछ ।
- १.८ प्रशासन कक्ष: संस्थामा लेखा तथा प्रशासन कक्ष छुट्टै हुनु पर्नेछ ।
- १.९ सोधपुछ कक्ष: विद्यार्थी, अभिभावक तथा सरोकारवालाहरूलाई परामर्शसेवा दिन छुट्टै सोधपुछ कक्ष हुनु पर्नेछ ।
- १.१० शौचालय: प्रशिक्षार्थीको लागि महिला र पुरुष छुट्टा छुट्टै हुने गरी १:२० का दरले र प्रशिक्षक, कर्मचारीका लागि १:१० का दरले शौचालयको व्यवस्था हुनु पर्नेछ ।
- १.११ स्वानेपानी: स्वानेपानीको लागि Water Filter /Euro Guard or Equivalent Water Purifier को व्यवस्था हुनु पर्नेछ वा शुद्ध पिउने पानीको व्यवस्था हुनु पर्नेछ ।
- १.१२ चमेना गृह: संस्थामा कम्तीमा २० जनाले एकै पटक प्रयोग गर्न सक्ने ठाउँ (Dining Room) भएको चमेनागृह हुनु पर्नेछ ।
- १.१३ खेलकुद सम्बन्धी: भलिबल, बास्केटबल, व्याडमिण्टन र टेबलटेनिस मध्ये कम्तीमा एउटा Outdoor र एउटा Indoor कोर्टको व्यवस्था हुनु पर्नेछ ।

१.१४ प्राथमिक उपचार कक्ष संस्थामा तत्काल एवं आपतकालीन स्वास्थ्य सेवाका लागि चाहिने औषधिहरू सहीतको उपचार कक्ष हुनुपर्ने छ । महिला छात्राहरूको लागि महिनावारीको समयमा आवश्यक सेनेटरी प्याडको व्यवस्थापन गर्ने स्थानको व्यवस्था हुनुपर्ने छ ।

२. वेवसाइट : संस्थाले सुचना तथा जानकारी प्रदान गर्न आधिकारीक वेवसाइटको व्यवस्था गर्नुपर्नेछ ।

तालीका नं. १

सैद्धान्तिक कक्षामा ४८ जना र प्रयोगात्मक अभ्यासमा लागि २४ जना क्षमताका प्रथम वर्षको लागि तपसील वमोजिमका स्थानहरूको व्यवस्था हुनुपर्नेछ ।

क्र.स.	विवरण	विद्यार्थी क्षमता (जना)	कोठाको न्युनतम क्षेत्रफल (व.मी.)	कैफियत
१.	सैद्धान्तिक कक्षा कोठा	४८ जना	३६.००	
२.	भौतिक शास्त्र प्रयोगशाला	२४ जना	२४.००	
३.	रसायन शास्त्र प्रयोगशाला	२४ जना	२४.००	
४.	कम्प्युटर ल्याव	२४ जना	२४.००	
५.	Drawing वर्कसप	२४ जना	३६.००	
६.	मेकानिकल एण्ड इलेक्ट्रिकल वर्कसप	२४ जना	२४.००	
७.	सामान भण्डारण कोठा		१५.००	

३.प्रयोगात्मक अभ्यासको लागि आवश्यक पुर्वाधार र सुविधा सम्बन्धी:

३.१ कलेज हाताभित्र रहेका प्रयोगशाला र वर्कसप वाहेक पाठ्यक्रमले तोके वमोजिम गर्नु पर्ने प्रयोगात्मक अभ्यास एवं फिल्ड भिजिटको लागि पर्याप्त ज्ञान र सिप आर्जन गर्न सक्ने अवसर प्राप्त हुने निकायहरूलाई प्राथमिकता दिई कार्यगत तालिमको व्यवस्था मिलाउदा कार्यक्रमसंग सम्बन्धित निकायहरू(नेपाल टेलिकम, विधूत प्राधिकरण आदि) संग सम्झौता तथा सहमति हुनुपर्नेछ ।

४.प्राचार्य र प्रशिक्षक सम्बन्धि व्यवस्था :

- क. संस्थामा प्राचार्य,उपप्राचार्य र विभागीय प्रमुखहरू पुर्णकालिन (Full Time) हुनुपर्ने छ ।
- ख. प्रथम वर्ष संकायतर्फको प्रशिक्षकहरूको न्यूनतम शैक्षिक योग्यता स्नातकोत्तर हुनुपर्ने र प्राविधिक विषय तर्फ न्यूनतम स्नातक उत्तिर्ण ४ जना पुर्णकालिन (Full Time) प्रशिक्षकहरू हुनुपर्ने छ ।
- ग. प्राचार्य को शैक्षिक योग्यता सम्बन्धित विषयमा स्नातकोत्तर वा स्नातक पछि ५ वर्षको कार्य अनुभव र विभागीय प्रमुखको शैक्षिक योग्यता सम्बन्धित विषयमा स्नातकोत्तर वा स्नातक पछि ३ वर्षको कार्य अनुभव हुनुपर्ने छ ।
- घ. प्रयोगात्मक अभ्यासको लागि कम्तिमा एक जना Diploma in IT Engineering गरेको सहायक प्रशिक्षक हुनुपर्नेछ ।

प्राविधिक प्रशिक्षकहरूले सम्बन्धित व्यवसायिक परिषद्मा अनिवार्य दर्ता भएको हुनुपर्ने छ ।

ड प्रयोगात्मक कक्षा संचालन गर्दा आवश्यक पर्ने सरसामानहरूको पर्याप्त व्यवस्था हुनेगरी प्रशिक्षार्थीको समुह बनाउनु पर्दछ । यसरी समुह बनाउँदा बढीमा २४ जना प्रशिक्षार्थीहरूको समुह बनाई एक सानो उप समुहमा बढीमा ६ जना समेत राख्न सकिन्छ । जसको लागि ड्रइड र कम्प्युटर प्रयोगशालामा कम्तिमा २४ सेट उपकरण र अन्य प्रयोगशालाहरूमा कम्तिमा ६ सेट सामानहरू उपलब्ध गराउनु पर्नेछ ।

च. बीमाको व्यवस्था:

संस्थामा कार्यरत प्रशिक्षक, कर्मचारी र विद्यार्थीहरूको बीमाको व्यवस्था हुनुपर्ने छ ।

छ. सुरक्षाको व्यवस्था:

प्रयोगशालामा प्रयोगात्मक अभ्यास गर्दा आवश्यक पर्ने सुरक्षाका सामानहरूको व्यवस्था हुनुपर्ने छ ।

उदाहरणको लागि Fire Hazards , Fire Extinguisher, Helmet, Goggles, Gloves, Masks, Eye washing facilities, hand sanitizer etc.

५ शैक्षिक सामग्रीहरू तथा उपकरणहरूको व्यवस्था (प्रथम वर्ष)

TOOLS/EQUIPMENTS LIST FOR PHYSICS **(Mechanics)**

S. N.	Tools/Equipment Name	Quantity (Nos.)
1.	Vernier Calipers 6"	12
2.	Vernier Calipers for Demonstration 12"	1
3.	Micrometer Screw Gauge	12
4.	Spherometer	12
5.	Steel Ball 3mm Dia.	20pc
6.	Steel Ball 2mm Dia.	20pc
7.	Brass Spheres with Hook Dia. 13mm 20mm	5
8.	Lead Spheres with Hook Dia. 10-20 mm,13mm, 20mm	5
9.	Stop Watch	5
10.	Meter Scale (1m long wooden)	10
11.	Thread (for simple pendulum)	1roll
12.	Watch Glass (60,80,100 mm Dia)	6 pc
13.	Friction Board & incline Plane	4
14.	Friction Kit	2
15.	Slotted Iron Weights & Hanger (0.5 Kg each)	1 set
16.	Slotted Iron Weights & Hanger (100 gram each)	1 set
17.	Standard Weight Box Fractional (1mg -500 grams)	1 box
18.	Traveling Microscope	3
19.	Beakers Set (500,250,100 ml)	6
20.	Corks Borer Set (Set 5-19 mm Dia range)	1
21.	Corks (Dia 6 Bottom 10 mm Top, 10/13, 13/16)	1 set
22.	Capillary Tube (0.5 -0.75 mm & Dia)	2 each
23.	Digital Balance	2
24.	Sinker	2
25.	Measuring Cylinder	4
26.	Specific Gravity Bottle (50 cc)	5
27.	Aneroid Barometer	2
28.	Tuning Fork (set)	2
29.	Rubber Pad	3
30.	Resonance Apparatus	3
31.	Cubes for Density Investigation	2 sets
32.	Retort Stand (315x 200mm & Rod)	8
33.	Large Triple Box for the above	8
34.	Clamp	8
35.	Apparatus Clamp (Set)	8

S. N.	Tools/Equipment Name	Quantity (Nos.)
36.	Mercury	as needed

(Heat)

S. N.	Tools/Equipment Name	Quantity
1.	Thermometers (1/10,-10 to 110 Deg C)	15
2.	Thermometers (1/20,-10 to 50 Deg C)	10
3.	Maximum Minimum Thermometer	2
4.	Hypsometer	5
5.	Calorimeter (Cooper, 75 X 50mm)	8
6.	Outer Vessel for Calorimeter, Stirrer & Lid Set (for Cooper Calorimeter of size 75 X 50 mm)	8
7.	Calorimeter (Aluminium)	5
8.	Steam Boiler	5
9.	Hygrometer	2
10.	Hygrometer (Wet Dry Bulb)	2
11.	Hot Plate	2
12.	Test Tubes (All size 72 sets)	2
13.	Boiling Test Tubes	2
14.	Test Tube Holder	10
15.	Test Tube Stand	5
16.	Filter Paper (Size 90 & 150, box of 200)	5
17.	Wax Paraffin (kg)	1
18.	Refrigerator (Ice Cube Maker)	1

(Optics)

S. N.	Tools/Equipment Name	Quantity
1.	Plane Mirror Glass Mounted	10
2.	Cylindrical Concave Mirror Glass	8
3.	Cylindrical Concave Mirror Stainless Steel	8
4.	Concave Mirror	10
5.	Lens Double Convex	10
6.	Plano Convex Lens	10
7.	Lens Holder	5
8.	Prism	6
9.	Glass Cube	3
10.	White Screen	2
11.	Compact light Source	3
12.	Ray Optics Box	8
13.	Optical Bench 1.5 Meters	3
14.	Light Meter	1
15.	Lycopodium powder	2 pack
16.	Adjustable (in height) pin (for except in concave mirror)	

(Magnetism)

S. N.	Tools/Equipment Name	Quantity
1.	Rectangular Section Magnets	6
2.	Horse Shoe Magnet	2
3.	Magnetizing and Demagnetizing Coil	1
4.	Vibration Magnetometer Box	2
5.	Deflection Magnetometer	3
6.	Magnetic Needle	10
7.	Plotting Compass	6
8.	Dip Circle with Needle	2

Current/Electricity

S. N.	Tools/Equipment Name	Quantity
1.	Ammeter HA, MA	3
2.	Voltmeter	3
3.	Galvanometer	2
4.	Potentiometer	4
5.	Lamp Low Voltage Lamp (LED)	8
6.	Contractor & Relay	8
7.	Plug Switch	5
8.	Connecting Wires (each)	20
9.	Crocodile clip	20
10.	Rheostat	5
11.	Resistance Coil	2
12.	Low DC Voltage Power Supply	5
13.	Battery Charger	2
14.	Inductor & Capacitor	1
15.	Different types of wire	1

TOOLS/EQUIPMENTS LIST FOR CHEMISTRY

S. N.	Tools/Equipment Name	Quantity
1.	Beaker 100 ml, 250 ml, 500 ml Set	48
2.	Glass Funnel 25mm, 75 mm, 95 mm Set	48
3.	Porcelain Basin 75 mm Dia.	48
4.	Tripod Stand Triangular (155 X 120 mm)	48
5.	Wire Gauge 140 X 140 mm	100
6.	Water Bath (12 holes) 420 mm	2
7.	Fuel Stand (Wood 450 mm)	48
8.	Test Tube Stand Plastic 250 mm	24
9.	Test Tubes 20 ml	500
10.	Hot Box Oven Size 1 (0- 500 Deg C)	2
11.	Glass rod 4 mm Dia	10 kg
12.	Test Tube 10 ml	500
13.	Conical, Round Flask 250 ml	30
14.	Glass Retort 250 ml	50
15.	Watch Glass 70 mm Dia	50
16.	Burner (gas) 130 mm	25
17.	Water Trough 230 mm Dia	25
18.	Iron Stand with Clamp 600 mm	25
19.	Pipette 10 ml	20
20.	Pipette 20 ml	50
21.	Burette 50 ml	50
22.	Volumetric Flask 250 ml	25
23.	Volumetric Flask 100 ml	105

S. N.	Tools/Equipment Name	Quantity
24.	Volumetric Flask 500 ml	7
25.	Volumetric Flask 1000 ml	4
26.	Weighing Table with cap 10 ml	25
27.	Measuring Cylinder 10 ml	50
28.	Measuring Cylinder 20 ml	30
29.	Measuring Cylinder 100 ml	10
30.	Measuring Cylinder 500 ml	5
31.	Measuring Cylinder 1000 ml	5
32.	Measuring Cylinder 5000 ml	2
33.	Eudiometer Tube 50 ml	50
34.	Watch Glass 20 mm Dia	50
35.	Reagent Bottle (glass) 250 ml	100
36.	Reagent Bottle (glass) 500 ml	50
37.	Reagent Bottle (glass) 1000 ml	50
38.	Small Reagent Bottle (Plastic) 100 ml	100
39.	Dessicator 200 mm Dia	2
40.	Graduated Pipette 10 ml	25
41.	Barometer (General Lab)	1
42.	Kipp's Apparatus (Borosil)	1
43.	Distillation Unit	1
44.	Digital Balance (range 0.001 gm) Max 2	2
45.	Digital Balance (range 0.0001 gm) Max 1	2
46.	Gas Cylinder (L.P.G. for Practical) 14	5
47.	Gas Regulator 300 mm w/c	5
48.	Gas Pipe 10 mm (meters)	3
49.	Plastic Wash Bottles	48
50.	Nicklechromed Tounge	48
51.	Small Traingular File	48
52.	Woulf's Bottle	24
53.	Thermometer 100 Deg. C	10
54.	Wire gauge	25
55.	Cork Borers different sizes	6
56.	Gas jars	24
57.	Thermometer 300 Deg. C	2
58.	Washing Brush 240 mm	25
59.	Circular Filter Paper 110 mm Dia	50
60.	Asbestoes Sheet 150 X 150 mm	25
61.	Stainles Sheet Spatula 145 mm	25
62.	Glass Tube 7 mm Dia	50
63.	Thistle funnel (for gas pre) set	25
64.	Short stem funnel (for eg. wt) set	25
65.	Glass tubes, 5mm, 6mm, 8 mm Dia	50 each
66.	Rubber Groves	24 pcs
67.	Test tube holder	50 pcs
68.	Lead a cetate	500gms
69.	Tall Jar	8 pcd
70.	Cork pressing instruments	1 set

TOOLS/EQUIPMENTS LIST FOR PLUMBING WORKSHOP – I

S. N.	Tools/Equipment Name	Quantity
1.	Hand Grinding Machine	1

S. N.	Tools/Equipment Name	Quantity
2.	Bend drilling Machine	1
3.	Electric drill Portable	1
4.	Vernier Calipers	6
5.	Combination Square set	6
6.	Outside Calipers	6
7.	Flat Square	6
8.	Steel measuring tape	6
9.	Wire and sheet gauge	4
10.	Wing Divider	6
11.	Divider	6
12.	Plumbers Plumb line	6
13.	Portable folding pipe vice	1
14.	Chain pipe vice	6
15.	Hack saw frame with blade	12
16.	Tradesman ladder	1
17.	First Aid Kit	3
18.	Fire Extinguisher ABC type 2.5 kg	3
19.	Fire bucket	3
20.	Pipe cutter	3
21.	Adjustable basin wrench	3
22.	Spanner set	4
23.	Pipe Reamer	4
24.	Tap Resealing Tools	6
25.	Rawlplug Tool set	4
26.	Twist Drill set	4
27.	River Punch	6
28.	Hollow punch	6
29.	Taps and Dies set	2
30.	Pipe yarning and caulking tools	2
31.	Link pipe cutter (chain cutter)	3
32.	Flexible steel drain cleaner	2
33.	Clamp joint runner set	3
34.	Ladle	4
35.	Melting Pot	4
36.	Compass saw	4
37.	Tenon saw	4
38.	Rip saw	4
39.	Pipe clamp (soldering vice)	3
40.	Painter's Brush	10
41.	Meter saw	4
42.	Hot plate (electric)	4
43.	Teflon	12
44.	Thermochrome	1 doze
45.	Flat file	6
46.	Round file	6
47.	Half round file	6
48.	Rasp file	6
49.	Meter box	2
50.	Thermo chalk	2
51.	Teflon toner	6
52.	Hammer cross pin	6
53.	Hammer Ball pin	6
54.	Hammer Ball	6

TOOLS/EQUIPMENTS LIST FOR ELECTRICAL WORKSHOP

S. N.	Tools/Equipment Name	Quantity
1.	Hammer	24
2.	Gimlet	24
3.	Hand Drill	24
4.	Portable Electrical Drill	12
5.	Pedestal Drill	1
6.	Bench Drill Press	1
7.	Combination Pliers	24
8.	Steel Rule	24
9.	Line Tester	24
10.	Side Nose Pliers	24
11.	Flat Nose Pliers	24
12.	Round Nose Pliers	24
13.	Cable Knife	24
14.	Wire Stripper	24
15.	Voltmeter	6
16.	Ammeter	6
17.	Analog Multimeter	6
18.	Wattmeter	6
19.	Kilowatt Hour Meter	6
20.	Copper Cable Shoe (4mm ²)	100
21.	Copper Cable Shoe (6mm ²)	100
22.	Copper Cable Shoe (10mm ²)	100
23.	Tool Box	18
24.	Junior Box	18
25.	Junior Hacksaw	24
26.	Earth Resistance Tester	4
27.	Clamp on Ammeter	6
28.	Rewirable Fuse Box Set	36
29.	HRC Fuse Box Set	36
30.	10 Amp Single Pole MCB	24
31.	25 A MCCB 25 KA.	24
32.	IHP 3 phase Induction motor	2 set
33.	Fractional Horse power 1 phase induction motor	1 set
34.	PVC Listic	100 pcs.
35.	Holder	50 pcs.
36.	a) One gang switch	30 pcs
	b) Two gang switch	30 pcs
	c) Two way switch	12 pcs
37.	Power socket	30 pcs
38.	Dol/ Starter	6 pcs

TOOLS/EQUIPMENTS LIST FOR BRICKLAYING WORKSHOP-I

S. N.	Tools/Equipment Name	Quantity (Nos)
1.	Pick axe (681gm)	12
2.	Brick axe	12
3.	Shovel	12
4.	Chisel	12
5.	Float (Wooden, metal)	12
6.	Hammer (Ball pein,230gm)	12
7.	Trowel	24
8.	Line & Pins	as required

9.	Try square	12
10.	Steel rule	12
11.	Folding rule	12
12.	Plumb bob and line	24 set
13.	Straight edge (wooden)	6
14.	Sprit level (30 cm)	12
15.	Wheel barrow	6
16.	Ladder	2
17.	Letter & Name punches	2 Set
18.	Building materials (Stone, brick, sand, cement, aggregate, etc.)	as required
19.	Brick Cutter	6

TOOLS/EQUIPMENTS LIST FOR MANUFACTURING WORKSHOP

S.N.	Equipment Name	Quantity (No)
1.	Light duty spot welding machine	1 portable type
2.	Bench grinder (Rpm 1420)	1
3.	Radial drilling Machine	1
4.	Pillar type drilling machine	1
5.	Riveting	1
6.	Binding Machine	1

TOOLS/EQUIPMENTS LIST FOR MECHANICAL WORKSHOP

S.N.	Equipment Name	Quantity (No)
7.	Lathe machine 4'	1
8.	Tool and cutter grinding machine	1
9.	Light duty spot welding machine	1 portable type
10.	Bench grinder (Rpm 1420)	1
11.	Radial drilling Machine	1
12.	Pillar type drilling machine	1
13.	Riveting	1
14.	Binding Machine	1
15.	Arc Welding set Suitable for repair and maintenance work Variable amperage control Output current range: Approx 40 -180 A Supplied with electrode earth leads Supplied with following accessories Welders heavy duty split leather gauntlets large size Welders scratch brush made from brased steel wire Welders hammer with hardened and tempered head with steel spring impact resistant handle Injection moulded polypropylene flip action welding helmet made to BS679 (or equivalent) Electrodes: 5 each of following diameters: 1.6 mm, 2.0 mm, 2.5mm, 3.2 mm, 4.0 mm; Supplied with operation and service manuals; Supply voltage: 220 V, 50 HZ.	4 set

S.N.	Equipment Name	Quantity (No)
10.	Gas welding and cutting set	4 set
	Acetylene gas cylinder: Capacity approx. 40 litre filling pressure 1.5 Kpa test pressure 6 mpa, clearly mark "acetylene"	
	Oxygen gas cylinder: capacity 40 litre, nominal filling pressure 1.5 mpa. Test pressure 22.5 kpa, clearly marked "oxygen" Blackish colour	
	Complete with:	
	Welding cutting torch set - high pressure injector type for welding 0.5 to 30 mm thick mild steel and cutting thickness up to 100mm spark lighter;	
	Welding cutting torch set - high pressure injector type for welding 0.5 to 30 mm thick mild steel and cutting thickness up to 100mm spark lighter;	
	Gas welding goggles;	
	5 finger gauntlet glove;	
	With operation and service manuals	

TOOLS/EQUIPMENTS LIST FOR BAR BENDING

S. N.	Tools/Equipment Name	Quantity (Nos.)
1.	Hack saw frame with blade	24
2.	Hammer Claw (5kg)	12
3.	Crow bar	12

TOOLS/EQUIPMENTS LIST FOR COMPUTER LABORATORY

S. N.	Tools/Equipment Name	Quantity
1.	Compatible Personal Computer with E-mail/Internet Facilities	24 set

TOOLS/EQUIPMENTS LIST FOR ENGINEERING DRAWING

<u>S. N.</u>	Tools/Equipment Name	<u>Quantity</u>
1	Drawing board with Table	24 set
2	Drawing tools set (Geometric box and pen)	24 set
3	Multimedia with computer and printer	1 set

६. शैक्षिक सामाग्रीहरु तथा उपकरणहरुको व्यवस्था (दोस्रो तथा तेस्रो वर्ष)

TOOLS/EQUIPMENT LIST FOR C Programming
(Diploma in Information Technology-DIT-II/I)

S. N.	Tools/Equipment Name	Quantity (Nos.)
37.	Personal Computer (48 Students) Minimum requirement : • Processor : i3 or above • RAM : 8 GB or above • Hard Disk : 512 GB or above or SSD • Monitor : 15 inch or above	48
38.	Multimedia Projector	1
39.	Software required: Operating System required: • windows 7 or above C compiler required (any one): • Dev C++ • Turbo C++ • Borland Turbo C • Microsoft Visual C++ • Clang • Open64 etc...	

TOOLS/EQUIPMENT LIST FOR Web Technology-I
(Diploma in Information Technology-DIT-II/I)

S. N.	Tools/Equipment Name	Quantity (Nos.)
1.	Personal Computer Minimum requirement : • Processor : i3 or above • RAM : 8 GB or above • Hard Disk : 512 GB or above or SSD • Monitor : 15 inch or above	48
2.	Multimedia Projector	1
3.	Software required: Operating System required: • windows 7 or above Text editor required (any one) : • Atom • Notepad • Notepad ++ • Sublime Text • Brackets • Visual Studio Code • Komodo IDE • UltraEdit • Froala • Coffee Cup HTML editor • Adobe Dreamweaver CC • Bluefish etc.....	

TOOLS/EQUIPMENT LIST FOR Digital Logic
(Diploma in Information Technology-DIT-II/I)

S. N.	Tools/Equipment Name	Quantity (Nos.)
1.	Probes/ Leads (small ports)	48 pcs
2.	Probes/ Leads (Large ports)	48 pcs
3.	Power supply cords	12 pcs
4.	Basic Gates kits	12 pcs
5.	Universal Gates kits	24 pcs
6.	Exclusive Gates kits	12 pcs
7.	Encoder (Decimal to binary) kits	6 pcs
8.	Decoder(Binary to decimal) kits	6 pcs
9.	Decoder (7 segment) kits	6 pcs
10.	Multiplexer (4:1) kits	6 pcs
11.	De-multiplexer(1:4) kits	6 pcs
12.	Flip-flop kits (J-K, T, D)	6 pcs/flipflop
13.	Counter (Synchronous) kit	6 pcs
14.	Counter (Asynchronous) kit	6 pcs
15.	Digital Multi-meter	12 pcs
16.	Analog Multi-meter	6 pcs
17.	Screw Driver Set	6 set
18.	Nose Plier Set	6 pcs
19.	Wire cutter	6 pcs
20.	Regulated Power supply (DC – 0 to 12 volts)	12 pcs
21.	Soldering Iron (60 watts)	4 pcs
22.	Soldering wire with Flux	2 rolls
23.	Hot Glue Gun	2 pcs
24.	Wire Stripper	2 pcs
25.	Bread Board	6 pcs

TOOLS/EQUIPMENT LIST FOR PC Troubleshoot & Maintenance
(Diploma in Information Technology-DIT-II/I)

S. N.	Tools/Equipment Name	Quantity (Nos.)
1.	Personal Computer Minimum requirement : • Processor : i3 or above • RAM : 8 GB or above • Hard Disk : 512 GB or above or SSD • Monitor : 15 inch or above	48
2.	Multimedia Projector	1
3.	Software required: Operating System required: • windows 7 or above	
4.	Desktop Computer(Dead set)	5
5.	Screw driver	5 sets
6.	Multi-meter	5 sets
7.	Blower	5 sets
8.	Nose Plier	5
9.	Forceps	5
10.	Clamper	20
11.	Cable tester	5
12.	SMPS	20
13.	External DVD ROM Drive	5
15.	Pen drive (32 GB)	5
16.	RAM DDR (2/3/4) 2 GB and 4 GB (working)	5 Pieces each
17.	RAM DDR (2/3/4) (Damage)	5 Pieces each
18.	Hard disk (Damage)	10
19.	Motherboard (Working)	10
20.	Motherboard (dead)	10
21.	CPU	10
22.	CMOS Battery	50
23.	SATA Cable	20
24.	PATA cable	20
25.	LAN card	5
26.	Sound Card	5
27.	Graphics card	5
28.	USB card	5
29.	Heat Sink	5
30.	Heat Sink Paste	5
31.	VGA Cable	10
32.	Power cord	10

S. N.	Tools/Equipment Name	Quantity (Nos.)
33.	HDMI cable	10
34.	SATA Power converter	10
35.	Network Cable (cat 5/6)	1 Drum
36.	Headphone	10
37.	Keyboard	20
38.	Mouse	20
39.	Monitor	10
40.	RJ 45 Jack	1000 Pieces

TOOLS/EQUIPMENT LIST FOR Basic Electrical and Electronics Engineering
(Diploma in Information Technology-DIT-II/I)

S. N.	Tools/Equipment Name	Quantity (Nos.)
1.	Regulated DC Power supply (0 - 12 volts)	12 pcs
2.	Battery (6v),9v	12 pcs
3.	Digital Oscilloscope	2 pcs
4.	Signal Generator	4 pcs
5.	Jumper wires	As per required
6.	Test Leads(Alligator Clips)	24 pcs
7.	Bread Board	6 pcs
8.	Digital Multimeter	12 pcs
9.	Switch(Push Button, Momentary)	20/20 pcs
10.	Ceramic Resistor (different range)	1 packet each
11.	Semi-conductor Diode (IN 4007)	24 pcs
12.	Zener Diode	24 pcs
13.	LED	50 pcs
14.	Transistor(BC107)	50 pcs
15.	Relay	20pcs
16.	MOSFET	40pcs
17.	Operational Amplifier	40 pcs
18.	Voltmeter(0-20v)	12 pcs
19.	Ammeter(0-20mA)	12 pcs
20.	Ammeter(0-20 μ A)	12 pcs
21.	Transformer(6v-0v-6v)	12 pcs
22.	Capacitor(100 μ F/ 470 μ F)	40 pcs
23.	Decade resistor Box	12 pcs
24.	Screw Driver Set	6 set
25.	Nose Plier Set	6 pcs
26.	Wire cutter	6 pcs
27.	Power supply cord	24 pcs
28.	Soldering Iron (60 watts)	4 pcs
29.	Soldering wire with Flux	2 rolls
30.	Hot Glue Gun	2 pcs
31.	Wire Stripper	2 pcs

S. N.	Tools/Equipment Name	Quantity (Nos.)
32.	Bread Board	6 pcs

TOOLS/EQUIPMENT LIST FOR Database Management System
(Diploma in Information Technology-DIT-II/II)

S. N.	Tools/Equipment Name	Quantity (Nos.)
1.	Personal Computer Minimum requirement : • Processor : i3 or above • RAM : 8 GB or above • Hard Disk : 512 GB or above or SSD • Monitor : 15 inch or above	48
2.	Multimedia Projector	1
3.	Software required: Operating System required: • windows 7 or above DBMS Software required: (any one) • MySQL • Oracle DBMS • SQL Developer • Microsoft SQL Server • SQLite • MongoDB • Redis • IBM DB2 • MariaDB etc....	

TOOLS/EQUIPMENT LIST FOR Data Structure & Algorithm
(Diploma in Information Technology-DIT-II/II)

S. N.	Tools/Equipment Name	Quantity (Nos.)
1.	Personal Computer Minimum requirement : • Processor : i3 or above • RAM : 8 GB or above • Hard Disk : 512 GB or above or SSD • Monitor : 15 inch or above	48
2.	Multimedia Projector	1
3.	Software required: Operating System required: • windows 7 or above Compiler required (any one): • Dev C++ • Turbo C++ • Borland Turbo C • Microsoft Visual C++ etc....	

TOOLS/EQUIPMENT LIST FOR Object Oriented Programming in Java
(Diploma in Information Technology-DIT-II/II)

S. N.	Tools/Equipment Name	Quantity (Nos.)
1.	Personal Computer Minimum requirement : • Processor : i3 or above • RAM : 8 GB or above • Hard Disk : 512 GB or above or SSD • Monitor : 15 inch or above	48
2.	Multimedia Projector	1
3.	Software required: Operating System required: • windows 7 or above Software/ tools required: (any one) • JDK(Java Development Kit) • NetBeans • Eclipse	

S. N.	Tools/Equipment Name	Quantity (Nos.)
	• Spark • Java Decompiler • JUnit • Clover • JRat • Gradle • Oracle JDeveloper etc.....	

TOOLS/EQUIPMENT LIST FOR Microprocessor and Computer Architecture
(Diploma in Information Technology-DIT-II/II)

S. N.	Tools/Equipment Name	Quantity (Nos.)
1.	Personal Computer Minimum requirement : • Processor : i3 or above • RAM : 8 GB or above • Hard Disk : 512 GB or above or SSD • Monitor : 15 inch or above	48
2.	Multimedia Projector	1
3.	Software required: Operating System required: • windows 7 or above	
4.	Dyna 8085 Microprocessor Kit	4 pcs
5.	Required software: 8085 Simulator 8086 Simulator	

TOOLS/EQUIPMENT LIST FOR Web Technology-II
(Diploma in Information Technology-DIT-II/II)

S. N.	Tools/Equipment Name	Quantity (Nos.)
1.	Personal Computer Minimum requirement : • Processor : i3 or above • RAM : 8 GB or above • Hard Disk : 512 GB or above or SSD • Monitor : 15 inch or above	48
2.	Multimedia Projector	1
3.	Software required: Operating System required: • windows 7 or above PHP IDE and Code Editor required (any one) : • Atom • Sublime Text 3 • Visual Studio Code • PHPStorm • Zend Studio • Netbeans • Cloud 9 • Dreamweaver • Rapidphpeditor • Komodo • Notepad++ • NetBeans • Codelite DBMS Software required: (any one) • MySQL • Oracle DBMS • SQL Developer • Microsoft SQL Server • SQLite • MongoDB • Redis • IBM DB2 • MariaDB etc....	

TOOLS/EQUIPMENT LIST FOR Computer Graphics
(Diploma in Information Technology-DIT-III/I)

S. N.	Tools/Equipment Name	Quantity (Nos.)
1.	Personal Computer Minimum requirement : • Processor : i3 or above • RAM : 8 GB or above • Hard Disk : 512 GB or above or SSD • Monitor : 15 inch or above	48
2.	Multimedia Projector	1
3.	Software required: Operating System required: • windows 7 or above Compiler required : (any one) • Dev C++ • Turbo C++ • Borland Turbo C • Microsoft Visual C++ • Clang • Open64 etc...	

TOOLS/EQUIPMENT LIST FOR Data Communication and Computer
Network
(Diploma in Information Technology-DIT-III/I)

S. N.	Tools/Equipment Name	Quantity (Nos.)
1.	Personal Computer Minimum requirement : • Processor : i3 or above • RAM : 8 GB or above • Hard Disk : 512 GB or above or SSD • Monitor : 15 inch or above	48
2.	Multimedia Projector	1
3.	Software required: Operating System required: • windows 7 or above	

S. N.	Tools/Equipment Name	Quantity (Nos.)
	Network Simulation Tools & Software: • GNS3 • Cisco Packet Tracer • Putty • Secure CRT • Microsoft Visio • PRTG Network Monitor • WIRESHARK • Network Simulator -NS3 • SNMP Agent Simulator	
4.	RJ-45 jack	1000 pcs
5.	UTP Cable	1 drum
6.	Cable tester	5
7.	Clamper	5
8.	Screw driver set	2
9.	Router	2
10.	Switch	2
11.	Hub	2

TOOLS/EQUIPMENT LIST FOR Operating System
(Diploma in Information Technology)

S. N.	Tools/Equipment Name	Quantity (Nos.)
1.	Personal Computer Minimum requirement : • Processor : i3 or above • RAM : 8 GB or above • Hard Disk : 512 GB or above or SSD • Monitor : 15 inch or above	48
2.	Multimedia Projector	1
3.	Software required: Operating System required: • Windows 7 or above • UNIX OS • LINUX OS Other software required: • VMware (virtual machine) • Hyper V	

S. N.	Tools/Equipment Name	Quantity (Nos.)
	- Windows virtual PC - KVM - Turbo C++ compiler	

TOOLS/EQUIPMENT LIST FOR Cloud Computing
(Diploma in Information Technology-DIT-III/I)

S. N.	Tools/Equipment Name	Quantity (Nos.)
1.	Personal Computer Minimum requirement : - Processor : i3 or above - RAM : 8 GB or above - Hard Disk : 512 GB or above or SSD - Monitor : 15 inch or above	48
2.	Multimedia Projector	1
3.	Software required: Operating System required: - windows 7 or above Other software required: - virtual machine(VMware) - google app. Engine - apache hadoop - VScode/sublime text /any text editor - PHP/Python/Java for web application - MySQL/Mongo DB	

TOOLS/EQUIPMENT LIST FOR Software Development
(Diploma in Information Technology-DIT-III/I)

S. N.	Tools/Equipment Name	Quantity (Nos.)
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S. N.	Tools/Equipment Name	Quantity (Nos.)
1.	Personal Computer Minimum requirement : • Processor : i3 or above • RAM : 8 GB or above • Hard Disk : 512 GB or above or SSD • Monitor : 15 inch or above	48
2.	Multimedia Projector	1
3.	Software required: Operating System required: • windows 7 or above Software required : • Internet browser • GitHub • Adobe Dreamweaver CC. • Crimson Editor • ProofHub • Code Climate • Bitbucket	

TOOLS/EQUIPMENT LIST FOR Elective-I (Geographical Information System)
(Diploma in Information Technology-DIT-III/I)

S. N.	Tools/Equipment Name	Quantity (Nos.)
1.	Personal Computer Minimum requirement : • Processor : i3 or above • RAM : 8 GB or above • Hard Disk : 512 GB or above or SSD • Monitor : 15 inch or above •	48
2.	Multimedia Projector	1
3.	Software required:	

S. N.	Tools/Equipment Name	Quantity (Nos.)
	Operating System required: • windows 7 or above other software required: • ArcGIS	
4.	<u>Other material required:</u> Survey of Nepal topo sheet Scanned Survey of Nepal topo sheet Georeferenced and projected Survey of Nepal Topo Sheet.	

TOOLS/EQUIPMENT LIST FOR Elective-I (Management Information System)

(Diploma in Information Technology-DIT-III/I)

S. N.	Tools/Equipment Name	Quantity (Nos.)
1.	Personal Computer Minimum requirement : • Processor : i3 or above • RAM : 8 GB or above • Hard Disk : 512 GB or above or SSD • Monitor : 15 inch or above	48
2.	Multimedia Projector	1
3.	Software required: Operating System required: • windows 7 or above software required : • spreadsheet (MS-Excel) • MS-Access • MS-word • MS-Project/Jira • Endnote	

TOOLS/EQUIPMENT LIST FOR Elective-I (Data Mining)
(Diploma in Information Technology-DIT-III/I)

S. N.	Tools/Equipment Name	Quantity (Nos.)
1.	Personal Computer Minimum requirement : • Processor : i3 or above • RAM : 8 GB or above • Hard Disk : 512 GB or above or SSD • Monitor : 15 inch or above	48
2.	Multimedia Projector	1
3.	Software required: Operating System required: • windows 7 or above Software required: • WEKA • WEKA-Explorer • R-studio • SPSS	

TOOLS/EQUIPMENT LIST FOR Multimedia
(Diploma in Information Technology-DIT-III/II)

S. N.	Tools/Equipment Name	Quantity (Nos.)
1.	Personal Computer Minimum requirement : • Processor : i3 or above • RAM : 8 GB or above • Hard Disk : 512 GB or above or SSD • Monitor : 15 inch or above	48
2.	Multimedia Projector Photo Scanner	1/1
3.	Software required: Operating System required: • windows 7 or above Software required: • Adobe Photoshop • Macromedia Freehand	

S. N.	Tools/Equipment Name	Quantity (Nos.)
	• Macromedia Flash • swish Max • Adobe Premiere • Macromedia Director	

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