AREA IX

LABORATORIES

PARAMETERS

- A. Laboratories, Shops/Facilities
- B. Equipment and Supplies
- C. Maintenance
- D. Special Provisions

Program:	
Level:	
SUC:	
Campus:	
Date of Actual Survey:	

AREA IX: LABORATORIES

Laboratories are included in the support systems for any academic program. Broadly defined, they cover science laboratories, speech laboratories, demonstration farms, shops, and other facilities for practicum activities essential to the successful implementation of curricular programs inclusive of their use and functions.

A. Laboratories, Shops/Facilities

In general, facilities include well-equipped rooms which are adequately ventilated/airconditions, and lighted. The furniture are properly arranged. Safety devices and measures to cope with emergency situations are available. Facilities conform with accepted standards.

B. Equipment and Supplies

Certain courses require specific equipment, materials and supplies. The list of these equipment, materials and supplies should be included under the section on special provisions for the academic program. Apparatuses, tools and materials conform to specifications as required.

C. Maintenance

All laboratories equipment should be stored properly, maintained, and checked regularly to ascertain their good working condition.

D. Special Provisions

The special provision should include the program requirements (listing of materials and equipment as per CMO). There should be an approved Annual Procurement Plan (APP). The following documents, additional information and exhibits will be useful in evaluating this Area, and should be made available, preferably at the Accreditation Center:

- 1. Approved building plans showing the location of laboratory rooms/shops utilized in the program;
- 2. Copies of lists of prescribed minimum requirements (CHED, PRC, etc.);
- 3. Copies if procedural guidelines on the proper use of equipment and safety devices posted in conspicuous places;
- 4. List of functional locally-improvised apparatuses (supported with pictures and manuals of operation);
- 5. List of laboratory equipment (apparatuses and tools) available for use in the program (indicate the models and specifications);
- 6. List of laboratory rooms/shops utilized in the program;
- 7. List of safety equipment and devices which are available within easy reach in case of emergency;
- 8. List of supplies and materials utilized in the program;
- 9. List of titles of experiments/projects in the course/program;
- 10. Maintenance system employed to ensure the good working condition of the equipment at all time;
- 11. Photocopies of laboratory rooms/shops (including the storeroom) showing the proper arrangement of fixtures and equipment; and
- 12. Photocopies of storeroom plans for chemical and materials showing properly labeled containers, shelves and cabinets.

AREA IX: LABORATORIES

			RATING SCA	LE						
NA	0	1	2	3	4		5			
-	-	Poor	Fair	Satisfactor y	Very Satisfactory	E	Excellent			
Not Applicable	Missing	Criterion is met minimally in some respects, but much improvement is needed to overcome weaknesses	Criterion is met in most respects, but some improvement is needed to overcome weaknesses	Criterion is met in most respects	Criterion is fully met in all respects, at a level that demonstrates good practice	fu. s r pra	Criterion i fully met w substantia number o good practices, a level that provides a model for others		fully met substant number good practices, level the provides model fo	
		(75% lesser than the standards)	(50% lesser than the standards)	(100% compliance with the standards)	(50% greater than the standards)		(75% greate than the standards			
		Indi	icators			Item Rating (IR)	System - Implementation - Outcome Mean SIOM	Parameter Mean (PM)		
PARAMETER SYSTEM - IN		ATORIES, SHOP	PS AND FACILI	TIES						
S.1. The Buildi	laboratory lay ing Code of th	out conforms to ne Philippines/PI eeds of the Elect	0 856 Code of S	anitation of the						
0.0.5	- P. L.C	oform to the star	Table 1							

S.2. Room lightings conform to the standard requirements of fluorescent bulbs

relative to the size of the room.		
S.3. The laboratories are properly lighted and well-ventilated.		
S.4. Each laboratory room has at least two exit doors that open outward.		

S.5. There is a laboratory for shop work specific technologies.				
S.6. There is a computer laboratory with at least 15 usable computer units.				
o.o. There is a computer laboratory with at least 15 usable computer units.				
IMPLEMENTATION	\top			
I.1. Furniture/equipment arrangement allows mobility and enables students to work comfortably without interference from others.				
I.2. Safety and precautionary measures are implemented.				
I.3. Usable fire extinguishers are accessible to staff and students.				
I.4. Laboratory Operation Manuals for the faculty and students are provided in each laboratory.	1			
I.5. Demonstration and training are periodically conducted on the proper use of fire extinguishers, first-aid kit and other emergency measures.)			
I.6. A first-aid kit and charts for antidotes and neutralizing solutions are made available in each laboratory room.	9			
I.7. A student's access to a computer is at least 15 hours per term per subject.				
I.8. Appropriate laboratories for general education subjects are adequately equipped and well-maintained.	k			
I.9. A well-equipped multimedia center is maintained.				
I.10. Gas, water and electricity are utilized for class practicum activities.				
I.11. A demonstration table, equipped with sink, water, electrical and gas outlet, is utilized.				
I.12. Laboratory equipment, supplies and materials are kept in separate stock rooms.				
Indicators	₻	SIOM	₹ 2	

Indicators		MOIS	
	≂	M	PM
OUTCOME/S			
O.1 The Laboratories and shops are well-equipped and functional and are conductive to learning.			_
conductive to learning.			
PARAMETER B: EQUIPMENT, SUPPLIES AND MATERIALS			
SYSTEM - INPUTS AND PROCESSES			
S.1 The equipment, instruments, and materials in the classroom are available.		1	

	annest and the least of the second sectorials and the second seco
	Apparatuses, tools and materials conform with the standard required for the
S	subject in accordance with the CMO of the program.
	States Sallahanta and Sanathananta ta Occasila Lagina
	ist of required laboratory equipment/apparatus for General Education
	aboratory (Required Quantity is based in a class size of 25 students)
	S.2.1 General Chemistry Laboratory
	S.2.1.1 alligarot clip (10pcs)
	S.2.1.2 beaker (5pcs)
	S.2.1.3 burner (5pcs)
	S.2.1.4 conductivity apparatus (1set)
	S.2.1.5 distillation apparatus (1set)
	S.2.1.6 evaporating dish (5pcs)
	S.2.1.7 filter stand (5pcs)
	S.2.1.8 glass funnel (5pcs)
	S.2.1.9 glass tubing (5pcs)
	S.2.1.10 graduated cylinder (5pcs)
	S.2.1.11 petri dish (5pcs)
	S.2.1.12 sand bag (5pcs)
	S.2.1.13 syringe (5pcs)
	S.2.1.14 test tube (50pcs)
	S.2.1.15 thermometer (5pcs)
	S.2.1.16 triple beam balance (5pcs)
5	S.2.2 Physics 1 Laboratory
	S.2.2.1 Atwood's machine (5pcs)
	S.2.2.2 beaker (5pcs)
	S.2.2.3 Blackwood ballistic pendulum (5pcs)
	S.2.2.4 centripetal force apparatus (5pcs)
	S.2.2.5 clamp (5pcs)
	S.2.2.6 cutter blade (5pcs)
	S.2.2.7 demonstration balance (5pcs)
	S.2.2.8 dynamic cart (5pcs)
	S.2.2.9 force frame (5pcs)
	S.2.2.10 force table (5pcs)
	S.2.2.11 free fall apparatus (5pcs)
	S.2.2.12 frictionblock with different surface (5pcs)
	S.2.2.13 friction board with pulley (5pcs)
	S.2.2.14 frictionless dynamic track (5pcs)
	S.2.2.15 glass plate (5pcs)
	S.2.2.16 hooke's law apparatus (5pcs)
	S.2.2.17 hydrometer jar (5pcs)
	S.2.2.18 inverted u-table (5pcs)
	S.2.2.19 linear air track blower and trolley (5pcs)
	S.2.2.20 masses (5sets)
	S.2.2.21 metal balls of different size (12pcs)
	S.2.2.22 metal stand (5pcs)
	S.2.2.23 meter stick (5pcs)
	S.2.2.24 micrometer (5pcs)
	S.2.2.25 mohr-wespal ballance (5pcs)
	S.2.2.26 plane board with stand (5pcs)
	S.2.2.20 plate board with stand (spcs) S.2.2.27 platform/triple beam balance (5pcs)
	5.2.2.21 pianorniviripie beant balance (5pcs)

S.2.2.28 protractor (5pcs)		
S.2.2.29 ramp/launcher (5pcs)		
S.2.2.30 rubber hammer (5pcs)		
S.2.2.31 ruler (5pcs)		
S.2.2.32 scissors (5pcs)		
S.2.2.33 slotted massesm 5-500g (5sets)		
S.2.2.34 sonometer (5pcs)		
S.2.2.35 spring balance (15pcs)		
S.2.2.36 support rod (5pcs)		
S.2.2.37 timer/stopwatch (5pcs)		
S.2.2.38 turning forks of three diff. frequency		
S.2.2.39 vernier caliper (5pcs)		
S.2.2.40 weight holder (15pcs)		
S.2.2.41 wooden cart (5pcs)		

Indicators	⊼	MOIS	PM
S.2.3 Physics 2 Laboratory			
S.2.3.1 15 cm focal length concave lens			
S.2.3.2 15 cm focal length convex lens			
S.2.3.3 1-m slide wire/Wheatstone bridge			
S.2.3.4 5cm focal length spherical mirror			
S.2.3.5 bar magnets (10pcs)			
S.2.3.6 basins (5pcs)			
S.2.3.7 beaker (5pcs)			
S.2.3.8 beam balance (5pcs)			
S.2.3.9 bread board (5pcs)			
S.2.3.10 bridging plugs/connecting wires (10sets)			
S.2.3.11 calorimeter (5pcs)			
S.2.3.12 coil (5pcs)			
S.2.3.13 compass (5pcs)			
S.2.3.14 component holder (5pcs)			
S.2.3.15 connectors (5sets)			
S.2.3.16 crossed arrow target (5pcs)			
S.2.3.17 cylindrical lens (5pcs)			
S.2.3.18 DC power supply (5pcs)			
S.2.3.19 electric calorimeter (5pcs)			
S.2.3.20 fixed capacitor (330 microfarad) (5pcs)			
S.2.3.21 fixed resistor (25pcs)			
S.2.3.22 fluorescent lamp (2sets)			
S.2.3.23 frame for bar magnet (5pcs)			
S.2.3.24 galvanometer (5pcs)			
S.2.3.25 horseshoe magnet (5pcs)			
S.2.3.26 jumper (5pcs)			
S.2.3.27 light source (sodium/mercury lamps) (5pcs)			
S.2.3.28 mechanical equivalent of heat apparatus			
S.2.3.29 metal conductor with insulated handle (2sets)			
S.2.3.30 natural magnets (5pcs)			
S.2.3.31 ohmmeter/VOM (5pcs)			

S.2.3.32 optics bench (5pcs)		
S.2.3.33 panel board/circuit board (5pcs)		
S.2.3.34 parallel ray lens (5pcs)		
S.2.3.35 power supply/source (5pcs)		
S.2.3.36 ray optics mirror (5pcs)		

S.2.3.37 ray table and base (5pcs)
S.2.3.38 reversing switch (5pcs)
S.2.3.39 rheostat (5pcs)
S.2.3.40 slit mask (5pcs)
S.2.3.41 slit plate (5pcs)
S.2.3.42 soleniod (5pcs)
S.2.3.43 SPDT switch (5pcs)
S.2.3.44 SPST switch (5pcs)
S.2.3.45 steam generator (5pcs)
S.2.3.46 stirrer (5pcs)
S.2.3.47 stopwatch (5pcs)
S.2.3.48 switch (5pcs)
S.2.3.49 terla meter/tangent galvanometer (5pcs)
S.2.3.50 thermal expansion apparatus (5pcs)
S.2.3.51 triple beam balance (5pcs)
S.2.3.52 U-tube (5pcs)
S.2.3.53 Van De Graff generator (2pcs)
S.2.3.54 Vernier caliper (5pcs)
S.2.3.55 viewing screen (5pcs)
S.2.3.56 VOM multi-tester (10pcs)
List of the required laboratory materials for General Education Laboratory (Required
Quantity is based on a class size 25 students)
S.2.4 General Chemistry Laboratory Materials
S.2.4.1 Activated charcoal (5g)
S.2.4.2 Al strips (5pcs)
S.2.4.3 Alcohol (30ml)
S.2.4.4 Battery (5pcs)
S.2.4.5 Cu strips (5pcs)
S.2.4.6 CuSO ₄ solution (25ml)
S.2.4.7 Electrolyte solution (25ml)
S.2.4.8 FeCl ₃ solution (25ml)
S.2.4.9 Fe(NO ₃) ₃ solution (25ml)
S.2.4.10 food color (5g)
S.2.4.11 HCl solution (80ml)
S.2.4.12 Hexane (25ml)
S.2.4.13 l ₂ crystals (8g)
S.2.4.14 KCIO ₃ solid (3g)
S.2.4.15 KMnO ₄ (25g)
S.2.4.16 KSCN solution (25ml)
S.2.4.17 KCl solution (25ml)
S.2.4.17 Ker solution (25ml) S.2.4.18 Mg strips (5pcs)
S.2.4.19 MS ribbon (5pcs)
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S.2.4.20 NaCl (5g) S.2.4.21 NaCl solution (25ml)
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S.2.4.22 NaOH solution (25ml)		
S.2.4.23 NH ₄ OH(5ml)		
S.2.4.24 Oil (5ml)		
S.2.4.25 Pb(NO ₃) ₂ solution (25ml)		
S.2.4.26 staple wire (1box)		
S.2.4.27 Sugar (10g)		
S.2.4.28 Urea (5g)		
S.2.4.29 Zn strips (10pcs)		
S.2.4.30 ZN(NO ₃) ₂ (25ml)		
S.2.5 Physics 1& 2 Laboratory Materials		
S.2.5.1 aluminum foil (2rolls)		
S.2.5.2 carbon paper (30pcs)		
S.2.5.3 conducting paper (5pcs)		
S.2.5.4 dry cells (5pcs)		
S.2.5.5 masking tape (2rolls)		
S.2.5.6 string (15pcs)		
S.2.5.7 tissue paper (2rols)		
S.3 Varied computer software are available		
S.4 The computers conform to generally accepted industry standards and are capable		
of providing the micro, mid-range, or main-frame environments.		
S.5 8Each terminal is equipped with necessary accessories.		
C.o CLaon tominario equipped with hosessary accessories.		
IMPLEMENTATION		1
IMPLEMENTATION		
I.1. Equipment are well-maintained.		
I.2. Laboratory supplies and materials are wisely utilized.		
I.3. Licensed computer software are installed and utilized.		
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OUTCOME/S	$\overline{}$	
O.1 The Laboratory equipment, supplies and materials are sufficient and wisely	_	
utilized.		
utilized.		
PARAMETER C: MAINTENANCE		
PARAMETER C: MAINTENANCE SYSTEM - INPUTS AND PROCESSES		

S.1 A laboratory technician/assistant is available for the proper upkeep of the laboratory.		
S.2 The institution has a Maintenance and Repair Department/Unit manned by skilled personnel who provide services on direct call.		

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Indicators	π	MOIS	PM
IMPLEMENTATION			
I.1. The institution keeps the laboratories neat, clean and orderly.			
I.2. Laboratory supplies and materials are regularly replenished/replace whenever applicable.			
I.3. The inventory of laboratory facilities and equipment is systematically and periodically conducted.			
I.4. The institution provides laboratory equipment/instruments are in good condition and are periodically calibrated.			
I.5. Waste disposal if efficiently and effectively managed on campus.			
I.6. The following are properly maintained by trained staff/technicians:			
I.6.1. shops;			
I.6.2. computer laboratory;			
I.6.3. multi-media center/educational technology center;			
I.6.4. research facility; and	_		
I.6.5. general education laboratory;			
I.6.5.1 natural science/physical science			
I.6.5.2 speech laboratory; and			
I.6.5.3 physical education (PE)			
I.6.6 others (please specify)			
OUTCOME/S			
O.1 The laboratories and shops are functional and are properly maintained.			
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Indicators		MOIS	PM
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PARAMETER D: SPECIAL PROVISIONS			
SYSTEM - INPUTS AND PROCESSES	1		
S.1 Specific program requirements (listing of materials and equipment as per			
CMO) are in accordance with guidelines/policies embodied in issuances, e.g.			
CMOs.			
List of required laboratory equipment/apparatuses (The minimum required			
quantity is based on class size of 25)			
S.2 Feedback and Control System Laboratory			
S.2.1 computer workstation (5sets)			
S.2.2 Control system software (5sets)			
S.3 Principles of Communication Laboratory			
and it into proce of Communication Laboratory			
S.3.1. analog DC Ammeter (100 mA DC) (5pcs)			
S.3.2. analog DC Ammeter (zero calculated) (5pcs)			
S.3.3. balanced 3 phase source 220V @60Hz (5units)			
S.3.4. capacitive load 2.2 microfarad (5pcs)			
S.3.5. circuit simulation software (5pcs)			
S.3.6. circuits trainer with power supply (5sets)			
S.3.7. computer (5units)			
S.3.8. DC ammeter (0-100mA)			
S.3.9. function generator (5pcs)			
S.3.10. inductive load 100 mH (5pcs)			
S.3.11. multimeter (5pcs)			
S.3.12. oscilloscope (5pcs)			
S.3.13. potentiometer			
S.3.14. practical inductor (100-200mH)			
S.3.15. pure resistive impedance 3000Ω (5pcs)			
S.3.16. resistive load 100Ω (5pcs)			
S.3.17. resistive load 1000Ω (5pcs)			
S.3.18. resistive load 2000Ω (5pcs) S.3.19. resistive load 470Ω (5pcs)			
S.3.19. resistive load 470Ω (5pcs) S.3.20. resistive load 680Ω (5pcs)			
S.3.21. strain transducer (5pcs)	1		
S.3.22. test bed (5pcs)	1		
S.3.23. variable regulated power supply (5units)			
S.3.24. watt meter (5pcs)	1		
S.4 Electronics 1 & 2			
S.4.1. analog multimeter (5units)			
S.4.2. bread board (5pcs)			
S.4.3. computer board with power supply (5sets)			
S.4.4. digital multimeter (5pcs)]		
S.4.5. F.A.C.E.T base unit (5units)			
S.4.6. FET fundamental circuit board with power supply (5pcs)]		
S.4.7. function generator (5pcs)]		
S.4.8. oscilloscope (5units)]		
S.4.9. semi-conductor device (5pcs)]		

S.5 There is an approved Project Procurement Management Plan (PPMP).	7 1	
S.5 There is an approved Annual Procurement Plan (APP) for laboratory equipment, supplies and materials.	y	
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IMPLEMENTATION		
I.1 The institution implements the special provisions as listed in the CMO.		
OUTCOME/S		
O.1 The special provisions in th CMO of the program are complied with.		
Area	ı Me	ean:

SUMMARY OF RATINGS

AREA IX: LABORATORIES

Parameters			eters Numerical Ratings Descriptiv		
Α	LABORATORIES, FACILITIES	SHOPS	AND		

В	EQUIPMENT, SUPPLIES AND MATERIALS						
С	MAINTENANCE						
D	SPECIAL PROVISIONS						
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		I Ota	al:				
		Mea	an:				
		Wioc	an				
	LEAD ACCREDITOR/S:						