

Preface

Education Division of the ICAR has done an arduous task to have initiated steps to lay down the Minimum Standards of Higher Agricultural Education (MSHAE) in 12 disciplines covering wide spectrum of agricultural educational programs in operation in the country under the patronage of the ICAR. These standards, once in place, will be the guiding principles for a functional institution and for establishing a new college/program to acquire capability / capacity to award quality education in all spheres of agricultural sciences, and also set guidelines toward segregating out the sub-standards institutions / programs from the main stream. Delineation of educational standards is pre-requisite for uniformity in streaming educational norms, enforcing academic discipline and quality output of graduates.

The task before the Committee on VETERINARY EDUCATION was of different dimensions in view of the existing statutory authority- the Veterinary Council of India (VCI) established by GOI and promulgation of Indian Veterinary Council Act, 1984 (IVC, Act) to regulate Veterinary Practice in the country. Under the power vested in Section 22 of the IVC ACT, the VCI has laid down Minimum Standards of Veterinary Education (degree course), Regulations (MSVE) which are in vogue at all the veterinary colleges in India imparting BVSc&AH degree course. The committee while keeping the MSVE, regulations of the VCI in view and on having made in-depth assessment of the existing educational programs and the scenario of PG education (MVSc & Ph.D) in terms of infrastructure, man power and other support system at veterinary colleges/ institutions through (i) information collected by feedbacks received from some veterinary colleges on questioner circulated, (ii) physically seen the facilities at a model veterinary college and (iii) input gathered from the faculty and academic managers, has firmed up implementable recommendations. The committee has also offered some suggestions toward bringing reforms to the existing systems of education in vogue both at UG and PG level for consideration of the regulatory authorities in order to make education more prudent, productive and relevant in present day context under changing world order.

I, on behalf of the entire committee profusely thank the ICAR for having reposed faith in us in assigning this important academic task. Interactions with Dr. Arvind Kumar, DDG (Edu), ICAR and ADG (EQR) were of immense value to the committee. Commitment to this task by Dr. Suresh Honnappagol is evident from the fact that he kept his dates with the committee even after relinquishing the post of ADG (EQR) and joining on the prestigious position of Animal Husbandry Commissioner under GOI. The VC, Dr. C. Renukprasad, Vice Chancellor of KVAFSU, Bidar, and Prof. S. Yathiraj,

Dean, and faculty of Bangalore veterinary college are profusely thanked for having provided much needed input and support during the visit of the committee. Participation of Dr. John Kirubaharan, Professor Microbiology, Madras Veterinary College is thankfully acknowledged. I will be failing in my duty if I do not appreciate the contribution of every member on the committee including Dr. K. L. Khurana, Principal Scientist (EQR) ICAR in the preparation of this valuable document.

Prof. M.P Yadav

Report of the committee

The ICAR constituted the following committee vide its office order. F. No.Edu 5/4/2013-EQR dated October 1, 2013 to work out Minimum Standards of Higher Agricultural Education for Veterinary Education in terms of infrastructure, laboratories/ field facilities, faculty, manpower and other support so as to firm the guidelines for establishing a colleges in SAUs/ SVUs/ DUs/ CAUs.

1. Dr. M.P.Yadav, Former Director IVRI----- Chairman
2. Dr. J.S. Bhatia, Former ADG, Edu, ICAR----- Member
3. Dr. A.C. Varshney, VC, DDVASU, Mathura----- Member
4. Dr. S.A. Asokan, Dean Vet, TANUVAS----- Member
5. DDG,(EDU) ICAR----- Member
6. ADG (EQR) ICAR----- Member Secy.

The committee met as per the following schedule:

1. **Dec.2, 2013** at Education Division ICAR, New Delhi: Preliminary meeting to acquaint the members on the term of reference and working out the methodology for the committee to complete the assigned task. Proceedings of the meeting are placed at Annexure-2
2. **Jan.3-4, 2014** at Veterinary College, KVAFSU, Hebbal, Bangalore: To visit a potential model of a Veterinary College in the country, interact with the faculty and get their feedback. Further, Dean of veterinary college compiled the report from some of the veterinary colleges on the basis of Questionnaire (placed at Annexure 3B) circulated to all veterinary colleges in India. Proceeding of the visit and meeting are placed at Annexure-3A. Information received from some of the colleges is placed at Annexure 3C.
3. **Jan.22, 2014** at Education Division ICAR, New Delhi: Compilation of the report, finalization of recommendations and submission of the report. Recommendations are given at Annexure 1.

The committee had to adopt a differential approach while working out the MSHAE in Veterinary and Animal Science in a situation where the VCI-a statutory authority of the GOI has laid down the Minimum Standard of Veterinary Education (MSVE), Regulations, as per the authority vested to it under IVC Act, 1984. While ensuring faithful implementations of VCI minimum standards (MSVE, Regulations) at Veterinary

Colleges in India, the committee opined that for undergraduate education leading to the award of B.V.Sc & A.H degree course, the provisions made under the IVC Act shall remain the guiding principle for establishing a college in SAUs/ SVUs/ DUs/ CAUs or elsewhere in the country.

Keeping the provisions laid down under the IVC Act and the regulation framed under the Act), the committee worked out the Minimum Standards for PG Education (Master's and Doctorate programs), the recommendations for the same have been placed in the ANNEXURE-1

Dr. S. A. Asokan
Member

Dr. J. S. Bhatia
Member

Dr. A. C. Varshney
Member

Dr. Pradeep K. Sharma
Member Secretary

Prof. M. P. Yadav
Chairman

**Minimum Standards of Higher Agricultural Education (MSHAE)
(Discipline- Veterinary and Animal Sciences)**

After having carefully dwelled over the issues of working out the Minimum Standards of Higher education in the field of Veterinary Sciences, wherein the Govt. of India has created a statutory authority-the VCI to prescribe minimum standards of veterinary education (MSVE) Regulations, under IVC Act, 1984, the committee while giving cognizance to the statutory provisions, made the following recommendations.

Recommendations

A. BVSc&AH degree course

1. The Veterinary Council of India (VCI) –a statutory body of the Central Government is empowered to lay down the Minimum Standards of Veterinary Education –BVSc&AH degree course, Regulations as per the Section 22 of the Indian Veterinary Council Act, 1984(IVC Act). Under the power vested to it, the VCI had laid down MSVE, Regulations, 1993 which were revised in 2008. These regulations are mandatory to be adopted by all veterinary colleges awarding BVSc&AH degree course in the States and UT where the Act has been extended. Since the Central Government through the VCI is empowered to recognize veterinary qualification granted by veterinary institution on the basis of laid down standards, the committee feels that no action is called for in this direction. However, since the VCI/ Central Government has to consult ICAR for bringing any amendment to be made effective to the MSVE, Regulations under section 22 of the Act, the ICAR may send proposals for updating MSVE, Regulations to make it more relevant to the present day context.

B. PG Education (MVSc and PhD)

The committee has thus dealt with the formulation of Minimum Standard of PG education in the field of Veterinary and Animal Sciences while keeping MSVE, Regulations 2008 of the VCI in view.

B.1 It should be considered pre-requisite for the college/university/ institute offering or proposing to start PG programs-MVSc and or PhD (other than exclusive PG institutes) to have in place requisite facilities to impart UG education as per the prescribed standards of VCI. Further, any department/ institution offering PG programs must fulfill the following basic qualifying conditions to be designated as PG department/ institute.

- **Manpower:** Manpower needs must be meticulously calculated. After having satisfied with the teaching needs of UG education on the basis of work load of existing teachers and giving margin for additional load for UG program, rest of the manpower could be utilized for PG education provided one meets the requirement as PG teacher. Additional recruitments should be made to make

the department eligible to be declared as PG department. **PG department** must have at least 3 PG recognized faculty (preferably professor or equivalent and/or associate cadre or equivalent) declared as PG teacher to either teach only PG courses or also have the approval as major advisor for masters/ doctoral program by the University. Further, two of the three PG teachers must be approved major advisor as per university norms. Guideline for approval of PG teacher and guide (major advisor) should be clearly spelt out by the University keeping in view the qualification and experience of the faculty.

- Every department must have a technician/ lab assistant and 2 lab attendant/ helper.
- There should be separate **PG cum research labs** with fairly good facilities for teaching and research. It should contain advanced equipment as per the need of the discipline. Department wise list of some equipment are provided in Appendix. It should be ensured to restrict overlap of activities between UG and PG Labs.
- There should be a separate **seminar hall** with modern teaching aids
- There should be separate allocation of funds for PG education and thesis research to the department/ college.

B.2 Centralized facilities

Further, the following centralized facilities must be in place at the college/ institute. Most of the central facilities listed below are enlisted in the MSVE, regulations, 2008 but institutions offering PG programs are required to strengthen these facilities to facilitate effective PG education and research.

- There should be availability of **experimental animal house** as per CPCSEA Regulations
- **Instructional Livestock Farm Complex (ILFC)** should be equipped to fulfil the needs of PG departments to provide animals and other pre-requisite facilities to conduct thesis research
- There should be availability of **Central Instrumentation facilities** adequately equipped to cater to the education and research needs. It is suggested to place sophisticated equipment in cubicle in air cool environment with un-interrupted power supply to provide a proper working culture. A qualified technician would be preferred to take care of such sophisticated equipment. Desirable list of equipment and other facilities is provided in the appendix.
- The **Central Library** should be adequately equipped with latest books, scientific journals (both of National and International journals of repute). E-library and reprographic facility must be in place. A qualified librarian/ assistant librarian should be available to offer non-credit course in Library Science.
- Availability of **Computer Science laboratory** with Wi-Fi and internet facilities
- Availability of a common **study room** for PG students
- Availability of **PG hostels** (both for boys and girls) preferably single seated. Round the clock wi-fi facilities in the hostel must be ensured.
- The **Teaching Veterinary Clinical Complex (TVCC)** must be fully established with adequacy of indoor and outdoor cases. There should be provisions for

critical care unit, central diagnostic facilities, post mortem complex, animal disposal arrangement, ambulatory services and animal transportation facilities etc. These facilities should be considered mandatory pre-requisites for any of the PG programs in Veterinary Science subjects/ disciplines.

B.3 Academic regulations/ norms

Nomenclature of PG degrees (master's and doctorate), eligibility conditions for admissions, reservation policy, duration of degree course, course contents, course credit load and credit distribution, pass percentage, qualifying grade, examination pattern, thesis evaluation etc. should be as per the ICAR/ University norms. However, the committee recommends the Education division to revisit the following provisions.

- Updating/ modifying the course contents of each discipline by making it more relevant to the national/ regional needs under the umbrella of changing world order. Latest mandate of OIE on veterinary education and animal welfare must be adequately addressed in revised curriculum. Further, needs of user agencies (industries, NGO's entrepreneurs etc.) should not be lost sight during this exercise.
- Room may be kept for adequate flexibility in the curricula to accommodate regional priorities and the strength of the department/ institute. It should be left to the universities to expand the course contents on the basis of its strength in terms of expertise, infrastructure and its responsibilities to fulfil the specific needs. It would be the responsibility of the university to adhere to the laid down objective of the course/ discipline/ degree as per ICAR guidelines.
- Academic regulations may also be modified as and when need arises.
- The committee is the strong view that there is a need to introduce Comprehensive external examination (written and oral) on completion of course work both at MVSc and Ph.D level.
- The following shall be the nomenclature of PG degree programmes
 1. Animal Biotechnology (ABT)
 2. Animal Genetics and Breeding (AGB)
 3. Animal Husbandry Economics (AEC)
 4. Animal Nutrition (ANN)
 5. Animal reproduction, Gynaecology and obstetrics (VOG)
 6. Bio-Statistics (BST)
 7. Livestock Production and Management (LPM)
 8. Livestock Products Technology (LPT)
 9. Poultry Science (PSC)
 10. Veterinary Pathology (VPP)
 11. Veterinary Anatomy and Histology (VAN)
 12. Veterinary and Animal Husbandry Extension (AHE)
 13. Veterinary Biochemistry (VBC)
 14. Veterinary Clinical Medicine (VCM)
 15. Veterinary Preventive Medicine (VEP)

16. Veterinary Microbiology (VMC)
17. Veterinary Parasitology (VPA)
18. Veterinary Pharmacology & Toxicology (VPT)
19. Veterinary Physiology (VPY)
20. Veterinary Epidemiology & Public Health (VPH)
21. Veterinary Surgery and Radiology (VSR)
22. Wild Life Sciences (WLS)

NB: The University may introduce any other programme as per need.

B.4. Student Intake Capacity.

The student intake capacity will depend on availability of faculty and facilities.

The conditions to govern Intake are;

- An approved PG guide can maximally guide 3 MVSc or 2 PhD and 1 MVSc or 2 MVSc and 1 PhD students at any point of time.
- University/ college can utilize the services of qualified scientists from sister scientific organizations (ICAR, CSIR, Line departments etc.) for teaching PG courses or guiding thesis research provided University have approved them on PG faculty and have developed MOU with the sister organization in this context.
- Sufficient contingent grants are available with the department/ college to impart PG teaching, training and research.
- Desired experimental animals and other requisite materials are made available to the student.

B.5 Departments

There should be at least 15 UG departments besides, TVCC and ILFC as per the VCI norms. All those departments which have been declared PG departments on fulfillment of laid down conditions by the University can be considered to offer PG program. University can create more departments (UG and or PG) as per the university need. However, the university must appraise accreditation section of Education Division (ICAR) on creation of new department or initiation of new PG program. Such departments will qualify for development grant of ICAR only when it accords its approval.

- A department can offer PG course in more than one discipline. However, it has to ensure availability of qualified faculty in that particular discipline.
- Integrated PG courses between departments may be formulated. Modalities and responsibilities of concerned departments should be clearly spelt out.

B.6. Some guideline for exclusive PG institutes

Mandate of PG teaching cum research institute should encompass on holistic teaching in all disciplines under veterinary, animal sciences and allied sector at PG level, conducting advanced basic and applied research, extension education and innovative transfer of technological practices etc. All departments/ divisions must exist at the institute covering wide spectrum of Veterinary and

Animal Sciences activities. Each department must be provided with a minimum of 4 PG faculty members including Professor/Associate Professor/Assistant Professor. The faculty should exclusively be approved PG teachers and preferably be specialists from different disciplines of the departments. Other conditions with respect to administrative, financial & technical staff, and infrastructure, as detailed for PG education in the veterinary colleges, should be applicable for PG institutes.

B.7 Other relevant recommendations for imparting quality education are:

- **Financial assistance to Post graduates.** It must be ensured that all post graduate students should be given adequate fellowship, stipend, and scholarship. The feasibility to extend or award NTS to PG students may be explored. Additional investment in form of financial assistance to post graduates will not only attract meritorious students to pursue higher education but will bridge the gap of human resource deficient in this sector especially at teaching and scientific organizations.
- A provision may be made to recruit meritorious graduates to **teaching/ research associates** or as residents for clinical subjects as in vogue in medical profession. They should be allowed to pursue higher education as in-service candidates.
- In order to **reduce in- breeding** there should be a definite policy to discourage teachers/ scientists who have all the three degrees from the same institute at the time of recruitment in the universities/institutes.
- Liberal grants for construction of PG and **International hostels** to the University/ Colleges should be made available.
- The universities may explore the feasibilities of creating **new departments/ divisions** in emerging disciplines such as bio-technology, bio-statics, livestock economics and marketing etc. and structuring Post graduate education in new and emerging disciplines.
- **Linkages** with other universities and scientific institutions in India or abroad are the need of the hour, deserving encouragement.
- The committee suggests that there should be flexibility to the colleges/universities in relocating the faculty within the different disciplines looking into the need.
- The TVCC needs to be further strengthened in terms of human resource to cater to the Veterinary health coverage as per the regional requirements.
- The extension activities need to be further strengthened in terms of human resource.

Infrastructure (Laboratories, equipment and other desirable facilities)

Minimum Equipment requirement for every PG degree programme

Besides having facilities in terms of laboratories, equipment, livestock, laboratory animal and other pre-requisites as provided in MSVE, Regulations 2008, it has been considered necessary to have separate PG teaching cum research laboratory/facilities in each department. Lay out of the lab and its dimensions should commensurate to PG teaching and research needs. There should be ample space available to properly house equipment having assured basic amenities and adequate working space for the students. Adequate experimental animal laboratory/facilities must be in place where ever these are needed.

The table provides department wise list of equipment that are generally needed to cater to the PG teaching and research needs. However, the availability of requisite facilities including equipment, animals etc. are required to be assured at the time of allocating research problems to a student.

No .	PG Degree	PG Lab(s)	Equipment	Other facilities
1.	Animal Biotechnology	Molecular biology Lab	1. Thermocycler 2. Real time PCR 3. Gel Documentation unit 4. Biosafety cabinets 5. Fermenters 6. Research microscope with accessories 7. Freezers 8. Electrophoresis units 9. DNA sequencer (Optional) 10. Flow cytometer (Optional)	Modern laboratory Preferably air conditioned. Cubicle set up suggested.
2.	Animal Genetics and Breeding	Molecular genetics lab Cytogenetics	1. Biosafety cabinet 2. Real Time Thermocycler 3. Thermocyclers 4. Gel documentation unit 5. Centrifuges	

No .	PG Degree	PG Lab(s)	Equipment	Other facilities
			6. Spectrophotometer 7. Electrophoresis unit 8. Freezers 9. Compound microscope with camera attachment 10. Millipore distillation plant 11. High end computers for data analysis	
3.	Animal Husbandry Economics	One	1. High end computers for data analysis	
4.	Animal Nutrition	One	1. Atomic absorption spectrophotometer (Optional) 2. Gas chromatography (Optional) 3. Kjeldahl apparatus 4. Deep freezers 5. Fibretech 6. Soxtech 7. HPLC (Optional) 8. UV-vis-spectrophotometer 9. Bomb calorimeter 10. Metabolic cages for cattle, sheep, pig and poultry	Feed Processing Unit 1. Pellet mill 2. Feed block making machine
5.	Animal Reproduction, Veterinary Obstetrics and gynaecology	One	1. Differential phase contrast microscope 2. Stereo zoom microscope 3. Ultra sound Doppler – color 4. Centrifuges (different speed) 5. Micro manipulator (Optional) 6. Co2 incubator (Optional)	Operation theatre – 2 Nos
6.	Bio-Statistics	One	1. High end computers for data analysis	-
7.	Livestock	One	1. High speed centrifuge	Research Farm

No	PG Degree	PG Lab(s)	Equipment	Other facilities
.	Production Management		(Optional) 2. UV spectrophotometer 3. Anaerobic fermenter 4. HPLC (Optional) 5. Lyophilizer (Optional) 6. Freezer	(Shared with Poultry Science Dept.) 1. Commercial layer house 2. Commercial broiler house 3. Laboratory animal facilities 4. Facilities for farm like silos, hay stack, water tank etc.
8.	Livestock Products Technology	Product Processing Lab Milk quality control lab Wool lab	1. Carcass splitter 2. Microscope 3. Electrophoresis system 4. ELISA Reader 5. Processing equipment like extruder, pellet maker, canner etc.	1. Refrigeration room 2. Freezer room 3. Slaughter hall 4. Milk Plant (Optional)
9.	Poultry Science		1. Fibretech 2. Soxtech 3. Metabolic cages	1. Farm facilities to be shared with LPM department. 2. Slaughter facilities to be shared with LPT
10.	Veterinary Anatomy and Histology	Gross anatomy lab Histology lab	1. Microtome 2. High end research microscope 3. Cryostat 4. Dissection table with shadow less light 5. Body cutting machine	1. Cold room
11.	Veterinary and Animal Husbandry Extension	Audio visual labs	1. Multimedia projector with laptop 2. Panel board 3. Flanner graph board 4. Interactive board	

No .	PG Degree	PG Lab(s)	Equipment	Other facilities
			5. Digital camera (Video and stills) 6. Tabs for data collection	
12.	Veterinary Biochemistry	One	1. Double beam spectrophotometer 2. Thermal cycler 3. Real time PCR (Optional) 4. High Speed cooling centrifuge (Optional) 5. Gel documentation system 6. Electrophoresis system 7. 2D Electrophoresis system (Optional) 8. Nanodrop and biochemical analyzer (Optional) 9. Chromatography unit with fraction collector (Optional)	
13.	Veterinary Clinical Medicine	One	1. Vital signs monitor 2. Endoscope 3. Oxygen therapy unit 4. Ventilator 5. ECG apparatus 6. ECHO – Color Doppler 7. MRI Unit (Optional) 8. CT scan (Optional)	
14.	Veterinary Microbiology	Research Lab Biosafety Lab	1. Thermocycler 2. Real time PCR 3. ELISA reader 4. Nano drop 5. Ultra centrifuge 6. Confocal microscope (Optional) 7. Freezers 8. Research microscope with attachments 9. BSL facilities 2 and 3 10. CO2 incubator	1. Centralized tissue culture facility
15.	Veterinary Parasitology	Clinical Parasitology Immunology	1. Research Binocular Microscope with attachments	

No .	PG Degree	PG Lab(s)	Equipment	Other facilities
		and molecular biology lab	2. Centrifuges 3. Ultra Centrifuge (Optional) 4. CO2 Incubator (Optional) 5. Shaking Incubator 6. Laminar Flow 7. Freezers 8. Gradient Thermal Cyclor 9. Electrophoresis system 10. ELISA Reader (Optional) 11. UV/VIS Spectrophotometer (Optional)	
16.	Veterinary Pathology	Histopathology lab Molecular Pathology Clinical Pathology	1. Automatic slide processing unit and stainer (Optional) 2. Automatic Microtome 3. Cryostat 4. Staining Unit/Auto stainer 5. Freezers 6. High end research microscopes 7. Thermocycler 8. Real time PCR machine (Optional) 9. Centrifuges 10. Gel documentation unit (Optional) 11. Electrophoresis unit 12. Auto analyser 13. Haematology autoanalyzer	1. Cold room
17.	Veterinary Pharmacology and Toxicology	One	1. Spectrophotometer 2. Autoanalyzer 3. Student physiograph with organ bath 4. Thin layer chromatography 5. HPLC (Optional) 6. Plethysmometer	

No .	PG Degree	PG Lab(s)	Equipment	Other facilities
18.	Veterinary Physiology	PG Research Lab Lab animal research cubicle	1. Biochemical autoanalyzer 2. Haemology autoanalyzer 3. Spectrophotometer 4. Electronic balance 5. pH meter 6. Rat cages 7. Rabbit cages 8. Microscope with TV attachment 9. ECG instrument	
19.	Veterinary Preventive Medicine	One	1. ELISA Reader and Washer 2. Thermocycler 3. Geldoc system 4. High speed centrifuge with accessories 5. High end microscope with dark field and fluorescent attachment 6. BSL 2 and 3 Laminar air flow	
20.	Veterinary Epidemiology and Public Health	One	1. ELISA Reader and Washer 2. Thermocycler 3. Geldoc system 4. High speed centrifuge with accessories 5. High end microscope with dark field and fluorescent attachment 6. BSL 2 and 3 Laminar air flow 7. High end computer	
21.	Veterinary Surgery and Radiology	One	1. Small animal anaesthetic apparatus with ventilator 2. Large animal anaesthetic apparatus with ventilator 3. X Ray machine 4. Ultrasound and other imaging instruments	

No .	PG Degree	PG Lab(s)	Equipment	Other facilities
			5. Orthopaedic, ophthalmic and dental instruments 6. Operation tables	
22.	Wild Life Sciences	One	1. Binocular microscope 2. Centrifuges 3. Transponder applicator and reader 4. Restraint cages for different animals	

Central Instrumentation Facilities (CIF)

Use of equipment that can be extended to different disciplines/ departments should be clubbed under Central Instrumentation Facilities (CIF). Benefit of such facilities should be allowed to percolate across the departments. Some of the pre-requisite facilities in CIF include;

1. Microscopic unit

It must have all types of microscopes including phase contrast, dark field, inverted, UV, stereo-zoom, fluorescent etc. It is desirable to have a transmission electron microscope in the college/ University. Micro-photographic attachment and projection facilities are needed.

2. Histo-pathology Unit

Should have complete histo-pathological tissue processing facilities including cryostat microtome, tissue flotation bath and other tissue process and staining units

3. Analytical equipments

Colorimeters, Spectro-photometers visual and UV, densitometer Atomic absorption spectrophotometer, Gas chromatograph, flame photometer, HPLC, auto-analyzers, PCR, electrophoresis units, ELISA reader etc.

4. Centrifuges

All types of centrifuges including refrigerated, ultra/ high speed/ cooling.

5. Freezing units

Deep freeze, ultra centrifuges and freeze dryer

6. Weighing balances

Mono-pan, electronic, digital

7. Incubators

All types including BOD, CO₂, Shaking incubator

8. Centralized distillation and de-ionizer facilities

9. Miscellaneous group of equipment includes, pH meter, laminar flow,, water baths, autoclave, hot air oven, polygraph

10. Ice making machines

11. Water baths – Digital and Shaking water bath

12. PCR facility – This facility may have two or three gradient PCR, one real time PCR, two or three electrophoresis units and gel doc system

- Any equipment or facility enlisted in the department and its use is extendable to other department than such facility becomes a part of CIF
- Till departments equip themselves with equipment mentioned for them, the same equipment if mentioned here may be considered as that for the department for accreditation purpose.