UNIVERSITY OF KARACHI

Self-Assessment Report

DR. A.Q.KHAN INSTITUTE OF BIOTECHNOLOGY AND GENETIC ENGINEERING (KIBGE)

M.PHIL PROGRAMME

Submitted to

Quality Enhancement Cell
University of Karachi

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INTRODUCTION

As the future of scientific success grows from past history and is reflected in the present efforts, one of the reflections is the creation of Dr. A. Q. Khan Institute of Biotechnology and Genetic Engineering (KIBGE), University of Karachi. KIBGE is the internationally oriented center for modern biological sciences and higher education at the University of Karachi. KIBGE was established through Dr. A. Q. Khan High Technology Trust. The statutes of KIBGE were formally approved by the Senate of the University of Karachi in December, 2006. The institute broadly aims to impart training in modern day biological sciences, biotechnology and genetic engineering. The main scientific focus of the institute is dissemination of hi-tech training using modern technology and wide range of innovative research projects in health, industrial, environmental and agriculture sectors to improve the economic well-being of the citizens of Pakistan. The Institute strives to become an educational institution of international standing entrusted with the responsibility of conducting basic and applied research and imparting education in modern biotechnology and genetic engineering.

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Director General

KIBGE, University of Karachi

CRITERION-1

PROGRAMME MISSION, OBJECTIVES AND OUTCOMES

Criterion-1: Program Mission, Objectives and Outcomes

Institutional Mission

Dr. A. Q. Khan Institute of Biotechnology and Genetic Engineering (KIBGE), University of Karachi, aims to impart training in modern day biological sciences; biotechnology and genetic engineering. The institute is engaged in dissemination of hi-tech training using modern technology to improve the economic well-being of the citizens of Pakistan by means of technological innovations in health, environmental, industrial and agriculture sectors. KIBGE has a purpose-built research complex constructed at 25 acres of land. KIBGE is an educational institution of international standards, entrusted with the responsibility of conducting basic and applied research imparting education in modern biological and biomedical sciences.

Program Mission Statement

The institute has become an educational institution of international standing entrusted with the responsibility of conducting basic and applied research and imparting education in modern biotechnology and genetic engineering. KIBGE provides talented young students and researchers an ideal environment for innovative research, interdisciplinary training and confidence in independent research.

Standard 1-1: The Program must have documented measurable objectives that support college and Institution mission statements.

KIBGE provides students a platform for achieving outstanding scientific level with wide-ranging certified biotechnological skills. The curriculum guarantees biotechnological specialization on a wide basis ranging from research communication skills to research and development. Prerequisite for PhD is a pertinent M.Phil degree from an HEC recognized university with at least second division in one of the disciplines of biology; biochemistry, biotechnology, botany, genetics, microbiology, physiology, zoology or equivalent qualification. Objectives and aims of the courses are mentioned below.

- **Research Methodology: KIBGE- 701:** Philosophy of Science: Literature Review, Research Objectives, Research Hypotheses; Types of Research Methods. Design of experiments. Research proposal Scientific record keeping. Research ethics. Research misconduct and Research paper writing.

- **Bioinformatics-I KIBGE-702**

  Essential Basics of Computers, Introduction to Bioinformatics, Introduction to Structural bioinformatics, Protein Data Bank. Structure Classification (SCOP and CATH), Protein/Ligand Docking, Molecular Dynamics.

- **Tools and Techniques of Genetic Engineering KIBGE-703**

  Introduction to Advanced Molecular Biology, rDNA Technology, Cloning Vectors, Gene Cloning and Gene Libraries, Gene Expression Systems, Rational for Genetic Engineering, Genomics and Proteomics, Methods of Genetic Transformation, GM Crops, Transgenic Plants and Animals. Gene Therapy, Cancer Gene Therapy. DNA Finger Printing or DNA Profiling: RFLP as a Diagnostic Tool.

- **Human Molecular Genetics KIBGE- 706**

  Human Genome Structure and Function. Genome Organization. Genetic and Physical Mapping. The Human Genome Project. Gene Regulation. Gene and mRNA Splicing. Control of Gene Expression. Molecular Diagnosis of Human Diseases, Genetics of Host Resistance. Pathogens, Genetic Diagnostics and Gene Therapy. Introduction to Developmental Genetics, Cancer Genetics, Immunogenetics, Neurogenetics, Population Genetics.

- **Biosafety, ethics and regulatory affairs, KIBGE-704**

  Ethics and Bioethics, Ethical and Legal Issues Surrounding GM Foods. Regulatory Issues. Guidelines/Regulations. Guidelines for Laboratory Work. Guidelines for Field Work. Genetically Modified Functions of Various Biosafety Committees. Format of Project Proposals to Undertake Field Trails. Microorganism as Live Vaccines.

- **Introduction to Plant Biotechnology, KIBGE-705**

  Historical Background. Plant Life and Local Flora. Special Problems in Plant Biology. Economic Importance Requirements for *in-vitro* Cultures. Tissue Culture Laboratory: Maintenance of Aseptic Environment. Types of Cultures: Tissue Culture, Protoplast Culture. Application of Plant Cell, Tissue and Organ Cultures. Commercial Applications. Plant Conservation Studies. Culture Banks, Cryopreservation. Plant Structure and Diversity. Molecular Basis of Plant growth and Metabolism.

- **Industrial and Environmental Biotechnology KIBGE-707**

  Introduction to Bioremediation, Production of Fine Chemicals and Vaccines. Fermentation Technology, Industry. Genetic Manipulation. Bioprocesses and Enzyme Technology. Cell Culture Technology. Biological Waste Water Treatment, Microbial Bioprospecting and Population. Analysis. Detection and Genotyping of Microorganisms, Strategies for Life and Metabolic Application of Extremophilic Organisms. Plant-growth Promoting Rhizobacteria, Secondary Metabolites with Antifungal Activities, Biosurfactans. Microbial Ecotoxicology and Environmental Quality. Aquaculture microbiology: Identification and biology of taste-and-odor producing bacteria in fish ponds and their impact on fish quality.

- **Bioinformatics II KIBGE-709**

  Advancement in bioinformatics, practice on software and languages used in this field.

- **Biostatistics KIBGE-711**

  Variables, Measures of Central Tendency, Measures of Dispersion, Parameters and Estimators, Descriptive Statistics and Interpretations, Sampling Techniques, Selection of Appropriate Sampling Technique, Sample Size Selection, Probability Theory, Discrete and Continuous Variables Introduction to Binomial and Poisson Distribution,Testing Normality of Data**,** Hypothesis Testing Chi Square Distribution Introduction,testing Independence and Association. Regression Analysis. Fitting Linear Models (Simple & Multiple) Testing regression coefficients. Model Diagnostic Testing. SPSS Output Interpretation, Assumptions and Applications of ANOVA, One Way ANOVA, ANOVA with MINITAB, Introduction to CRD and RBD. Factorial Experiments, Multivariate Analysis, Dimension Reduction PCA. Cluster Analysis- Introduction to Discrimination/ Discriminant Analysis.

- **Effective Research Communication Skills KIBGE- 712.**

  Introduction to Presentation Skills, Scientific writing, Pronunciation, Grammar and summarize.

Table: Program Objectives Assessment

S. No.	Objectives	How Measured	When Measured	Improvement Identified	Improvement Made
1	**Research Methodology: KIBGE-701.** Philosophy of Science: Literature Review, Research Objectives: Research Hypotheses; Types of Research Methods. Design of experiments. Research proposal Scientific record keeping. Research ethics. Research misconduct Research paper writing.	Examinations of 100 marks taken to evaluate the students, 75% attendance is mandatory to appear in the exams	Examinations conducted at the end of first semester	Students are well versed with the hypothesis, design, research and record keeping techniques	Students design and conduct their research. They are capable of drafting their synopsis after literature review and study design.
2	**Bioinformatics-I KIBGE-702** Essential Basics of Computers, Introduction to Bioinformatics, Introduction to Structural bioinformatics, Protein Data Bank. Structure Classification (SCOP and CATH), Protein/Ligand Docking, Molecular Dynamics	Examinations of 100 marks taken to evaluate the students, 75% attendance is mandatory to appear in the exams	Examinations conducted at the end of first semester	Student get deeper knowledge of programming and computer software	Student are capable to use the biological software according to their research needs.
3.	**Tools and Techniques of Genetic Engineering KIBGE-703** Introduction to Advanced Molecular Biology, rDNA Technology, Cloning Vectors, Gene Cloning and Gene Libraries, Gene Expression Systems, Rational for Genetic Engineering, Genomics and Proteomics. Methods of Genetic Transformation. GM Crops. Transgenic Plants and Animals. Gene Therapy, Cancer Gene Therapy. DNA Finger Printing or DNA Profiling: RFLP as a Diagnostic Tool.	Examinations of 100 marks taken to evaluate the students, 80 marks are allocated for theory and 20 marks for labs. 75% attendance is mandatory to appear in the exams.	Examinations conducted at the end of first semester.	Student became more familiarize with the genomic experiments and after preforming the independent lab experiments	This course gives an insight of how to design their own experiments for their research

4	**Human Molecular Genetics KIBGE- 706** Human Genome Structure and Function. Genome Organization. Genetic and Physical Mapping. The Human Genome Project. Gene Regulation. Gene and mRNA Splicing. Control of Gene Expression. Molecular Diagnosis of Human Diseases, Genetics of Host Resistance. Pathogens, Genetic Diagnostics and Gene Therapy. Introduction to Developmental Genetics, Cancer Genetics, Immunogenetics. Neurogenetics. Population Genetics.	Examinations of 100 marks taken to evaluate the students, 80 marks are allocated for theory and 20 marks for labs. 75% attendance is mandatory to appear in the exams.	Examinations conducted at the end of first semester		
5	**Biosafety, ethics and regulatory affairs, KIBGE-704** Ethics and Bioethics, Ethical and Legal Issues Surrounding GM Foods. Regulatory Issues. Guidelines/Regulations. Guidelines for Laboratory Work. Guidelines for Field Work. Genetically Modified Functions of Various Biosafety Committees. Format of Project Proposals to Undertake Field Trails. Microorganism as Live Vaccines.	Examinations of 100 marks taken to evaluate the students, 75% attendance is mandatory to appear in the exams	Examinations conducted at the end of second semester	Student get the deepen knowledge of biosafety, guidelines and frame of lab experiments	This course creates awareness of biosafety, risk assessment and good laboratory practices.

6	**Introduction to Plant Biotechnology, KIBGE-705** Historical Background. Plant Life and Local Flora. Special Problems in Plant Biology. Economic Importance Requirements for *in-vitro* Cultures. Tissue Culture Laboratory: Maintenance of Aseptic Environment. Types of Cultures: Tissue Culture, Protoplast Culture. Application of Plant Cell, Tissue and Organ Cultures. Commercial Applications. Plant Conservation Studies. Culture Banks, Cryopreservation. Plant Structure and Diversity. Molecular Basis of Plant growth and Metabolism.	Examinations of 100 marks taken to evaluate the students, 80 marks are allocated for theory and 20 marks for labs. 75% attendance is mandatory to appear in the exams.	Examinations conducted at the end of second semester	Student are well versed with the plant biotechnology, its importance and use in agriculture	After studying the course the student design their research in the benefit of agricultural importance.
7	**Industrial and Environmental Biotechnology KIBGE-707** Introduction to Bioremediation, Production of Fine Chemicals and Vaccines. Fermentation Technology, Industry. Genetic Manipulation. Bioprocesses and Enzyme Technology. Cell Culture Technology. Biological Waste Water Treatment, Microbial Bioprospecting and Population. Analysis. Detection and Genotyping of Microorganisms, Strategies for Life and Metabolic Application of Extremophilic Organisms. Plant-growth Promoting Rhizobacteria, Secondary Metabolites with Antifungal Activities, Biosurfactans. Microbial Ecotoxicology and Environmental Quality. Aquaculture	Examinations of 100 marks taken to evaluate the students, 80 marks are allocated for theory and 20 marks for labs. 75% attendance is mandatory to appear in the exams.	Examinations conducted at the end of second semester	Students are introduced with this branch of biotechnology, its economic values and impact on environment.	This course broaden their vision and those interested can design their future project in this field of biotechnology

	microbiology: Identification and biology of taste-and-odor producing bacteria in fish ponds and their impact on fish quality.				
8	**Bioinformatics II KIBGE-709** Advancement in bioinformatics, practice on software and languages used in this field	Examinations of 100 marks taken to evaluate the students, 80 marks are allocated for theory and 20 marks for labs. 75% attendance is mandatory to appear in the exams.	Examinations conducted at the end of second semester	As mention for Bioinformatics I	As mention for Bioinformatics I
9	**Biostatistics KIBGE-711** Variables, Measures of Central Tendency, Measures of Dispersion, Parameters and Estimators, Descriptive Statistics and Interpretations Sampling Techniques Selection of Appropriate Sampling Technique Sample Size Selection Probability Theory, Discrete and Continuous Variables Introduction to Binomial and Poisson Distribution Testing Normality of Data Hypothesis Testing Chi Square Distribution Introduction Testing Independence and Association. Regression Analysis. Fitting Linear Models (Simple & Multiple) Testing regression coefficients. Model Diagnostic Testing. SPSS Output Interpretation, Assumptions and Applications of ANOVA, One Way ANOVA, ANOVA with MINITAB, Introduction to CRD and RBD.	Examinations of 100 marks taken to evaluate the students, 80 marks are allocated for theory and 20 marks for labs. 75% attendance is mandatory to appear in the exams. Periodically assignments have been given to the students to evaluate understandings	Examinations conducted at the end of second semester	Student are taught the basic and essential knowledge of statistics in this course to imply them on their study designs as well as this course offers them to discuss their scientific data problem and resolve them	Student are friendly to share their data and interpretation problems testing their hypothesis and conclude results.

	Factorial Experiments, Multivariate Analysis, Dimension Reduction PCA. Cluster Analysis- Introduction to Discrimination/ Discriminant Analysis.				
10	**Effective Research Communication Skills KIBGE-712.** Introduction to Presentation Skills, Scientific writing, Pronunciation, Grammar and summarize.	Examinations of 100 marks taken to evaluate the students, 80 marks are allocated for theory and 20 marks for labs. 75% attendance is mandatory to appear in the exams. Periodically assignments have been given to the students to evaluate understandings	Examinations conducted at the end of second semester	Student are taught how scientific style of English is presented	Students have implemented and seen marked difference in their writing and speaking during presentation after the course.

Standard 1-2: The program must have documented outcomes for graduating students. It must be demonstrated that the outcomes support the program objectives and that graduating students are capable of performing these outcomes.

PROGRAM OUTCOMES

After completing of the M.Phil. in Biotechnology the students shall be able to choose variety of career opportunities ranging from research and development, medicine education, sales and marketing, manufacturing and quality control and assurance with biotechnology industry flourishing worldwide. The total number of biotechnology companies is increasing, with concomitant increase in the employment opportunities in biotechnology. Within each area of the biotechnology industry are several different job functions and often a career path. Biotechnology industry segments include agriculture, food sciences, bioinformatics, biomedical sciences, pharmaceutical sciences, forensic DNA analyses, nutraceuticals, nanotechnology etc.

Standard 1-3: The results of program's assessment and the extent to which they are used improve the program must be documented.

a) Strengths and Weaknesses of the Program

i) Strengths:

The greatest strength of M.Phil. Program at KIBGE are its environment, faculty, timely completion and courses as mentioned above in the table of program objectives assessment, lab facilities. International standard functional labs and setup optimized basic protocols and environment groom and flourish the students at KIBGE. Above all the major strength is regularity and punctuality that creates an environment to accomplish the degree in the time span. The average duration for the award of PhD degree of the students of KIBGE has been three-and-a-half to four years. The faculty is also present full time to support and help students facing problems during their research work, manuscript writing and dissertation writing.

ii) Weaknesses

The admission procedure should be accomplish in lessen time. BASR meeting should be held regularly to address and resolve the issue during the course work. There should be a fast track method for getting comments from foreign reviewers in given time frame.

b) Future Development Plans

A team support from University of Karachi will reduce the duration of PhD up to three years.

An environment favorable for PhD research is necessary by providing adequate research funding, quality academic support, good mentorship, sufficient research resources and financial support.

Standard 1-4: The department must assess its overall performance periodically.

Since its inception in 2006, average duration for the award of PhD degree of the students of KIBGE has been three-and-a-half to four years and till date 42 PhDs have received their degrees.

Currently 38 students are enrolled in MS/MPhil/PhD Program. Most of the students enrolled in M.Phil. program had conversion for the Ph.D.

a) Student Enrollment

Year	Enrollment	Awarded
2011		1
2012	23	
2013	3	
2014	15	2
2015	10	1

b) Student/Faculty Ratio

The institute has 01 Meritorious Professor, 01Professor Emeritus, 16 Visiting Faculty, 01 Associate Professor, and 08 Assistant Professors to supervise 38 MS/MPhil/PhD Students. In average two students are supervised by one supervisor.

c) **Time for M.S**

The average duration for the award of M.Phil. degree of the students of KIBGE has been two/ two-and-a-half years. One year for course work and other for research work.

d) The average student grade point (CGPA)

The average student grade point of the students is 3.0 or more

e) Student/Faculty Satisfaction

The survey conducted by KIBGE among students and faculty conclude that students are satisfied from the faculty.

CRITERION-2

CURRICULUM DESIGN AND ORGANIZATION

Criterion-2 Curriculum Design and Organization

Program of Studies offered

Year / Semester wise Scheme of Studies of M.Phil. Program

1st Year (Semester I)

S. No	Course Code	Course Title
1	701	Research Methodology
2	702	Bioinformatics I
3	703	Tools and Techniques of Genetic Engineering
4	706	Human Molecular Genetics

1st Year (Semester II)

S. No	Course Code	Course Title
1	704	Biosafety, Ethics and Regulatory Affairs
2	705	Introduction to Plant Biotechnology
3	707	Industrial and Environmental Biotechnology
4	709	Bioinformatics II
5	711	Biostatistics
6	712	Research Communication Skills

Standard 2-1: The Curriculum must be consistent and support the program's documented objectives

The following table manifests how the program content (Courses) meets the Program Objectives.

Courses	**Program's Objectives**			
	1	**2**	**3**	**4**
Major Courses	701	707	704	706
Elective Courses	N/A	N/A	N/A	N/A
Practical (Field and Lab)	702	705	703	706
Thesis/Dissertation	712,709	711		

Standard 2-2: Theoretical background, problem analysis and solution design must be stressed within the program's core material.

The following table indicates the elements covered in core courses:

Elements	**Courses**
i) Theoretical Background	701, 702,703,704,705,706,707,709,711,712
ii) Problem Analysis	701,702,703,706,709
iii) Solution Design	704,707,711,712

Standard 2-3: The curriculum must satisfy the core requirements for the program, as specified by the respective accreditation body.

The curriculum of the M.Phil. is according to criteria defined by Higher Education Commission for PhD.

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Standard 2-4: The curriculum must satisfy the major requirements for the program, as specified by the respective accreditation body/council.

The curriculum of the M.Phil. completely satisfies Higher Education Commission in terms of M.Phil. course work, credit hours and research work criteria as per rule.

2-5: The curriculum must satisfy the general education, arts and other discipline requirements for the Program as specified by the accreditation body.

The curriculum of the M.Phil. has satisfy and been approved by DRC, BASR and Senate of the University of Karachi.

Standard 2-6: Information technology component of the curriculum must be integrated throughout the program.

In KIBGE, Research Skills Development, Bioinformatics and Biostatistics courses are organized regularly which are open to all students. PhD students at KIBGE also take full benefit from these courses.

Standard 2-7: Oral and written communication skills of the student must be developed and applied in the program.

Research communication skills course (712) is organized in KIBGE as part of MPhil program students take part in it and given a certificate of attendance after course completion. This course is design to build in their capacity of speaking and writing English in scientific manner.

CRITERION-3

LABORATORY AND COMPUTING FACILITIES

CITERION-3: Laboratory and Computing Facilities

Laboratory Facilities

KIBGE has state-of-the-art laboratory facilities in the field of biotechnology, molecular biology and genetic engineering. The infrastructure of the institute has been developed according to the needs and requirements of innovative and advanced research. The laboratory equipment's are comparable with any world's top ranking university and laboratory. Following laboratory equipment's and facilities are present in different section of KIBGE.

Agriculture Biotechnology section contains:

Genetic Transformation Lab (Agro-mediated, Biolistic, Heat Shock, Electroporation), Plant cell and tissue culture facility, Gene analysis Lab (Southern Blotting, Western Blotting), Plant Growth Room and Chambers, DNA extraction Lab, Molecular Systematics, Micropipettes sets, Electrophoresis and Documentation Lab, SDS PAGE, Refrigerators, Orbital Shakers, PCR, ELISA and Autoclave.

Industrial Biotechnology section contains:

Horizontal and Vertical Gel Electrophoresis Assemblies, 2-D electrophoresis Assembly, Gel Documentation System, Laminar Safety Cabinets, Fume Hoods, Liquid Nitrogen Inventory System, Refrigerators,-20 and -80 Freezers, Distillation and Deionization Units, Micropipettes sets, Chromatography Units, Capillary Electrophoresis Units and Hybridizer.

Medical Biotechnology section contains:

DNA Sequencer, DNA Synthesizer, Ultracentrifuge, High Speed Centrifuge, Multiblock and Standalone PCR, Real Time PCR, Cytovision, Horizontal and Vertical Gel Electrophoresis Assemblies, 2-D electrophoresis Assembly, Gel Documentation System, Laminar Safety Cabinets, Micropipettes set Fume Hood, CO_2 Incubators, Refrigerators, -20 and -80 Freezers, Liquid Nitrogen Inventory System, Autoclave, Distillation and Deionization Units.

Computer Facilities

Computers are provided to the PhD students to facilitate their write up, along with this laptop scheme has provided laptops to all Ph.D. students. There are also computers available for students in the library of KIBGE.

Internet Facility

High speed internet facility is available at KIBGE which has open access to all students, guests and visitors.

Standard 3-1: Laboratory manuals/ documentation instruction for experiments must be available and readily accessible to faculty and students

Laboratory manuals, history book, log books, documentation and instruction for experiments are available in the respective laboratory and readily accessible to all faculty and students.

Standard 3-2: There must be adequate support personnel for instruction and maintaining the laboratories.

Each section of KIBGE has one incharge and in each laboratory has one responsible person who has adequate knowledge about all the instruments of respective section and/or laboratory.

Standard 3-3: The University computing infrastructure and facilities must be adequate to support program's objectives

i) Computing Facilities

As mentioned above in computer facilities.

ii) Multimedia

Lecture halls of KIBGE are well equipped with projector, microphone, air-conditioners, sound system, screens and cameras.

iii) Website

KIBGE has an updated website http://kibge.edu.pk/

iv) Internet

As mentioned above in internet facilities.

CRITERION-4

STUDENT SUPPORT AND ADVISING

Criterion-4 Student Support and Advising

Standard 4-1: Courses must have been offered with sufficient frequency and number for students to complete the program in a timely manner.

Program	Classes per Week	Practical Classes per Week	Research Guidance
M.S/M.Phil	six	three labs	Individual basis

The courses for PhD have been developed and approved by competent authorities /Boards of the University of Karachi. There frequency and number of students attending these courses have been discussed in detail in above section curriculum design and organization. These courses are taught by faculty members of the institute and visiting faculty. The courses have attracted the students of the institute as well as other departments of University of Karachi.

Standard 4-2: Course in the major must be structured to ensure effective interaction between students, faculty and teaching assistants.

The institute provides M.Phil. student an ideal environment to work effectively in laboratory to pursue their research work. All faculty members are very interactive, friendly and deliver insight knowledge to students making them capable of doing independent research.

Standard 4-3: Guidance on how to complete the program must be available to all students and access to academic advising must be available to make course decisions and career choices

M.Phil. students have regular lab rotations and they are free to choose their topic of research. In each semester they are exposed with all the facilities of KIBGE which helps them to design their project. Students are distributed among all sections equally on the basis of their career choices and academic advices are provided by highly competent professionals of KIBGE.

CRITERION-5

PROCESS CONTROL

Criterion-5: Process Control

Standard 5-1: The process by which students are admitted to the program must be based on quantitative and qualitative criteria and clearly documented. This process must be periodically evaluated to ensure that it is meeting its objectives.

Students' admission process at KIBGE is very transparent. The admission program is announced and advertised through all the leading newspapers. For admission into the M.Phil. minimum CGPA 3.0 (out of 4.0 in the Semester System) or First Division (in the Annual System) in MSc from basic science fields is required. Admissions are granted on the basis of test / interview to be conducted by the Departmental Research Committee in accordance with the instructions given in the Admission Prospectus. Prerequisite for M.Phil degree is M.Sc. from an HEC recognized university in one of the disciplines of biology; biochemistry, biotechnology, botany, genetics, microbiology, physiology, zoology or equivalent qualification. The process is periodically evaluated to ensure that it is meeting its objectives and the criteria provided by University of Karachi and Higher Education Commission.

Standard 5-2: The process by which students are registered in the program and monitoring of students progress to ensure timely completion of the program must be documented. This process must be periodically evaluated to ensure that it is meeting its objectives.

All selected M.Phil. Students are required to complete 24 credit hour courses preferably in the first year. Students Candidates are required to attend at least 75% classes of each course followed by a comprehensive examination. After course completion their enrollment is confirmed. Faculty members of KIBGE holding PhD degree, and approved supervisors by University of Karachi/BASR/HEC are appointed as research supervisors of for writing synopsis. Monitoring of academic progress is done biannually by Departmental Review Committee (DRC) which evaluates students' progress and ensures timely completion of degree. All the meetings are properly documented and progress reports of students are deposited in a timely manner.

Standard 5-3: The process of recruiting and retaining highly qualified faculty members must be in place and clearly documented. Also processes and procedures for faculty evaluation, promotion must be consistent with institutional mission statement. These processes must be periodically evaluated to ensure that it is meeting with its objectives.

Faculty Recruitment / Retaining Policy

They are upgraded as they develop their academic skills/ as per rules.

Appointments / Promotions Procedure:

It is as per University Code Book**.**

Basic Pay Scale (BPS)

BPS 18

BPS 19

BPS 20

b. Assistant Professor (BPS- 19):

I. Minimum Qualification for Assistant Professor is PhD from an HEC recognized institution in Biological Sciences (Botany. Biochemistry. Biotechnology. Genetics. Microbiology, Physiology, Zoology or an allied subject).

c. Associate Professor (BPS- 20)

I. **Minimum qualification** for Associate Professor is PhD from an HEC recognized institution in Biological Sciences (Botany. Biochemistry. Biotechnology. Genetics. Microbiology, Physiology. Zoology or an allied subject).

II. **Professional experience** of ten (10) years teaching / research in HEC recognized University or postgraduate institution in the field of Biotechnology and Genetic Engineering in a National or International organization.

III. **Ten (10) research publications** (with at least 5 publications in the last 5 years), in HEC recognized journals.

d. Professor (BPS-21)

I. **Minimum qualification** for Professor is PhD from an HEC recognized institution in Biological Sciences (Botany. Biochemistry. Biotechnology. Genetics. Microbiology, Physiology. Zoology or an allied

subject).

II. **Professional experience** of fifteen (15) years teaching / research in HEC recognized University or postgraduate institution in the field of Biotechnology and Genetic Engineering in a National or International organization.

III. **Fifteen (15) research publications** (with at least 5 publications in the last 5 years), in HEC recognized journals.

Standard 5-4: The process and procedure used to ensure that teaching and delivery of course material to the students emphasizes active learning and that course learning outcomes are met. The process must be periodically evaluated to ensure that it is meeting its objectives.

Syllabus and course outline has been made according to the HEC's guidelines. All courses are taught accordingly and the evaluation of teaching and course content is made by the feedback received from the students at the end of every semester. These forms are studied by quality enhancement cell of the university. The teacher evaluation is done with the help of feedback obtained from students through Proforma which are filled by students at the end of semester.

Standard 5-5: The process that ensures that graduates have completed the requirements of the programme must be based on standards, effective and clearly documented procedures. This process must be periodically evaluated to ensure that it is meeting its objectives.

For this purpose M.Phil. students are required to deliver one seminar as synopsis defense. All research students of KIBGE and the faculty must attend the seminars. Three senior most members of the Departmental Research Committee (DRC) evaluate the students' progress.

CRITERION-6

FACULTY

Criterion-6 Faculty

Standard 6-1: There must be enough full time faculty who are committed to the programme to provide adequate coverage of the programme areas / courses with continuity and stability. The interest of all faculty members must be sufficient to teach all courses, plan, modify and update courses. The majority must hold a Ph.D. degree in the discipline.

KIBGE administration recruit highly qualified faculty members including 01 Meritorious Professor, 01Professor Emeritus, 16 Visiting Faculty, 01 Associate Professor, and 08 Assistant Professors to supervise 38 MS/M.Phil/PhD Students. All of the faculty member hold PhD degrees and excellent teaching and research experience.

Standard 6-2: All faculty members must remain current in the discipline and sufficient time must be provided for scholarly activities and professional development. Also, effective programmes for faculty development must be in place.

KIBGE is always vigilant and alive towards professional on-job development of the faculty members. Similarly, the faculty members are also cautious about their professional development. As a result, the faculty members are constantly engaged in the activities aimed at their development, such as:

- Publications in HEC recognized national and international Journals
- Participation in Seminars, Conferences and Symposia of national and international levels
- Organization of Seminars, Conferences and Workshops for the faculty as well as the students
- Invite Speakers and Experts at the Seminars and Conferences organized at the University for the Students as well as the faculty.
- International speakers are also invited to deliver lectures.

The faculty has enough time after their scheduled classes that they perform their scholarly activities and perform their research work. For this purpose their schedule is made in such way that they should have some free time.

Standard 6-3: All faculty members should be motivated and have job satisfaction to excel in their profession.

KIBGE has adopted following steps for job motivation and satisfaction of its employees:

- Handsome salary package
- Tenure track appointments
- Timely promotions and placements according to HEC requirements.
- Medical facility
- The best possible working conditions and friendly environment
- Allowance and accommodations

CRITERION-7

INSTITUTIONAL FACILITIES

Criterion-7 Institutional Facilities

Standard 7-1: The Institution must have the infrastructure to support new trends in learning such as E-learning.

KIBGE has state-of-the-art laboratory facilities in the field of biotechnology, molecular biology and genetic engineering. The infrastructure of the institute has been developed according to the needs and requirements of innovative and advanced research. The laboratory equipment's are comparable with any world's top ranking university and laboratory. Since its inception in 2006, the institute has organized 31 international and national conferences and workshops.

a) Departmental library and Internet Facility

There is no departmental library but a main library located on the first floor of KIBGE. High speed internet facility is available at KIBGE which has open access to all students, guests and visitors.

b) Main Library

There is one up to date main library in KIBGE. All students get their library card after completing admission process. Main library is well equipped with syllabus books and research journals. There are more than 900 books on the subjects and 110 journals (archived and current). Students are also facilitated by arranging / purchasing additional books or journal on demand.

c) Offices

Offices are provides to only the faculty members of KIBGE. Students are provided sitting areas in their respective sections to increase their exposure to instruments.

d) Class Rooms

Lecture halls of KIBGE are well equipped with projector, sound system, microphone, air-conditioners, screens and cameras.

Standard 7-2: The library must possess on up-to-date technical collection relevant to the program and must be adequately staffed with professional personnel.

Main library is well equipped with up-to-date technical collection, syllabus books, research journals, and professional personnel to facilitate students.

Standard 7-3: Class rooms must be adequately equipped and offices must be adequate to enable faculty to carry out their responsibility.

Lecture halls of KIBGE are well equipped with multimedia and offices of faculty members of KIBGE are provided all basic needs to carry out their responsibilities.

CRITERION-8

INSTITUTIONAL SUPPORT

Criterion-8 Institutional Support

Standard 8-1: There must be sufficient support and financial resources to attract and retain high quality faculty and provide the means for them to maintain competence as teacher and scholars.

KIBGE has been actively involved in execution of research projects funded by various agencies including IDB, PSF, HEC, etc., and facilitates students and faculty members to avail international and national scholarships for conferences, symposia and workshops in the fields of medical, industrial, environmental and agriculture biotechnology. Students and faculty members of KIBGE have already been awarded international scholarships from DAAD, TWAS, USA Fulbright for PhD, split and sandwich PhD as well as Postdoctoral training.

Standard 8-2: There must be an adequate number of high quality graduate students, research assistants and Ph.D. Students

Since its inception in 2006, 42 PhDs have received their degrees and currently 38 students are enrolled in MS/MPhil/PhD Program. There are 01 Meritorious Professor, 01 Professor Emeritus, 16 Visiting Faculty, 01 Associate Professor, and 08 Assistant Professors are available to supervise students at KIBGE. In average two students are supervised by one faculty member.

Standard 8-3: Financial resources must be provided to acquire and maintain library holding, laboratories and computing facilities.

Adequate financial resources are available for maintaining library holding, laboratories and computing facilities. In addition to the grants from HEC/UGC, the faculty has been able to attract competitive grants for research projects from HEC, PSF and other agencies.

Faculty CVs

Survey’s Results

Teacher's and Course Evaluation Survey								
Dr. A. Q. Khan Institute of Biotechnology and Genetic Engineering (KIBGE)								
M.Phil								
Name of Teacher: Dr. Sadia Gilani								
S. NO.	Teacher's Evaluation	Strongly Agree	Agree	Uncertain	Disagree	Strongly Disagree	Unanswered	Total
1	The teacher provides lesson plan in the first week of the semester.	22.22%	16.67%	11.11%	0.00%	0.00%	50.00%	100%
2	The teacher is punctual in the class.	38.89%	5.56%	5.56%	0.00%	0.00%	50.00%	100%
3	The teacher comes prepared for each lecture/ practical (where applicable)	16.67%	16.67%	5.56%	0.00%	5.56%	55.56%	100%
4	The teacher demonstrates and communicate knowledge of the subject in easy language.	27.78%	16.67%	0.00%	0.00%	5.56%	50.00%	100%
5	The teacher suggests additional reading material apart from the text book.	5.56%	27.78%	11.11%	0.00%	5.56%	50.00%	100%
6	The teacher creates an interactive environment for class discussion.	11.11%	33.33%	0.00%	0.00%	5.56%	50.00%	100%
7	The teacher has covered the course.	22.22%	22.22%	0.00%	0.00%	0.00%	55.56%	100%
8	The teacher is fair in evaluation.	22.22%	5.56%	11.11%	5.56%	0.00%	55.56%	100%
9	The teacher submits the result within the specified time period.	11.11%	0.00%	5.56%	0.00%	0.00%	83.33%	100%
10	The teacher remainsavailable for coonsultation during the specified	0.00%	5.56%	0.00%	0.00%	0.00%	94.44%	100%
11	The teacher follows moral and ethical norms with the students.	27.78%	11.11%	0.00%	5.56%	0.00%	55.56%	100%
	Course Evaluation:							
12	The course is well organized.	5.56%	33.33%	5.56%	5.56%	0.00%	50.00%	100%
13	The syllabus clearly states course objectives requirements, procedures and grading criteria	5.56%	38.89%	0.00%	5.56%	0.00%	50.00%	100%
14	The course integrates theoretical course concepts with real-world applications	44.44%	44.44%	0.00%	0.00%	11.11%	0.00%	100%
15	The assignments and exams covered the materials presented in the course	11.11%	11.11%	11.11%	0.00%	0.00%	66.67%	100%
16	The course material is updated	5.88%	35.29%	0.00%	0.00%	5.88%	52.94%	100%
17	The contents presented in the course has increased my knowledge of the subject.	22.22%	16.67%	11.11%	0.00%	0.00%	50.00%	100%
18	The course content has stimulated my intellectual curiosity.	5.56%	27.78%	16.67%	0.00%	0.00%	50.00%	100%

Teacher's and Course Evaluation Survey								
Dr. A. Q. Khan Institute of Biotechnology and Genetic Engineering (KIBGE)								
M.Phil								
Name of Teacher: Dr. Shamshad								
S. NO.	Teacher's Evaluation	Strongly Agree	Agree	Uncertain	Disagree	Strongly Disagree	Unanswered	Total
1	The teacher provides lesson plan in the first week of the semester.	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%
2	The teacher is punctual in the class.	94.44%	0.00%	5.56%	0.00%	0.00%	0.00%	100%
3	The teacher comes prepared for each lecture/ practical (where applicable)	94.44%	0.00%	0.00%	0.00%	0.00%	5.56%	100%
4	The teacher demonstrates and communicate knowledge of the subject in easy language.	94.44%	0.00%	0.00%	0.00%	0.00%	5.56%	100%
5	The teacher suggests additional reading material apart from the text book.	88.89%	11.11%	0.00%	0.00%	0.00%	0.00%	100%
6	The teacher creates an interactive environment for class discussion.	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%
7	The teacher has covered the course.	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%
8	The teacher is fair in evaluation.	94.44%	5.56%	0.00%	0.00%	0.00%	0.00%	100%
9	The teacher submits the result within the specified time period.	16.67%	16.67%	5.56%	11.11%	0.00%	50.00%	100%
10	The teacher remainsavailable for coonsultation during the specified	22.22%	0.00%	0.00%	0.00%	0.00%	77.78%	100%
11	The teacher follows moral and ethical norms with the students.	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%
	Course Evaluation:							
12	The course is well organized.	77.78%	22.22%	0.00%	0.00%	0.00%	0.00%	100%
13	The syllabus clearly states course objectives requirements, procedures and grading criteria	66.67%	27.78%	5.56%	0.00%	0.00%	0.00%	100%
14	The course integrates theoretical course concepts with real-world applications	77.78%	11.11%	11.11%	0.00%	0.00%	0.00%	100%
15	The assignments and exams covered the materials presented in the course	61.11%	11.11%	16.67%	0.00%	0.00%	11.11%	100%
16	The course material is updated	88.89%	11.11%	0.00%	0.00%	0.00%	0.00%	100%
17	The contents presented in the course has increased my knowledge of the subject.	88.89%	11.11%	0.00%	0.00%	0.00%	0.00%	100%
18	The course content has stimulated my intellectual curiosity.	77.78%	22.22%	0.00%	0.00%	0.00%	0.00%	100%

Teacher's and Course Evaluation Survey								
Dr. A. Q. Khan Institute of Biotechnology and Genetic Engineering (KIBGE)								
M.Phil								
Name of Teacher: Dr. Sitwat								
S. NO.	Teacher's Evaluation	Strongly Agree	Agree	Uncertain	Disagree	Strongly Disagree	Unanswered	Total
1	The teacher provides lesson plan in the first week of the semester.	33.33%	11.11%	0.00%	5.56%	0.00%	50.00%	100%
2	The teacher is punctual in the class.	50.00%	0.00%	0.00%	0.00%	0.00%	50.00%	100%
3	The teacher comes prepared for each lecture/ practical (where applicable)	16.67%	27.78%	0.00%	5.56%	0.00%	50.00%	100%
4	The teacher demonstrates and communicate knowledge of the subject in easy language.	22.22%	11.11%	11.11%	0.00%	5.56%	50.00%	100%
5	The teacher suggests additional reading material apart from the text book.	11.11%	16.67%	16.67%	0.00%	5.56%	50.00%	100%
6	The teacher creates an interactive environment for class discussion.	33.33%	5.56%	0.00%	0.00%	5.56%	55.56%	100%
7	The teacher has covered the course.	27.78%	11.11%	5.56%	0.00%	0.00%	55.56%	100%
8	The teacher is fair in evaluation.	16.67%	11.11%	11.11%	5.56%	0.00%	55.56%	100%
9	The teacher submits the result within the specified time period.	5.56%	5.56%	11.11%	0.00%	0.00%	77.78%	100%
10	The teacher remainsavailable for coonsultation during the specified	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	100%
11	The teacher follows moral and ethical norms with the students.	11.11%	11.11%	27.78%	0.00%	0.00%	50.00%	100%
	Course Evaluation:							
12	The course is well organized.	16.67%	22.22%	5.56%	5.56%	0.00%	50.00%	100%
13	The syllabus clearly states course objectives requirements, procedures and grading criteria	22.22%	16.67%	5.56%	0.00%	0.00%	55.56%	100%
14	The course integrates theoretical course concepts with real-world applications	33.33%	66.67%	0.00%	0.00%	0.00%	0.00%	100%
15	The assignments and exams covered the materials presented in the course	0.00%	11.11%	16.67%	0.00%	0.00%	72.22%	100%
16	The course material is updated	5.56%	33.33%	5.56%	0.00%	0.00%	55.56%	100%
17	The contents presented in the course has increased my knowledge of the subject.	27.78%	16.67%	0.00%	0.00%	0.00%	55.56%	100%
18	The course content has stimulated my intellectual curiosity.	5.56%	33.33%	5.56%	0.00%	0.00%	55.56%	100%

Teacher's and Course Evaluation Survey								
Dr. A. Q. Khan Institute of Biotechnology and Genetic Engineering (KIBGE)								
M.Phil								
Name of Teacher: Dr. Abid Azhar								
S. NO.	Teacher's Evaluation	Strongly Agree	Agree	Uncertain	Disagree	Strongly Disagree	Unanswered	Total
1	The teacher provides lesson plan in the first week of the semester.	16.67%	0.00%	22.22%	0.00%	5.56%	55.56%	100%
2	The teacher is punctual in the class.	27.78%	16.67%	0.00%	0.00%	0.00%	55.56%	100%
3	The teacher comes prepared for each lecture/ practical (where applicable)	22.22%	22.22%	0.00%	0.00%	0.00%	55.56%	100%
4	The teacher demonstrates and communicate knowledge of the subject in easy language.	22.22%	22.22%	0.00%	0.00%	0.00%	55.56%	100%
5	The teacher suggests additional reading material apart from the text book.	11.11%	11.11%	0.00%	22.22%	0.00%	55.56%	100%
6	The teacher creates an interactive environment for class discussion.	22.22%	16.67%	5.56%	0.00%	0.00%	55.56%	100%
7	The teacher has covered the course.	27.78%	11.11%	5.56%	0.00%	0.00%	55.56%	100%
8	The teacher is fair in evaluation.	27.78%	5.56%	0.00%	5.56%	0.00%	61.11%	100%
9	The teacher submits the result within the specified time period.	0.00%	11.11%	0.00%	11.11%	0.00%	77.78%	100%
10	The teacher remainsavailable for coonsultation during the specified	5.56%	0.00%	0.00%	0.00%	0.00%	94.44%	100%
11	The teacher follows moral and ethical norms with the students.	22.22%	11.11%	11.11%	0.00%	0.00%	55.56%	100%
	Course Evaluation:							
12	The course is well organized.	5.56%	27.78%	11.11%	0.00%	0.00%	55.56%	100%
13	The syllabus clearly states course objectives requirements, procedures and grading criteria	11.11%	16.67%	16.67%	0.00%	0.00%	55.56%	100%
14	The course integrates theoretical course concepts with real-world applications	37.50%	37.50%	25.00%	0.00%	0.00%	0.00%	100%
15	The assignments and exams covered the materials presented in the course	11.11%	0.00%	16.67%	11.11%	0.00%	61.11%	100%
16	The course material is updated	11.11%	11.11%	16.67%	0.00%	5.56%	55.56%	100%
17	The contents presented in the course has increased my knowledge of the subject.	11.11%	22.22%	5.56%	5.56%	0.00%	55.56%	100%
18	The course content has stimulated my intellectual curiosity.	11.11%	22.22%	5.56%	5.56%	0.00%	55.56%	100%

Teacher's and Course Evaluation Survey								
Dr. A. Q. Khan Institute of Biotechnology and Genetic Engineering (KIBGE)								
M.Phil								
Name of Teacher: Dr. Ali UL Qadir								
S. NO.	Teacher's Evaluation	Strongly Agree	Agree	Uncertain	Disagree	Strongly Disagree	Unanswered	Total
1	The teacher provides lesson plan in the first week of the semester.	38.89%	5.56%	5.56%	0.00%	0.00%	50.00%	100%
2	The teacher is punctual in the class.	44.44%	5.56%	0.00%	0.00%	0.00%	50.00%	100%
3	The teacher comes prepared for each lecture/ practical (where applicable)	33.33%	16.67%	0.00%	0.00%	0.00%	50.00%	100%
4	The teacher demonstrates and communicate knowledge of the subject in easy language.	27.78%	16.67%	5.56%	0.00%	0.00%	50.00%	100%
5	The teacher suggests additional reading material apart from the text book.	5.56%	22.22%	11.11%	5.56%	5.56%	50.00%	100%
6	The teacher creates an interactive environment for class discussion.	11.11%	22.22%	16.67%	0.00%	0.00%	50.00%	100%
7	The teacher has covered the course.	5.56%	38.89%	5.56%	0.00%	0.00%	50.00%	100%
8	The teacher is fair in evaluation.	22.22%	16.67%	5.56%	0.00%	0.00%	55.56%	100%
9	The teacher submits the result within the specified time period.	5.56%	11.11%	11.11%	0.00%	0.00%	72.22%	100%
10	The teacher remainsavailable for coonsultation during the specified	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	100%
11	The teacher follows moral and ethical norms with the students.	27.78%	11.11%	5.56%	0.00%	0.00%	55.56%	100%
	Course Evaluation:							
12	The course is well organized.	22.22%	22.22%	5.56%	0.00%	0.00%	50.00%	100%
13	The syllabus clearly states course objectives requirements, procedures and grading criteria	27.78%	22.22%	0.00%	0.00%	0.00%	50.00%	100%
14	The course integrates theoretical course concepts with real-world applications	55.56%	33.33%	11.11%	0.00%	0.00%	0.00%	100%
15	The assignments and exams covered the materials presented in the course	11.11%	16.67%	5.56%	0.00%	0.00%	66.67%	100%
16	The course material is updated	16.67%	27.78%	5.56%	0.00%	0.00%	50.00%	100%
17	The contents presented in the course has increased my knowledge of the subject.	22.22%	22.22%	5.56%	0.00%	0.00%	50.00%	100%
18	The course content has stimulated my intellectual curiosity.	27.78%	16.67%	5.56%	0.00%	0.00%	50.00%	100%

Teacher's and Course Evaluation Survey								
Dr. A. Q. Khan Institute of Biotechnology and Genetic Engineering (KIBGE)								
M.Phil								
Name of Teacher: Dr. Ishaq								
S. NO.	Teacher's Evaluation	Strongly Agree	Agree	Uncertain	Disagree	Strongly Disagree	Unanswered	Total
1	The teacher provides lesson plan in the first week of the semester.	50.00%	0.00%	0.00%	0.00%	0.00%	50.00%	100%
2	The teacher is punctual in the class.	50.00%	0.00%	0.00%	0.00%	0.00%	50.00%	100%
3	The teacher comes prepared for each lecture/ practical (where applicable)	38.89%	5.56%	5.56%	0.00%	0.00%	50.00%	100%
4	The teacher demonstrates and communicate knowledge of the subject in easy language.	44.44%	5.56%	0.00%	0.00%	0.00%	50.00%	100%
5	The teacher suggests additional reading material apart from the text book.	44.44%	5.56%	0.00%	0.00%	0.00%	50.00%	100%
6	The teacher creates an interactive environment for class discussion.	50.00%	0.00%	0.00%	0.00%	0.00%	50.00%	100%
7	The teacher has covered the course.	50.00%	0.00%	0.00%	0.00%	0.00%	50.00%	100%
8	The teacher is fair in evaluation.	27.78%	22.22%	0.00%	0.00%	0.00%	50.00%	100%
9	The teacher submits the result within the specified time period.	5.56%	11.11%	5.56%	5.56%	0.00%	72.22%	100%
10	The teacher remainsavailable for coonsultation during the specified	5.56%	5.56%	0.00%	0.00%	0.00%	88.89%	100%
11	The teacher follows moral and ethical norms with the students.	50.00%	0.00%	0.00%	0.00%	0.00%	50.00%	100%
	Course Evaluation:							
12	The course is well organized.	27.78%	0.00%	22.22%	0.00%	0.00%	50.00%	100%
13	The syllabus clearly states course objectives requirements, procedures and grading criteria	27.78%	16.67%	5.56%	0.00%	0.00%	50.00%	100%
14	The course integrates theoretical course concepts with real-world applications	55.56%	33.33%	11.11%	0.00%	0.00%	0.00%	100%
15	The assignments and exams covered the materials presented in the course	33.33%	5.56%	0.00%	5.56%	0.00%	55.56%	100%
16	The course material is updated	22.22%	11.11%	16.67%	0.00%	0.00%	50.00%	100%
17	The contents presented in the course has increased my knowledge of the subject.	38.89%	11.11%	0.00%	0.00%	0.00%	50.00%	100%
18	The course content has stimulated my intellectual curiosity.	33.33%	11.11%	5.56%	0.00%	0.00%	50.00%	100%

Teacher's and Course Evaluation Survey								
Dr. A. Q. Khan Institute of Biotechnology and Genetic Engineering (KIBGE)								
M.Phil								
Name of Teacher: Dr. Shahid								
S. NO.	Teacher's Evaluation	Strongly Agree	Agree	Uncertain	Disagree	Strongly Disagree	Unanswered	Total
1	The teacher provides lesson plan in the first week of the semester.	50.00%	0.00%	0.00%	0.00%	0.00%	50.00%	100%
2	The teacher is punctual in the class.	33.33%	11.11%	5.56%	0.00%	0.00%	50.00%	100%
3	The teacher comes prepared for each lecture/ practical (where applicable)	22.22%	5.56%	0.00%	0.00%	0.00%	72.22%	100%
4	The teacher demonstrates and communicate knowledge of the subject in easy language.	33.33%	5.56%	5.56%	0.00%	0.00%	55.56%	100%
5	The teacher suggests additional reading material apart from the text book.	0.00%	22.22%	11.11%	16.67%	0.00%	50.00%	100%
6	The teacher creates an interactive environment for class discussion.	27.78%	16.67%	5.56%	0.00%	0.00%	50.00%	100%
7	The teacher has covered the course.	16.67%	33.33%	0.00%	0.00%	0.00%	50.00%	100%
8	The teacher is fair in evaluation.	11.11%	0.00%	38.89%	0.00%	0.00%	50.00%	100%
9	The teacher submits the result within the specified time period.	5.56%	0.00%	11.11%	11.11%	0.00%	72.22%	100%
10	The teacher remainsavailable for coonsultation during the specified	0.00%	5.56%	0.00%	0.00%	0.00%	94.44%	100%
11	The teacher follows moral and ethical norms with the students.	11.11%	5.56%	0.00%	0.00%	27.78%	55.56%	100%
	Course Evaluation:							
12	The course is well organized.	5.56%	0.00%	27.78%	16.67%	0.00%	50.00%	100%
13	The syllabus clearly states course objectives requirements, procedures and grading criteria	5.56%	5.56%	38.89%	0.00%	0.00%	50.00%	100%
14	The course integrates theoretical course concepts with real-world applications	11.11%	11.11%	77.78%	0.00%	0.00%	0.00%	100%
15	The assignments and exams covered the materials presented in the course	0.00%	11.11%	16.67%	5.56%	11.11%	55.56%	100%
16	The course material is updated	5.56%	0.00%	11.11%	27.78%	0.00%	55.56%	100%
17	The contents presented in the course has increased my knowledge of the subject.	5.56%	27.78%	16.67%	0.00%	0.00%	50.00%	100%
18	The course content has stimulated my intellectual curiosity.	16.67%	33.33%	0.00%	0.00%	0.00%	50.00%	100%