

STATUTES & REGULATIONS FOR BIOMEDICAL ENGINEERING FIRST & SECOND YEAR EXAMINATIONS

General Statutes

1. Every student shall undergo a period of certified study extending over not less than two academic years between the date of commencement of his/her study of subjects comprising the Biomedical Engineering curriculum and the date of his/her final qualifying examination.
2.
 - a. The subjects of Foundation of Biomedical Engineering, Biomechanics, Biomaterials, and Application of Biomedical Engineering shall be taught during the first academic year.
 - b. The subjects of Biomedical Instrumentation, Biosignal Analysis, and Safety Protection & Quality Assurance shall be taught during second academic year.

General Regulations

1. The Examination for the Degree of M.Sc Biomedical Engineering shall consist of two parts, titled First Year and Second Year Examination.
2. The Yearly Examination shall be held twice a year at dates fixed by the Vice Chancellor on the recommendations of the Board of Studies in Allied Health Sciences.
3. A candidate who fails to pass First Year Examination in three consecutive chances, availed or un-availed, after becoming eligible for First Year Examination shall cease to become eligible for further Biomedical Engineering education.
4. A candidate who passes in one or more subjects but fails in the First Year Annual examination shall, if he/she so desires, provisionally be allowed to join the Second Year class, till the commencement of supplementary examination. The candidate, however, shall have to pass the failed subjects in this supplementary examination failing which he/she shall be detained in First Year. Under no circumstances a candidate shall be promoted to Second Year class till he/she has passed the Examination of preceding class.

The General Statutes and Regulations shall be applicable with immediate effect.

FIRST YEAR BIOMEDICAL ENGINEERING EXAMINATION

Statutes:

- 1) The First Year Biomedical Engineering examination shall be held at the end of first academic year.
- 2) Every candidate shall be required to study (Theory & Practical) the subjects of Foundation of Biomedical Engineering (BME 501), Biomechanics (BME 502), Biomaterials (BME 503) and Application of Biomedical Engineering (BME 504).
- 3) Every candidate shall take the examination in
 - i. BME (501) Foundation of Biomedical Engineering - 100 Marks
 - ii. BME (502) Biomechanics - 100 Marks
 - iii. BME (503) Biomaterials - 100 Marks
 - iv. BME (504) Application of Biomedical Engineering - 100 Marks
 - v. BME (505) Practicals ,Viva and Log Book* - 250 Marks

i. BME (501) Foundation of Biomedical Engineering

The examination in the subject of Foundation of Biomedical Engineering shall be as follows:

- i. Written Paper of 100 marks having two parts.
 - a. Part I shall have 25 Multiple Choice Questions (MCQs) of 50 marks and time allotted shall be one hour.
 - b. Part II shall have 10 Short Essay Questions (SEQs) of 50 marks and time allotted shall be two hours.

ii. BME (502) Biomechanics

The examination in the subject of Biomechanics shall be as follows:

- i. Written Paper of 100 marks having two parts.
 - a. Part I shall have 25 Multiple Choice Question (MCQs) of 50 marks and time allotted shall be one hour.
 - b. Part II shall have 10 Short Essay Questions (SEQs) of 50 marks and time allotted shall be two hours.

iii. BME (503) Biomaterials

The examination in the subject of Biomaterials shall be as follows:

- i. Written Paper of 100 marks having two parts.
 - a. Part I shall have 25 Multiple Choice Question (MCQs) of 50 marks and time allotted shall be one hour.
 - b. Part II shall have 10 Short Essay Questions (SEQs) of 50 marks and time allotted shall be two hours.

iv. BME (504) Application of Biomedical Engineering

The examination in the subject of Application of Biomedical Engineering shall be as follows:

- i. Written Paper of 100 marks having two parts.
 - a. Part I shall have 25 Multiple Choice Question (MCQs) of 50 marks and time allotted shall be one hour.
 - b. Part II shall have 10 Short Essay Questions (SEQs) of 50 marks and time allotted shall be two hours.

v. #BME (505) Practical, Viva and Log Book

The examination in practical and viva shall be as follows:

- i. Practical and oral examination shall have 250 marks.
 - a. Practical shall have 100 Marks
 - b. Logbook shall have 100 Marks
 - c. Viva shall have 50 Marks

4) The Marks distribution in each subject is given in table below

SUBJECT	MARKS DISTRIBUTION	TOTAL
BME (501) Foundation of Biomedical Engineering	Part I MCQs 50 Marks Part II SEQs <u>50 Marks</u> 100 Marks	100 Marks
BME (502) Biomechanics	Part I MCQs 50 Marks Part II SEQs <u>50 Marks</u> 100 Marks	100 Marks
BME (503) Biomaterials	Part I MCQs 50 Marks Part II SEQs <u>50 Marks</u> 100 Marks	100 Marks
BME (504) Application of Biomedical Engineering	Part I MCQs 50 Marks Part II SEQs <u>50 Marks</u> 100 Marks	100 Marks
BME (505) Practical , Viva And Log Book	Practical 100 Marks Log Book 100 Marks Viva <u>50 Marks</u> 250 Marks	250 Marks
		650 Marks

5) The medium of Examination shall be English.

* **Log Book:** Documentation of Hands on Training/ demonstration on various Biomedical equipments.

Modules BME 505 shall consist of the practicals based on all the theory subjects.

Regulations

1. This examination shall be open to any student who: -
 - a. Was enrolled and completed one academic year preceding the examination in the Department of Biomedical Engineering, University of Health Sciences, Lahore / Affiliated Institution.
 - b. Has his/her name submitted to the Controller of Examinations by Head Department of Biomedical Engineering, UHS / Principal of the College in which he/she is enrolled for the purpose of examination.
 - c. Produces the following certificates duly verified by the Head of his/her Department/college:-
 - i. Of good character
 - ii. Of having attended not less than three-fourth (75%) of the full course of lectures delivered and practical conducted in each of the subject of the examination.

The Chairman of the University / affiliated College's Academic Council may condone for valid reasons deficiency up to 5% in lectures and 5% in practicals. Candidates falling short of lectures or practicals above this percentage shall not be admitted to the examination but may be permitted to appear at the next examination if they attend 75% of the lectures delivered and practicals conducted up to the commencement of the next examination by remaining on the rolls of a College as regular student.

2. The minimum number of marks required to pass this examination of each subject shall be sixty percent (60%). Candidates who secure eighty percent (80%) or above marks in any subject shall be declared to have passed "with distinction" in that subject.

A candidate who passes in one or more subject but fails in others in the annual examination shall, if he/she so desires, provisionally be allowed to join second year class till the commencement of supplementary examinations. The candidate, however, shall have to pass the failed subjects in this supplementary examination failing which he/she shall be detained in the first year. Under no circumstances a candidate shall be promoted to second year till he/she has previously passed all subjects in the First Year Examination.

If a student appears in the Supplementary Examination for the first time as he/she did not appear in the Annual Examination and failed in any subject in the Supplementary Examination, he/she will be detained in the same class/year and will not be promoted to the next class/year.

3. A candidate who fails to pass First Year Examination in three consecutive chances, availed or un-availed, after becoming eligible for First Year Examination, shall cease to pursue further education in the discipline of Biomedical Engineering.

4. Every candidate shall forward through the Head of the Department / affiliated College to the Controller of Examination, his/her application for admission to the examination at least four weeks before the commencement of the examination accompanied by the prescribed fee.

5. Whenever the application and/or the fee of the candidate is received after the last date prescribed, the candidate shall pay the double the ordinary admission fee, provided received not less than 07 days before the commencement of the examinations.

The candidate shall pay their fee through the Principal/Heads of their respective colleges/departments who shall forward a bank draft/pay order/crossed cheque in favor of Treasurer, University of Health Sciences, Lahore along with Admission Forms.

SECOND YEAR BIOMEDICAL ENGINEERING EXAMINATION

Statutes:

- 1) The Second Year Biomedical Engineering examination shall be held at the end of second academic year.
- 2) Every candidate shall be required to study (Theory and Practical) subjects of Biomedical Instrumentation (BME 506), Biosignal Analysis (BME 507), Safety Protection & Quality Assurance (BME 508).
- 3) Every candidate shall do a Research Project.
- 4) Every candidate shall take the examination in
 - i. BME (506) Biomedical Instrumentation - 100 Marks
 - ii. BME (507) Biosignal Analysis - 100 Marks
 - iii. BME (508) Safety Protection and Quality Assurance - 100 Marks
 - iv. #BME (509) Practical, Viva and Log Book* - 250 Marks
 - v. BME (510) Research project - 200 Marks

i. BME (506) Biomedical Instrumentation

The examination in the subject of Biomedical Instrumentation shall be as follows:

- i. Written Paper of 100 marks having two parts.
 - a. Part I shall have 25 Multiple Choice Question (MCQs) of 50 marks and time allotted shall be one hour.
 - b. Part II shall have 10 Short Essay Questions (SEQs) of 50 marks and time allotted shall be two hours.

ii. BME (507) Biosignal Analysis

The examination in the subject of Biosignal Analysis shall be as follows:

- i. Written Paper of 100 marks having two parts.
 - a. Part I shall have 25 Multiple Choice Question (MCQs) of 50 marks and time allotted shall be one hour.
 - b. Part II shall have 10 Short Essay Questions (SEQs) of 50 marks and time allotted shall be two hours.

iii. BME (508) Safety Protection & Quality Assurance

The examination in the subject Safety Protection and Quality Assurance shall be as follows:

- i. Written Paper of 100 marks having two parts.

- a. Part I shall have 25 Multiple Choice Question (MCQs) of 50 marks and time allotted shall be one hour.
- b. Part II shall have 10 Short Essay Questions (SEQs) of 50 marks and time allotted shall be two hours.

iv. BME (509) Practical, Viva and Log Book

The examination in practical and viva shall be as follows:

- i. Practical shall have 100 marks.
- ii. Logbook shall have 100 marks.
- iii. Viva shall have 50 marks.

v. BME (510) Research Project

- i. The duration of Research Project shall be 6 months.
- ii. The topic of the project shall be assigned by the Course Coordinator, out of a set of topics duly approved by the Board of Studies in Allied Health Sciences and Advanced Studies & Research Board.
- iii. Course Coordinator shall assign a faculty member as Supervisor to one student or more but not more than three.
- iv. The evaluation of the project shall be carried out by an external examiner and the supervisor. The external examiner to be appointed out of a panel duly recommended by Board of Studies in Allied Health Sciences.

5) The Marks distribution in each subject is given in table below

SUBJECT	THEORY	TOTAL
BME (506) Biomedical Instrumentation	Part I MCQs 50 Marks Part II SEQs 50 Marks 100 Marks	100 Marks
BME (507) Biosignal Analysis	Part I MCQs 50 Marks Part II SEQs 50 Marks 100 Marks	100 Marks
BME (508) Safety Protection and Quality Assurance	Part I MCQs 50 Marks Part II SEQs 50 Marks 100 Marks	100 Marks
BME (509) Practical, Viva And Log Book	Practical 100 Marks Log Book 100 Marks Viva 50 Marks 250 Marks	250 Marks
BME (510) Research Project	Thesis Evaluation & Viva 200 Marks	200 Marks
		750 Marks

**Log Book: Documentation of Hands on Training/ demonstration on various Biomedical equipments.
#Modules BME 509 shall consist of the practicals based on all the theory subjects.*

- 6) The medium of Examination shall be English.

Regulations

1. This examination shall be open to any student who: -
 - a. Was enrolled and completed one academic year preceding the examination in the Department of Biomedical Engineering, University of Health Sciences, Lahore / Affiliated Institution.
 - b. Has his/her name submitted to the Controller of Examinations by Head Department of Biomedical Engineering, UHS / Principal of the College in which he/she is enrolled for the purpose of examination.
 - c. Produces the following certificates duly verified by the Head of his/her Department/college: -
 - i. Of good character
 - ii. Of having attended not less than three-fourth (75%) of the full course of lectures delivered and practical conducted in each of the subject of the examination.

The Chairman of the College Academic Council of the affiliated College may condone for valid reasons deficiency up to 5% of lectures in written papers and 5% in practicals. Candidates falling short of lectures or practicals above this percentage shall not be admitted to the examination but may be permitted to appear at the next examination if they attend 75% of the lectures delivered and practicals conducted up to the commencement of the next examination by remaining on the rolls of a College as regular student.

2. The minimum number of marks required to pass this examination of each subject shall be sixty percent (60%) in written and sixty percent (60%) of oral and practical examination separately and (60%) in aggregate at one and same time. Candidates who secure eighty percent (80%) or above marks in any subject shall be declared to have passed "with distinction" in that subject.

The candidate shall have to pass all the subjects of 2nd Year Examination to be declared successful. A candidate who passes in one or more subjects but fails in others in the annual examination shall have to pass the failed subjects in this supplementary examination failing which he/she shall be detained in the Second Year.

If a student appears in the Supplementary Examination for the first time as he/she did not appear in the Annual Examination and failed in any subject in the Supplementary Examination, he/she will be detained in the same class/year.

3. Every candidate shall forward through the Head of the Department / affiliated College to the Controller of Examination, his/her application for admission to the examination at least four weeks before the commencement of the examination accompanied by the prescribed fee.

4. Whenever the application and/or the fee of the candidate is received after the last date prescribed, the candidate shall pay the double the ordinary admission fee, provided received not less than 07 days before the commencement of the examinations.

The candidate shall pay their fee through the Principal/Heads of their respective colleges/departments who shall forward a bank draft/pay order/crossed cheque in favor of Treasurer, University of Health Sciences, Lahore along with Admission Forms.

5. After successful completion of the structured courses of M.Sc Biomedical Engineering and passing first year and second year examinations, the degree of M.Sc Biomedical Engineering shall be awarded.