Dated: 01.08.2026

To
The Chairperson
Medical Education Unit (MEU)
HIMSR
New Delhi

Subject: Proposal for Elective Course in Biochemistry

Dear Sir/Madam,

I propose the following elective course for approval:

S.no.	Title of Elective	Supervisor	Co-Supervisor	Number of Students Intake
1.	Risk management in pre-analytical, analytical and post analytical stages of investigations in clinical biochemistry lab.	Dr. Jaspreet Kaur	Dr. Asif Ali Mis. Shazia Bano	2-5
2.	Quality control basics and its importance in clinical and endocrinology lab.	Dr. Sana Alam	Dr. Huda Naaz Mr.Rizwan Khan	2-5
3.	Mammalian cell culture basics and its application in research and development.	Dr. Kailash Chandra	Anish Murtaza Alam Khan	2-3
4.	Mastering ELISA and electrophoresis technique: unveiling their clinical significance for precision diagnostics.	Dr. Bhumika Upadhyay	Mis. Shazia Bano	2-3

Kindly consider this proposal for approval.

Sincerely,

Dr. Jaspreet Kaur
Prof. & HOD
Dept. of Biochemistry

Dr. JASPREET KAUR
Professor & HOD Biochemistry
HIMSR & HAHC HOSPITAL
New Delhi-110062

Electives in Department Of Biochemistry
Hamdard Institute of Medical Science and Research and Associated HAHC Hospital, New Delhi

Date :01/08/2026

S.no.	Name of Elective	Risk Management in pre analytical, analytical and post analytical stages of investigations in Clinical biochemistry lab.
1.	Block	I
2.	Department/ area	Biochemistry
3.	Name of mentor/ supervisor	Dr. Jaspreet Kaur , Professor & HOD , Biochemistry, HIMSR
4.	Co-Supervisor	Dr. Asif Ali, Senior Resident , Biochemistry, HIMSR Mis Shazia Bano, Tutor, Biochemistry, HIMSR
5.	Number of students intake	2-5
6.	Method of selection (If applicable)	Interview /as per the policy of HIMSR
7.	Objectives	• **Concept of quality indicators** • **Pre-analytical Phase**: risk identification, assessment and mitigation. **Area of focus:** a) **Patient preparation** b) Sample collection c) Transport of sample d) Preparation for analysis and storage. • **Analytical Phase**: risk identification, assessment and mitigation. **Area of focus** a) Receiving and processing of samples. b) Sample Rejection record maintained. c) Instruments(IQ,OQ,PQ)daiy, weekly and monthly maintenance d) Internal and external quality program e) Q.C. check and log sheet RCA AND CAPA maintenance. f) Processing of samples. g) Trouble shooting. h) Urgent report processing i) Release of test results. • **Post-analytical Phase**: risk identification, assessment and mitigation. **Area of focus** a) Validation and verification of data /results

		b) LIS maintenance c) Critical values informed and recorded d) Post analytical sample storage. e) BMW management
8.	Expected outcomes	• Appropriateness of test selection. • Role of quality indicators in pre-analytical, analytical and post analytical stages of analysis and its role in mitigating errors. • Role of IQC and EQAS in lab. • Troubleshooting, RCA and CAPA. • Importance of critical alert values & reporting. • Awareness of BMW management.
9.	Assessment	Feedback/viva voice
10.	Log book	A google form for the day to day activity will be filled by students and record for the same will be maintained in excel sheet.

Dr. Asif Ali

Senior Resident, Biochemistry, HIMSR

(Co-supervisor)

Dr. Jaspreet Kaur

Professor & HOD, Biochemistry, HIMSR

(Supervisor)

Dr. JASPREET KAUR
Professor & HOD Biochemistry
HIMSR & HAHC HOSPITAL
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Mis. Shazia Bano

Tutor, Biochemistry, HIMSR

(Co-supervisor)

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S.no.	Name of Elective	Quality control basics and its importance inclinical and endocrinology labs.
1.	Block	I
2.	Department/ area	Biochemistry
3.	Name of mentor/ supervisor	Dr. Sana Alam , Professor, Biochemistry, HIMSR
4.	Co-Supervisor	1. Dr. Huda Naaz, Assistant Professor 2. Mir. Rizwan Khan ,Tutor, Biochemistry, HIMSR
5.	Number of students intake	2-5
6.	Method of selection (If applicable)	Interview /as per the policy of HIMSR
7.	Objectives	• Overview of clinical biochemistry and endocrinology laboratory, machines (Beckman coulter AU480, Architect i1000SR, Bio-Rad D-10, Roche 9180 electrolyte analyzer), their principle and functioning. • Proper SOP's for machine working and Quality control testing. • Universal precautions for dealing with Q.C. aliquots and human samples. • Preparation of both levels i.e. level-1 and level-2 in labs. • Demonstration of different types of Q.C. I.e. internal and external quality control. • Hands on training and dealing with machines. • Preservation, freezing and thawing of Q.C. sample. • Demonstration of different types of errors i.e. Random and systematic Errors that affect Q.C. results.

		• Demonstration of Westgard Rules and L-J charts for understanding of Q.C. results.
8.	**Expected outcomes**	• Successfully maintaining the Q.C. result of labs and ensuring the correct result before giving the patient's report. • To recognize and prevent pre-analytical, analytical and post-analytical errors in Labs. • Students will be trained for the relevant quality assurance including preparation of L-J chart. • Recognize the trouble shooting problems faced during sample testing in labs.
9.	**Assessment**	Feedback/viva voice
10.	**Log book**	A google form for the day to day activity will be filled by students and record for the same will be maintained in excel sheet.

Dr. Huda Naaz

Assistant Professor, Biochemistry, HIMSR

(Co-supervisor)

Dr. Sana Alam

Professor, Biochemistry, HIMSR

(Supervisor)

Dr. SANA ALAM
Professor
HIMSR & HAHC Hospital
New Delhi-110062

Mr. Rizwan Khan

Tutor, Biochemistry, HIMSR

(Co-supervisor)

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S. No.	Name of Elective	"Mastering ELISA and Electrophoresis technique: Unveiling Their Clinical Significance for Precision Diagnostics!"
1.	Block	I
2.	Department/area	Biochemistry
3.	Name of mentor/supervisor	Dr. Bhumika Upadhyay, Assistant Professor, Biochemistry, HIMSR
4.	Co-Supervisor	1. Mis.Shazia Bano, Tutor, Biochemistry, HIMSR
5.	Number of students intake	2–3
6.	Method of selection (if applicable)	Interview / as per the policy of HIMSR
7.	Objectives	1. **Understand Fundamental Principles:** Gain in-depth knowledge of the principles behind ELISA and electrophoresis techniques and their role in clinical diagnostics. 2. **Hands-On Skill Development:** Develop practical expertise in performing ELISA and electrophoresis with accuracy and precision. 3. **Interpretation of Results:** Learn to analyze and interpret results obtained from ELISA and electrophoresis to identify their clinical relevance. 4. **Enhance Diagnostic Application:** Explore the application of these techniques in diagnosing

		diseases, monitoring biomarkers, and advancing clinical research. 5. **Ensure Quality and Accuracy:** Understand the importance of quality control, troubleshooting, and standardization in achieving reliable and reproducible results.
8.	**Expected outcomes**	**Proficiency in Techniques:** Participants will gain hands-on expertise in performing ELISA and electrophoresis, enabling them to conduct...
9.	**Assessment**	Feedback / Viva voce
10.	**Log book**	A Google Form for the day-to-day activity will be filled by students, and the record for the same will be maintained in Excel.

Shazia Bano

Mis. Shazia Bano

Tutor, Biochemistry, HIMSR

(Co-supervisor)

Dr. BHUMIKA UPADHYAY
Assistant Professor
Biochemistry
HIMSR & HAHC HOSPITAL
New Delhi- 110062

Dr. Bhumika Upadhyay

Assistant Professor, Biochemistry,

HIMSR

(Supervisor)

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S.no	Name of elective	Mammalian Cell culture basics and its application in research and development
1.	Block	I
2.	Department/Area	Biochemistry
3.	Name of mentor/supervisor	Dr Kailash Chandra, Associate Professor, Biochemistry, HIMSR
4.	Co-supervisor	Anish Murtaza Alam Khan Ph.D. Scholar, Biochemistry, HIMSR
5.	Number of students intake	2-3
6.	Method of selection (if applicable)	Interview/ as per the policy of HIMSR
7.	Objectives	• Overview of cell culture laboratory, equipment, and applications • Aseptic techniques and good cell culture practice (GCCP) • Demonstration of different cell types, equipment used in cell culture laboratory and their application in research • Preparation of media • Hands on training in mammalian cell culture techniques, passaging and maintenance of cell lines • Cryopreservation (freezing and thawing of cell lines) • Subculturing, determination of confluency, cell counting, and viability testing
8.	Expected outcomes	• Successfully maintain cultures of animal cells and established cell lines with good viability and minimal contamination. • Student will be trained for the cell culture, including preparation and evaluation of

		media, cryopreservation and recovery, and assessment of cell growth/health. • Students will be trained in various equipment used in cell culture and biomedical research. • Recognize and troubleshoot problems common to routine cell culture.
9.	**Assessment**	Feedback/viva voice
10.	**Log book**	A google form for the day to day activity will be filled by students and the record for the same will be maintained in excel.

Anish Murtaza Alam Khan
PhD Scholar, Biochemistry, HIMSR
(Co-supervisor)

01-8-2026

Dr Kailash Chandra,
Associate Professor, Biochemistry, HIMSR
(Supervisor)

Dr. KAILASH CHANDRA
Associate Professor, Biochemistry
HIMSR & HAHC Hospital
New Delhi-110062

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