

List of courses addressing Local Needs:

<i>Course Code</i>	<i>Course Title</i>	<i>Brief Justification</i>
CLB18001 OE	Basic concepts in Clinical Biochemistry	In this course of Clinical Biochemistry, students grasp the foundational concepts and scope of biochemistry in diagnostics. They will learn the intricacies of collecting and preserving biological fluids, understanding normal values in blood, CSF, and urine. The course goes further to cover basic requirements for a clinical laboratory, emphasizing sample collection, preparation, preservation, and quality control. Additionally, students will explore the clinical significance of biomolecules, focusing on glucose and lipid profiles, and their role in disorders like diabetes and atherosclerosis. This knowledge prepares them for a pivotal role in healthcare diagnostics and research, and thus doesn't fulfill the local, regional and global developmental needs of society.
CLB18002 OE	Life style diseases and Lab. Diagnosis	In 'Lifestyle Diseases and Laboratory Diagnosis,' students will explore the intricacies of cardiovascular diseases, delving into types, risk factors, and prevention strategies. The course covers lifestyle-related health issues such as obesity, diabetes, and their pathological connections, providing insights into inflammatory cascades and effective treatments. In the Laboratory Diagnosis section, students will gain expertise in essential tests, including Lipid Profile, Blood Glucose, Kidney and Liver Function Tests, hormone tests, and cancer markers. This knowledge is vital for a comprehensive understanding of lifestyle diseases and their diagnosis, offering valuable skills for research and clinical applications.

List of courses addressing Regional Needs:

<i>Course Code</i>	<i>Course Title</i>	<i>Brief Justification</i>
CLB18001 OE	Basic concepts in Clinical Biochemistry	In this course of Clinical Biochemistry, students grasp the foundational concepts and scope of biochemistry in diagnostics. They will learn the intricacies of collecting and preserving biological fluids, understanding normal values in blood, CSF, and urine. The course goes further to cover basic requirements for a clinical laboratory, emphasizing sample collection, preparation, preservation, and quality control. Additionally, students will explore the clinical significance of biomolecules, focusing on glucose and lipid profiles, and their role in disorders like diabetes and atherosclerosis. This knowledge prepares them for a pivotal role in healthcare diagnostics and research, and thus doesn't fulfill the local, regional and global developmental needs of society.
CLB18002 OE	Life style diseases and Lab. Diagnosis	In 'Lifestyle Diseases and Laboratory Diagnosis,' students will explore the intricacies of cardiovascular diseases, delving into types, risk factors, and prevention strategies. The course covers lifestyle-related health issues such as obesity, diabetes, and their pathological connections, providing insights into inflammatory cascades and effective treatments. In the Laboratory Diagnosis section, students will gain expertise in essential tests, including Lipid Profile, Blood Glucose, Kidney and Liver Function Tests, hormone tests, and

		cancer markers. This knowledge is vital for a comprehensive understanding of lifestyle diseases and their diagnosis, offering valuable skills for research and clinical applications.
CLB18301 CR	Respiratory and Excretory organ systems: Physiology and Diseases	In 'Respiratory and Excretory Organ Systems: Physiology and Diseases,' students delve into acid-base balance, exploring water and electrolyte regulation, kidney function, and hormonal influences. The respiratory physiology section covers gas diffusion, respiratory diseases investigation, and clinical insights into conditions like COPD, cystic fibrosis, asthma, and pneumonia. The kidney physiology segment elucidates nephron anatomy, urine formation, and various kidney function tests, providing a comprehensive understanding of glomerular and tubular functions. Students gain expertise in diagnosing and researching conditions such as glomerulonephritis, nephritic syndrome, nephrotic syndrome, and renal failure, making this course vital for those pursuing research and diagnosis in the field.
CLB18302 CR	Gastrointestinal and Hepatobiliary organ systems: Physiology and Diseases	In 'Gastrointestinal and Hepatobiliary Organ Systems: Physiology and Diseases,' students explore the intricacies of gastric secretion, gastrointestinal hormones, and disorders of the stomach, including peptic ulcer and neoplastic diseases. The course delves into pancreatic function, enzyme assessment, and disorders like acute and chronic pancreatitis. Students gain insights into intestinal function, malabsorption tests, and disorders such as gluten intolerance, inflammatory bowel disease, and Crohn's disease. The hepatobiliary system section covers liver anatomy, biochemical indices in hepatobiliary disorders, and liver function tests, offering a comprehensive understanding of acute and chronic liver diseases. This course equips students with essential knowledge for research and diagnostic applications in the field.
CLB18303 CR	Neuromuscular and Skeletal systems: Physiology and Diseases	In 'Neuromuscular and Skeletal Systems: Physiology and Diseases,' students explore the intricacies of musculo-skeletal physiology, including the ultrastructure and molecular mechanisms of contraction in skeletal and smooth muscles. The course covers joint physiology, types of joints, synovial fluid properties, and pathophysiology of joint disorders like Osteoarthritis and Rheumatoid Arthritis. Additionally, students delve into bone metabolism, understanding biochemical markers of bone turnover and their significance. The study of nervous system physiology includes nerve impulse transmission, neurotransmitters, neuromuscular junction events, and disorders like Alzheimer's, Parkinson's, epilepsy, and psychiatric disorders. This comprehensive course provides students with essential knowledge for research and diagnostic applications in the field.

List of courses addressing **Global Needs**:

<i>Course Code</i>	<i>Course Title</i>	<i>Brief Justification</i>
CLB18001 OE	Basic concepts in Clinical Biochemistry	In this course of Clinical Biochemistry, students grasp the foundational concepts and scope of biochemistry in diagnostics. They will learn the intricacies of collecting and preserving biological fluids, understanding normal values in blood, CSF, and urine. The course goes further to cover basic requirements for a clinical laboratory, emphasizing sample collection, preparation, preservation, and quality control. Additionally,

		students will explore the clinical significance of biomolecules, focusing on glucose and lipid profiles, and their role in disorders like diabetes and atherosclerosis. This knowledge prepares them for a pivotal role in healthcare diagnostics and research, and thus doesn't fulfill the local, regional and global developmental needs of society.
CLB18002 OE	Life style diseases and Lab. Diagnosis	In 'Lifestyle Diseases and Laboratory Diagnosis,' students will explore the intricacies of cardiovascular diseases, delving into types, risk factors, and prevention strategies. The course covers lifestyle-related health issues such as obesity, diabetes, and their pathological connections, providing insights into inflammatory cascades and effective treatments. In the Laboratory Diagnosis section, students will gain expertise in essential tests, including Lipid Profile, Blood Glucose, Kidney and Liver Function Tests, hormone tests, and cancer markers. This knowledge is vital for a comprehensive understanding of lifestyle diseases and their diagnosis, offering valuable skills for research and clinical applications.
CLB18301 CR	Respiratory and Excretory organ systems: Physiology and Diseases	In 'Respiratory and Excretory Organ Systems: Physiology and Diseases,' students delve into acid-base balance, exploring water and electrolyte regulation, kidney function, and hormonal influences. The respiratory physiology section covers gas diffusion, respiratory diseases investigation, and clinical insights into conditions like COPD, cystic fibrosis, asthma, and pneumonia. The kidney physiology segment elucidates nephron anatomy, urine formation, and various kidney function tests, providing a comprehensive understanding of glomerular and tubular functions. Students gain expertise in diagnosing and researching conditions such as glomerulonephritis, nephritic syndrome, nephrotic syndrome, and renal failure, making this course vital for those pursuing research and diagnosis in the field.
CLB18302 CR	Gastrointestinal and Hepatobiliary organ systems: Physiology and Diseases	In 'Gastrointestinal and Hepatobiliary Organ Systems: Physiology and Diseases,' students explore the intricacies of gastric secretion, gastrointestinal hormones, and disorders of the stomach, including peptic ulcer and neoplastic diseases. The course delves into pancreatic function, enzyme assessment, and disorders like acute and chronic pancreatitis. Students gain insights into intestinal function, malabsorption tests, and disorders such as gluten intolerance, inflammatory bowel disease, and Crohn's disease. The hepatobiliary system section covers liver anatomy, biochemical indices in hepatobiliary disorders, and liver function tests, offering a comprehensive understanding of acute and chronic liver diseases. This course equips students with essential knowledge for research and diagnostic applications in the field.
CLB18303 CR	Neuromuscular and Skeletal systems: Physiology and Diseases	In 'Neuromuscular and Skeletal Systems: Physiology and Diseases,' students explore the intricacies of musculo-skeletal physiology, including the ultrastructure and molecular mechanisms of contraction in skeletal and smooth muscles. The course covers joint physiology, types of joints, synovial fluid properties, and pathophysiology of joint disorders like Osteoarthritis and Rheumatoid Arthritis. Additionally, students delve into bone metabolism, understanding biochemical markers of bone turnover and their significance. The study of nervous system physiology includes nerve impulse transmission, neurotransmitters, neuromuscular junction events, and disorders like Alzheimer's, Parkinson's, epilepsy, and psychiatric disorders. This

		comprehensive course provides students with essential knowledge for research and diagnostic applications in the field.
CLB18305 DCE	Advanced Endocrinology	Many of Endocrinological disorders are prevalent at epidemic scale. Thus this course is to expose the students to the basic anatomy & physiology of human endocrine system, and to the disorders that arise from malfunctioning of this process. The understanding of this amounts to the global needs.
CLB18307 DCE	High Risk Pregnancy & Neonatology	Understanding of physiology and risk factors involving the mothercare and child health during pregnancy and after pregnancy is important part of regional & global requirements. Here students are exposed to the different aspects of pre- & post natal screening tests for would be mothers that ensure healthy pregnancy and flags the high-risk population. Here also the WHO recommended vaccination schedules and other aspects of health concerns with regards to neonates and newly born child are also covered.

List of Employability Courses:

<i>Course Code</i>	<i>Course Title</i>	<i>Brief Justification</i>
CLB18401 CR	Internship Dessertation	This course involves a dissertation work based on six-month duration training in biochemical research / diagnostic techniques carried out at various state and national medical and research institutes such as AIIMS, SKIMS, IISc, NCBS, CDFD, CCMB etc. The students get well exposed and trained in different advance procedures and laboratory techniques which increases their employability prospects for various research & higher academic positions at national and international stage.

List of Entrepreneurship Development Courses:

<i>Course Code</i>	<i>Course Title</i>	<i>Brief Justification</i>
CLB18304 CR	Lab Course-III	In this core course of 4 credits involving 9-12 weekly hours training for the full 3rd semester, students embark on a hands-on journey through diverse diagnostic techniques. They learn the estimation of serum biomarkers such as albumin, lipids, bilirubin, and enzymes like ALT and AST. The course covers urine analysis, subcellular fractionation, and marker enzyme activities. Students delve into hemoglobin analysis, thyroid function tests, and autoimmune markers like antinuclear antibodies. The lab extends to separation techniques, TLC/DLC,

and electrolyte estimation. Practical demonstrations include PCR variants (RFLP, RT-PCR/Q-PCR), emphasizing diagnostic applications. The comprehensive range of tests spans liver and biliary tract, renal diseases, and various biochemical analyses. This lab course equips students with essential diagnostic skills for diverse medical scenarios. All this training & exposure eqips ours students to opt for starting their own entrepreneurship avenues.

List of Skill development Courses:

<i>Course Code</i>	<i>Course Title</i>	<i>Brief Justification</i>
CLB18401 CR	Internship Dessertation	This course involves a dessertation work based on six-month duration training in biochemical research / diagnostic techniques carried out at various state and national medical and research institutes such as AIIMS, SKIMS, IISc, NCBS, CDFD, CCMB etc. The students get well exposed and trained and learn advance skill-set in different procedures and laboratory techniques which increases their emplyability prospects for various research & higher academic positions at national and international stage.