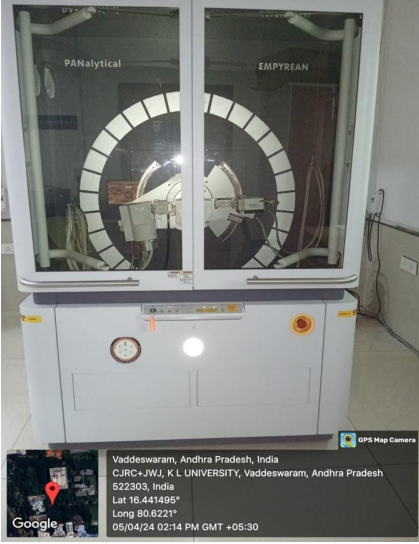






Hyphenated Instruments facility at the University for research


The university has several hyphenated equipment and research facilities that are availed by Life-sciences departments of KLEF including the faculty and students of K L College of Pharmacy.

Notable hyphenated equipment include:

Name of the Laboratory	Available Equipment list	Geo tagged photo	specifications
L001	Emperyan powder XRD		<p>pXRD instrument has numerous applications in pharmaceutical research, including:</p> <ul style="list-style-type: none"> To understand crystal structure of the drug and excipients in various formulations. Important QC tool in assessing any changes in the crystallinity of material upon storage or exposure to certain conditions.
	FT-IR(JASCO)		<p>Infrared spectroscopy has a vast number of applications in drug discovery and even in quality control of drug products</p> <ul style="list-style-type: none"> Fingerprint identification allowing for rapid identification of raw materials, drug substances, and final dosage forms. FT-IR identifies the

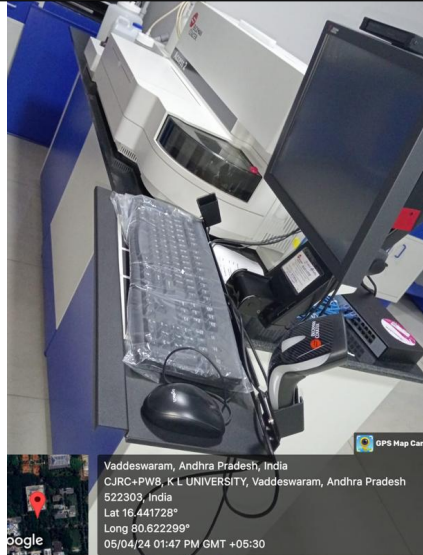
			<p>presence of specific functional groups within a molecule, aiding in structural characterization and potential drug interactions.</p> <ul style="list-style-type: none"> • FT-IR helps ensure quality control by detecting impurities, and monitoring for potential degradation products. • Can reveal potential interactions between the drug and excipients in a formulation, ensuring stability and desired functionality.
L507	<p>3D Holography Microscope Tomocube, Leica</p>		<p>Tomocube's leading-edge technology, Holotomography, is the next generation of 3D microscopic imaging technology which is utilized across various research fields. In particular, holotomographic imaging allows for non-invasive, label-free observation of samples, enabling high-resolution data acquisition. As such, it serves as an extremely powerful tool in life science research.</p> <p>Applications:</p> <ul style="list-style-type: none"> • Cellular imaging. • Imaging of

			<p>culture flasks and live cell media.</p> <ul style="list-style-type: none"> • Can perform fluorescence imaging and contrast imaging.
	<p>6-part differential counter, Sysmex</p>		<ul style="list-style-type: none"> • Analysis of blood cell count. • Individual count of platelets and different types of WBC for diagnosing different conditions like eosinophilia, Neutropenia, etc.
	<p>LC/MS-MS system</p> <p>6470 LC/TQ, Agilent Technologies</p>		<p>Highly sensitive and selective analytical instrument, widely used in numerous applications across pharmaceutical industry.</p> <ul style="list-style-type: none"> • Impurity profiling of APIs and drug products. • Bioanalysis of small molecules, protein/peptide drugs, endogenous components. • Bioanalysis in pharmacokinetic studies in different sample matrices - standard PK or bioequivalence




			<p>studies, toxicokinetic studies, etc.</p> <ul style="list-style-type: none"> Identify a wide range of preservatives, contaminants, etc., in a variety of products from pharmaceuticals, cosmetics, food, etc.
	<p>Spray dryer</p> <p>B-290 mini Spray Dryer, BUCHI</p>		<p>It is a high through-put process for rapid drying in a single step and is useful for:</p> <ul style="list-style-type: none"> Preparation of solid dispersions Rapid drying and processing of thermolabile molecules like biologics, food products. Rapid and cheaper than other drying techniques for heat-sensitive material like freeze-drying. Better control of product properties like particle size, spherical shape can be achieved with good reproducibility. <p><i>Used widely in the pharmaceutical industry in development of pulmonary products, solid dispersions, biopharmaceutical products, antibiotics, some vaccines</i></p>

Immunoassay analyser

Access2,
Blackman
coultter



- *This is an automated benchtop immunoassay analyser that uses antigen-antibody reactions to detect or measure a specific analyte in a sample of body fluid. It uses the principle of Chemiluminescence to identify/quantify specific analytes in reaction with the specific reagents.*
- *Can be used to identify and/or quantify more than 50 different markers and chemicals including proteins, bacterial, or viral toxins, drug concentrations, infectious diseases, allergy and endocrine hormones, cardiac markers, etc., in blood and other biological fluids.*

<p>L601</p>	<p>Heating Mantle with temperature controller</p>		<p>200°C</p> <p>This equipment provides uniform temperature throughout the chamber necessary for annealing, drying, sterilizing, and other lab functions</p>
	<p>Electro spinning machine</p>		<p>Electro spinning is used to fabricate core-shell nanofibers with better control over the compositions for different applications, including drug delivery.</p>
	<p>ESSAE Weighing Balance/Density measurement kit</p>		<p>Electronic balance is an instrument used in the accurate measurement of weight of materials.</p>

Electronic
balance &
DSC



Electronic Balance:
For precise weighing of
samples
DSC: thermal analysis of