

Department of Biochemistry – Website information

1. Department: Biochemistry

2. About Department

The Department of Biochemistry was instituted as one of the departments of Sciences in the academic year 1998-1999.

3. Objective & Scope

- To enable the students to understand the concept of biochemistry regarding biomolecules carbohydrates, proteins, lipids and nucleic acids.
- To have knowledge of intermediary metabolism of the biomolecules and possess the knowledge of the impairment of metabolism including inborn errors of metabolism.
- To understand the role of nutrition in health & disease and also to understand the significance of diagnostic bio chemistry.
- To study the basics of bioenergetics, enzymes catalysis & enzyme kinetics.
- To provide basic knowledge on microbiology, hormonal biochemistry and genetic engineering.
- To acquire basic fundamental knowledge and explore skills in molecular biology and to study about immune response and immunological techniques
- To enable the students to get an insight on the usage of various biochemical techniques.
- To gain knowledge regarding basic laboratory techniques and develop skills of performing biochemical analysis & interpreting the data.

4. Courses offered

- B.Sc. (**Biochemistry**, Botany, Chemistry)
- B.Sc. (**Biochemistry**, Zoology, Chemistry)
- B.Sc.(**Biochemistry**, Biotechnology, Chemistry)
- B.Sc.(**Biochemistry**, Microbiology, Chemistry)
- B.Sc.(**Biochemistry**, Biotechnology, Microbiology)

5. PROGRAM SPECIFIC OUTCOME

PSO1. Students will demonstrate an understanding of fundamental biochemical principles such as structure and function of biomolecules, metabolic pathways.

PSO2. The students will acquire basic knowledge on fundamentals of microbiology, enzymology, immunology, molecular biology, endocrinology and genetic engineering.

PSO3. The students equip themselves with the basic biochemical tools and standard operation procedures and will be able to use in institutes wherever necessary.

PSO4. The students will develop analytical thinking in execution of biochemical experiments and data interpretation.

6. COURSE OUTCOME

CO1. Chemistry of Biomolecules: To have an insight into the basics of the biomolecules. Students will understand the structure, functions and reactivity of the biomolecules.

CO2. Chemistry of Nucleic Acids & Biochemical Techniques: To understand the chemistry, functions of nucleic acid and to gain an insight into the principle of working of various techniques used for the biochemical analysis.

CO3. Enzymology, Bioenergetics & biological oxidation: The student will be able to describe structure, functions, mechanisms of action of enzymes, kinetics of enzyme catalyzed reactions and enzyme inhibitory and regulatory process. The student will also have an understanding about the fundamental energetics of biochemical processes.

CO4. Intermediary Metabolism: To have a holistic view on metabolism and to describe how biomolecules (carbohydrates, lipids, amino acids and nucleic acids) are synthesized and degraded.

CO5. Nutrition, Physiology & Endocrinology: The student will be able to comprehend the structure, role of nutrients & their deficiency disorders. The students will gain knowledge regarding the digestion of biomolecules and physiology of various organs such as heart, muscle and nervous system. The student will also gain knowledge regarding the chemistry, physiological role and disorders of various hormones.

CO6. Molecular Biology: To understand the basics of replication, transcription and translation processes and their regulation.

CO7. Clinical Biochemistry & Immunology: To gain knowledge regarding the clinical tests to identify various diseases pertaining to liver, kidney, heart and disorders of blood coagulation. To be able to understand about the organs and cells involved in the immunological response, immunoglobulins, antigen-antibody interactions and vaccines.

CO8. Genetic Engineering & Microbiology: The student will be able to understand the basics of genetic engineering, tools of r-DNA technology, principle and applications of blotting and gene cloning.

CO9. Biochemical genetics: To be able to describe the gene interactions, mutations, linkage analysis and bacterial genetics.

CO10. Food technology: To have basic knowledge regarding the nutritive value of foods, food preservation, packaging of foods, food quality assurance, food contamination & food safety.

4. Accomplishments

i) Students Achievements

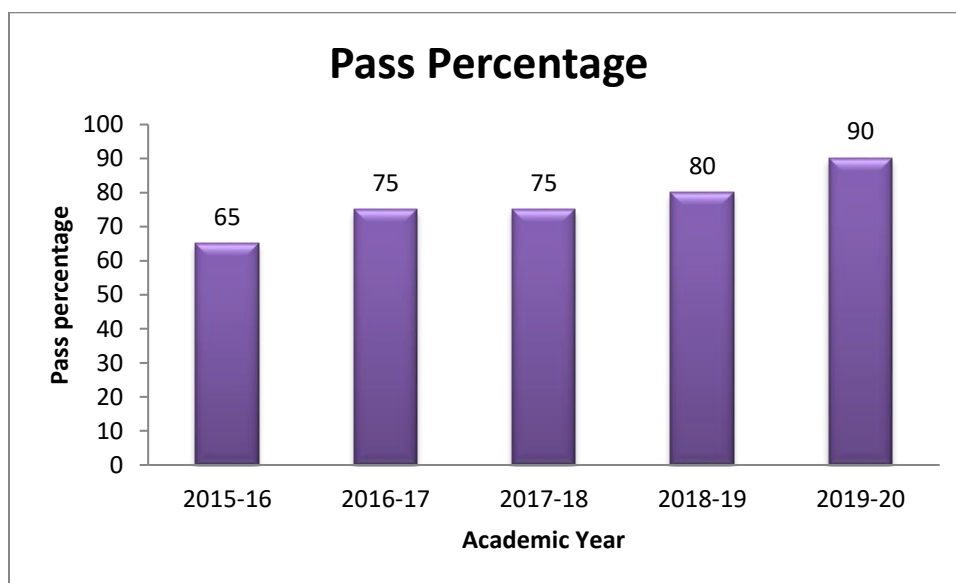
Name of the alumni	Qualification	Current job profile
B. Pavan Kumar	MSc	Desk officer, ministry of Home affairs, govt of India
G.Shyam	(PhD)	PhD Student at Indian Institute of Science

K. CharanTeja	MSc	Asst Grade-3 in Food corporation of India
G. Rakesh	PhD	Postdoc at Tufts University, Boston, US
K.Suman	MSc	Quality Control analyst, HMWSSB

ii) MoU

MoU with Valliappa Foundation, Hyderabad-The proposed MOU would facilitate in the form of providing career guidance to the students of Biochemistry and create awareness on future prospects in the stream of Medical Coding.

5. Results



6. Laboratory

Well-equipped with instruments like Colorimeter, Digital Balance, Refrigerator, Chromatography Chamber, Water Bath, Hot Plate, Centrifuge, Microscope, Autoclave, Hot Air Oven and glassware to carry out various biochemical experiments.

7. Activities

S.No	Activity	Topic	Resource Persons	Date	Number of participants
1	Webinar	Biochemical techniques	Dr. S. Ravi kiran Professor & Head, Department of Biochemistry, Aurora's Degree & P.G. College, Hyderabad	28-1-2021	60
2	Guest Lecture	Diabetes Mellitus: An Overview & Management	Mr.A.Chandra Shekar, Assistant Professor of Biochemistry, GDC, Karimnagar	16-11-2020	46
3	Webinar (organized by Department of Physics, Biotechnology & Biochemistry,)	Overview & Current trends of Pharmaceutical Industry X-ray Crystallography	Nanduri Venkata Ramana Kumar General Manager, Sun Pharmaceutical Industries Ltd. K.Suresh International Advanced Research Centre for Powder Metallurgy and New Materials, Scientist, Hyderabad.	21-5-2020	75
4	Guest Lecture (organized by Department of Biochemistry)	Immunodiagnos tics-Tool for the Diagnosis of the Emerging Pandemic	Dr.Shyam Perugu, Asst.Prof. National Institute of Technology, Warangal.	19-5-2020	46
5	Interactive Webinar (organized by Department of Life Sciences & Social Sciences)	Pandemic Impact on Digitalization of Higher Education- Psychological & Nutritional Management	Dr. Phanikanth, Asst. Prof. of Psychiatry,IMH Erragadda Dr.Venkata Subbaiah, Senior Clinical Psychologist, IMH Erragadda Dr. Bharathi Kulkarni, Scientist F, National Institute of	16-5-2020	98

			Nutrition, Hyd		
6	Career guidance (organized by Department of Biochemistry & Microbiology)	Training cum Placements in Medical Coding and Career Scope	Mrs. Beena Madhusudhan, Valliappa Foundation, Hyd Mr. Ahmed, Valliappa Foundation, Hyd	12-3-2020	80
7	Workshop	Workshop on Food Adulteration	Dr. V. SudershanRao (Scientist E, NIN, Hyderabad). Dr. P. JanakiSrinath (Sr. Consultant Nutritionist, Nutrifit, Hyderabad).	22-08-2017 & 23-08-2017	60
8	Extension activity	Mendel's Birthday celebrations	-	22.07.2017	200
9	Seminar	Rivers and SDG's series – River Musi an example	Dr.K. Purushottam Reddy (Environmentalist) Dr.T. Indrasena Reddy (Convener – Save Rivers) Dr.D. Narsimha Reddy (Policy expert) Dr.B. Dinesh Kumar (Deputy Director, NIN, Hyderabad) Sri. M. Srinivas (Social Activist) Sri P.S. Reddy (MD, Needs Resources)	15.07.2017	300

Gallery







