



# ANNAMACHARYA COLLEGE OF PHARMACY

Sponsored by ANNAMACHARYA EDUCATIONAL TRUST (Regd. 135/IV/97)

Approved by AICTE & PCI, New Delhi, Affiliated to JNTUA, Ananthapuramu,

Accredited by NAAC with 'A' Grade, Bangalore, Accredited by NBA (UG Programme), New Delhi

Recognized u/s 2(f) & 12(B) of the UGC Act, 1956, New Delhi, Recognized Research Center, JNTUA, Ananthapuramu,

## DEPARTMENT OF PHARMACEUTICS

### About Pharmaceutics

**Pharmaceutics** is the discipline of **pharmacy** that deals with the process of turning a **new chemical entity** (NCE) or old drugs into a medication to be used safely and effectively by patients. It is also called the science of dosage form design. There are many chemicals with **pharmacological** properties, but need special measures to help them achieve therapeutically relevant amounts at their sites of action. Pharmaceutics helps relate the formulation of drugs to their delivery and disposition in the body.<sup>[1]</sup> Pharmaceutics deals with the formulation of a pure drug substance into a **dosage form**. Branches of pharmaceutics include:

- ❖ Pharmaceutical formulation
- ❖ Pharmaceutical manufacturing
- ❖ Dispensing pharmacy
- ❖ Pharmaceutical technology
- ❖ Physical pharmacy
- ❖ Pharmaceutical jurisprudence

Pure drug substances are usually white **crystalline** or **amorphous** powders. Before the advent of medicine as a science, it was common for pharmacists to dispense drugs as *is*. Most drugs today are administered as parts of a dosage form. The clinical performance of drugs depends on their form of presentation to the patient.

Pharmaceutics is a multidisciplinary applied science concerned with the process of transforming chemical entities (new or old) into dosage forms that deliver and maintain appropriate drug concentrations at target sites in the body for appropriate times, while being used safely and effectively by patients. The field encompasses a multitude of scientific disciplines that support the drug discovery and development processes including identifying, designing and making new therapeutic molecules and dosage forms (e.g., suspensions, tablets, aerosols), delineating how drugs interact with biological systems (ADME, pharmacokinetics), mechanism of action at biological targets, and bioanalytical analysis (identifying and quantitating drug molecules and metabolites). Our faculty brings together expertise in physical pharmacy, biopharmaceutics, clinical pharmacokinetics, formulation, bioanalysis, drug metabolism, and drug transport, to support our educational and research missions.

Pharmaceutics is the overall process of developing a new chemical entity into an approved therapy that is safe and effective in treating or preventing disease. It is a complex process requiring multiple scientific, medical, legal, commercial, and regulatory expertises.

*The Department of Pharmaceutics facilitates the ability of faculty and students to positively impact human health through the advancement of research and education in the pharmaceutical sciences.*



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*Bringing today's leaders in research and education together to drive tomorrow's innovations in the pharmaceutical sciences.*

Formulation and development of novel drug delivery systems is a major thrust area of research in the Department of Pharmaceutics. The Department of Pharmaceutics conducts research and teaching in precision medicine that is aimed towards targeted therapy and improving patient compliance by maximizing drug efficacy while minimizing drug toxicity. The Department has a spacious working place. Each laboratory of the department is well-equipped with instruments and facilitated with chemicals, glassware, equipment and lab ware. Each laboratory includes a preparation room, staff cubical, and space according to the norms. A separate Machine Room is developed, where students can seek pharmaceutical industry based knowledge. The machine Room and instrumentation laboratory are equipped with sophisticated instruments like Freeze Dryer, Ultra Sonicator, Brookfield viscometer, high precision electronic balances, etc.

## **The Department of Pharmaceutics possesses the following instruments**

- ❖ Freeze Dryer/ Lyophilizer
- ❖ All purpose Equipment
- ❖ 8 Basket Dissolution Test Apparatus
- ❖ Disintegration Test Apparatus
- ❖ Monsanto Tablet Hardness Tester
- ❖ Roche Friabilator
- ❖ Spray Drier
- ❖ Hot Air Oven
- ❖ 8 Station Rotary Tablet Compression Machine
- ❖ Double Bean Digital UV-Spectrophotometer
- ❖ Distillation Unit
- ❖ Centrifuge
- ❖ Homogenizer
- ❖ Ball Mill
- ❖ Sieve Shaker with Sieve se
- ❖ Capsule Counter
- ❖ Tablet Coating Pan
- ❖ Vacuum Pump
- ❖ Desiccators
- ❖ Mechanical Agitators
- ❖ Magnetic Stirrers
- ❖ Electronic Analytical Balance
- ❖ Screw Gauge
- ❖ Mansanto and Pfizer hardness tester
- ❖ Vernier Callipers
- ❖ pH Meter
- ❖ Probe Sonicator and many other tiny types of equipment that are used in pharmaceutical formulations like solid, liquid, semi-solid, and parenteral dosage forms.

**Thallapaka Panchayat, New Boyanapalli (Post), Rajampet - 516126, Y.S.R. Kadapa District. A.P., India**

**Tel:** 08565-251865 (Principal), 251867(Office), 251868 (Exam Cell) **Mobile:** +91 9848998651, +91 9912342118

**E-mail:** ancpaet@gmail.com **Visit us:** www.ancpap.in



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## Job Prospects in Pharmaceuticals

This field is related to production of medicines and technology that is used in production of drugs used in pharmaceutical companies. Master of Pharmacy degree in pharmaceuticals has scope in the **formulations of drugs, research in formulations and excipients, manufacturing, drug regulatory affairs.**

## Types of careers in Pharmaceuticals Industry

- Research & Development Manager. Research & Development Manager is a professional who is responsible for constantly researching content for medical and pharmaceutical science.
- Pharmaceutical Sales Representative.
- Laboratory Analyst.
- Clinical Data Manager, Medical Writer.





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## DEPARTMENT OF PHARMACEUTICS



CLASS ROOM



DEPARTMENT LIBRARY



DEPARTMENT VISION AND MISSION

Thallapaka Panchayat, New Boyanapalli (Post), Rajampet - 516126, Y.S.R. Kadapa District. A.P., India

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**DEPARTMENTAL LABORATORIES**



**DEPARTMENTAL DIGITAL LIBRARY**

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**FREEZE DRYER**



**PROBE SONICATOR**



**USP DISSOLUTION APPARATUS**





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**USP DISINTEGRATION APPARATUS**



**ROTARY EVAPORATOR**



**BROOK FIELD VISCOMETER**



**UV-VISIBLE SPECTROPHOTOMETER**

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