



# VIGNAN

**INSTITUTE OF PHARMACEUTICAL TECHNOLOGY**

(Approved By AICTE, PCI New Delhi & Affiliated to JNTUK - Kakinada)

An ISO 9001:2015, ISO 14001:2015 & OHSAS 18001:2007 Certified Institution

## **Program Outcomes:**

Program outcomes are statements conveying the intent of a program of study. Specifically, program outcomes refer to what a student should know or be able to do at the end of a program. They are often seen as the knowledge and skills students will have obtained by the time they have received their intended degree.

### **Program Outcomes for M. Pharmacy (Pharmaceutical Analysis) Program**

- 1. Analytical Knowledge:** Acquire in-depth knowledge of specific discipline or professional area, including wider and global perspective, with an ability to discriminate, evaluate, analyze and synthesize.
- 2. Problem Solving:** To utilize the principles of analytical techniques with clear and critical thinking, while solving problems and making decisions. Find, analyze, evaluate and apply information systematically and shall make defensible decisions.
- 3. Modern Techniques:** To learn, choose and apply appropriate hyphenated methods and procedures and related computing tools with thoughtfulness of their applications.
- 4. Regulatory Adherence:** To believe and follow ethics and guidelines specified by the regulatory authorities of various countries and Government of India for good laboratory practice.
- 5. Collaborative and Multidisciplinary work:** To Possess knowledge and understanding of group dynamics, recognize opportunities and contribute positively to collaborative-multidisciplinary scientific research, demonstrate a capacity for self-management and teamwork, decision-making based on open-mindedness, objectivity and rational analysis in order to achieve common goals and further the learning of themselves as well as others.
- 6. Research Skill:** Extract information pertinent to unfamiliar problems through literature survey and experiments, apply appropriate research methodologies, techniques and tools, design, conduct experiments, analyse and interpret data, demonstrate higher order skill and view things in a broader perspective, contribute individually/in group(s) to the development of scientific/technological knowledge in one or more domains of pharmaceutical sciences.
- 7. Critical Thinking:** To engage in critical and logical thinking and to gain an overall knowledge in developing newer methods, impurity profiling and validation protocols those are useful in routine and laboratory purpose.
- 8. Environment and Sustainability:** To understand the level of biohazardous solvents and chemicals in relation to environmental contexts and sustainable development.

## Course Outcomes:

Course Outcomes are narrower statements that describe what students are expected to know, and be able to do at the end of each course. These relate to the skills, knowledge, and behaviour that students acquire in their enrolment through the course.

<b>COURSE NAME COURSE CODE</b>	<b>COURSE OUTCOME CODE</b>	<b>COURSE OUTCOMES</b>
Modern Pharmaceutical Analytical Techniques MPA101T	MPA101T.1	The students will also be in a position to apply their knowledge in Pharmaceutical Analysis
	MPA101T.2	The analysis of various drugs in single and combination dosage forms
	MPA101T.3	Theoretical and Practical skills of the instrument
	MPA101T.4	Apply the Skill in developing the New Analytical methods for the validation Procedure
Advanced Pharmaceutical Analysis MPA102T	MPA102T.1	Appropriate analytical skills required for the analytical method development
	MPA102T.2	Principles of various reagents used in functional group analysis that renders necessary support in research methodology and demonstrates its application in the practical related problems
	MPA102T.3	Analysis of impurities in drugs, residual solvents and stability studies of drugs and biological products
	MPA102T.4	To provide students with a foundation in immunological processes;
Pharmaceutical Validation MPA103T	MPAC103.1	Explain the aspect of Validation
	MPAC103.2	Carryout validation of manufacturing processes
	MPAC103.3	Apply the Knowledge of validation to instruments and equipment
	MPAC103.4	Validate the manufacturing Facilities
Food Analysis MPA104T	MPAC104.1	Discuss about types and properties of carbohydrates, proteins, lipids, vitamins, food additives, pigments, finished food products and pesticides
	MPAC104.2	Describe general methods of analysis of carbohydrates, proteins, lipids, vitamins, food additives, pigments, finished food products and pesticides
	MPAC104.3	Explain various analytical techniques in the determination of carbohydrates, proteins, lipids, vitamins, food additives, pigments, finished food products and pesticides
	MPAC104.4	Elaborate on different food regulations and legislations
Pharmaceutical Analysis Practical I MPA105PA	MPA105PA.1	Calibration of volumetric apparatus
	MPA105PA.2	Calibration of Analytical Instruments
	MPA105PA.3	Analysis of official compounds by using various volumetric methods
	MPA105PA.4	Analysis of official compounds by instrumental techniques

Pharmaceutical Analysis Practical II MPA105PB	MPA105PB.1	Analysis of Pharmacopeial compounds and their formulation by UV-Visible spectrophotometry.
	MPA105PB.2	Simultaneous estimation of multi component containing formulation by UV spectrophotometry
	MPA105PB.3	Qualitative and Quantitative analysis of Fats and oils.
	MPA105PB.4	Quality control test for Milk and Milk Product
Advanced Instrumental Analysis MPA201T	MPA201T.1	The students will also be in a position to apply their knowledge in Pharmaceutical Analysis
	MPA201T.2	The analysis of various drugs in single and combination dosage forms
	MPA201T.3	Theoretical and Practical skills of the instrument
	MPA201T.4	Apply the Skill in developing the New Analytical methods for the validation Procedure
Modern BioAnalytical Techniques MPA202T	MPA202T.1	Appropriate analytical skills required for the analytical method development
	MPA202T.2	Principles of various reagents used in functional group analysis that renders necessary support in research methodology and demonstrates its application in the practical related problems
	MPA202T.3	Analysis of impurities in drugs, residual solvents and stability studies of drugs and biological products
Quality Control and Quality Assurance MPA203T	MPAC103.1	Understand the cGMP aspects in a Pharmaceutical Industry
	MPAC103.2	Appreciate the importance of documentation
	MPAC103.3	Understand the scope of quality certifications applicable to pharmaceutical industries
	MPAC103.4	To understand the responsibilities of QA & QC
Herbal and Cosmetic Analysis MPA204T	MPAC104.1	Discuss about types and properties of carbohydrates, proteins, lipids, vitamins, food additives, pigments, finished food products and pesticides
	MPAC104.2	Describe general methods of analysis of carbohydrates, proteins, lipids, vitamins, food additives, pigments, finished food products and pesticides
	MPAC104.3	Explain various analytical techniques in the determination of carbohydrates, proteins, lipids, vitamins, food additives, pigments, finished food products and pesticides
	MPAC104.4	Elaborate on different food regulations and legislations
Pharmaceutical Analysis Practical III MPA205PA	MPA205PA.1	Calibration of volumetric apparatus
	MPA205PA.2	Calibration of Analytical Instruments
	MPA205PA.3	Analysis of official compounds by using various volumetric methods
	MPA205PA.4	Analysis of official compounds by instrumental techniques

Pharmaceutical Analysis Practical IV MPA205PB	MPA205PB.1	Analysis of Pharmacopoeial compounds and their formulation by UV, Visible spectrophotometry.
	MPA205PB.2	Simultaneous estimation of multi component containing formulation by UV spectrophotometry
	MPA205PB.3	.Qualitative and Quantitative analysis of Fats and . oils.
	MPA205PB.4	Quality control test for Milk and Milk Product
Research Methodology and Biostatistics* MRM301T	MRM301T.1	Explain qualitative and quantitative aspects of clinical study design
	MRM301T.2	Interpret Various Biostatistical methods in Experimental Pharmacological studies
	MRM301T.3	Describe various ethical guidelines for biomedical research.
	MRM301T.4	Enumerate various CPCSEA guidelines for laboratory animal facility.
	MRM301T.5	Discuss the principals of Declaration of Helsinki for Medical Research.
	MRM301T.6	Understand Research writing and Review of Literature
Journal Club MRM302S & MRM401P	MRM401P.1	Understanding and debating current topics of active interest in their field
	MRM401P.2	Apply skills to use search engines for selection of scientific articles of their interest
	MRM401P.3	Analyze the critical thinking skills in appraisal of the scientific literature
	MRM401P.4	Create a scientific report on the critically appraised article
	MRM401P.5	Evaluate detailed knowledge of a specific area of research including the literature published in that area, its underlying concepts, theories and assumptions.
	MRM401P.6	Apply ability to write various types of manuscripts
Discussion and Presentation MRM303S & MRM403P	MRM303S.1	Identify relevant information, defining and explaining topics under discussion
	MRM303S.2	Demonstrate complexity, insight, cogency, independent thought, relevance and persuasiveness
	MRM303S.3	Demonstrate Command of voice modulation, voice projection, and pacing to support their presentation
	MRM303S.4	Evaluate information and use and apply relevant theories
	MRM303S.5	Demonstrate breadth of reading, use sources, show independence and flexibility of thought
	MRM303S.6	Analyze and Demonstrate problem solving skills and apply theoretical knowledge

Research Work and Colloquium MRM304S & MRM404P	MRM304S.1	Identify and discuss the role, importance and concepts to the research process in Pharmaceutical Analysis
	MRM304S.2	Discuss the complex issues in selecting a research problem, selecting an appropriate research design, and implementing a research project.
	MRM304S.3	Identify and discuss the concepts and procedures of sampling, data collection, analysis and reporting.
	MRM304S.4	Establish motivation for any topic of interest and develop a thought process for technical presentation.
	MRM304S.5	Organize a detailed literature survey and build a document with respect to technical publications. Analysis and comprehension of proof-of-concept and related data.
	MRM304S.6	Analysis and comprehension of proof-of-concept and related data and Make use of new and recent technology for creating technical reports