



**Kommareddy Venkata Sadasiva Rao**  
**Siddhartha College of Pharmaceutical Sciences**

Siddhartha Nagar, Vijayawada - 520010, AP, INDIA  
(Sponsors : Siddhartha Academy of General & Technical Education)  
**ISO 9001:2015, ISO14001:2015 & ISO50001:2011 CERTIFIED INSTITUTION**

Affiliated to Krishna University, Machilipatnam  
Approved by AICTE, PCI, New Delhi and Govt. of Andhra Pradesh

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**B. Pharmacy Program Outcomes (POs)**

**Upon the completion of the program, the graduate is able to**

PO. No.	Program Outcome (PO)
<b>a</b>	<b>Pharmacy Knowledge:</b> Possess knowledge and comprehension of the core and basic knowledge associated with the profession of pharmacy, including biomedical sciences; pharmaceutical sciences; behavioural, social, and administrative pharmacy sciences; and manufacturing practices.
<b>b</b>	<b>Planning Abilities:</b> Demonstrate effective planning abilities including time management, resource management, delegation skills and organizational skills. Develop and implement plans and organize work to meet deadlines.
<b>c</b>	<b>Problem Analysis:</b> Utilize the principles of scientific enquiry, thinking analytically, clearly and critically, while solving problems and making decisions during daily practice. Find, analyze, evaluate and apply information systematically and shall make defensible decisions.
<b>d</b>	<b>Modern Tool Usage:</b> Learn, select, and apply appropriate methods and procedures, resources, and modern pharmacy-related computing tools with an understanding of the limitations.
<b>e</b>	<b>Leadership Skills:</b> Understand and consider the human reaction to change, motivation issues, leadership and team-building when planning changes required for fulfillment of practice, professional and societal responsibilities. Assume participatory roles as responsible citizens or leadership roles when appropriate to facilitate improvement in health and wellbeing.
<b>f</b>	<b>Professional Identity:</b> Understand, analyze and communicate the value of their professional roles in society (e.g. health care professionals, promoters of health, educators, managers, employers, employees).
<b>g</b>	<b>Pharmaceutical Ethics:</b> Honour personal values and apply ethical principles in professional and social contexts. Demonstrate behavior that recognizes cultural and personal variability in values, communication and lifestyles. Use

	ethical frameworks; apply ethical principles while making decisions and take responsibility for the outcomes associated with the decisions.
<b>h</b>	<b>Communication:</b> Communicate effectively with the pharmacy community and with society at large, such as, being able to comprehend and write effective reports, make effective presentations and documentation, and give and receive clear instructions.
<b>i</b>	<b>The Pharmacist and Society:</b> Apply reasoning informed by the contextual knowledge to assess societal, health, safety and legal issues and the consequent responsibilities relevant to the professional pharmacy practice.
<b>j</b>	<b>Environment and Sustainability:</b> Understand the impact of the professional pharmacy solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
<b>k</b>	<b>Life-long learning:</b> Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change. Self-assess and use feedback effectively from others to identify learning needs and to satisfy these needs on an ongoing basis.

### Program Specific Outcomes (PSOs)

Upon the completion of the program, a graduate is able to

O. No.	Program Specific Outcome (PSO)
<b>a</b>	Equip with theoretical knowledge in the fields of pharmaceutical sciences such as, pharmaceutics, pharmaceutical chemistry, pharmacology, pharmacognosy and biotechnology.
<b>b</b>	Gain thorough knowledge on performing and implementing experimental skills on synthesis of compounds, formulation & analysis of drugs, screening of drugs, identification of microorganisms, diagnosis of different diseases and evaluation of crude drugs.
<b>c</b>	Evaluate statistical data and documentation of different practical aspects.
<b>d</b>	Acquire communication skills, research & development activities and entrepreneurship skills.



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**M. PHARMACY (PHARMACEUTICS AND PHARMACEUTICAL BIOTECHNOLOGY)**

**Program Outcomes (POs)**

PO. No.	Program Outcome (PO)
1.	Scientific knowledge: Acquire in-depth scientific knowledge of specific discipline or professional area with broader and global perspective to design, develop effective pharmaceutical dosage forms and drug delivery systems for improved therapeutic outcomes
2.	Technological applications (Critical thinking and problem solving): Develop an ability to discriminate, evaluate, analyze, synthesize existing and latest technological advances through critical thinking and problem solving skills, and apply for the integration of the same for the quality enhancement of pharmaceutical production.
3.	Research skills (Leadership skills): Review information relevant to unfamiliar problems through literature study and experiments, apply appropriate research methodologies, techniques and tools; design, conduct experiments, analyze and interpret scientific data. Demonstrate broader observational perspective and higher order skills and contribute individually / in group(s) towards the development of scientific / technological knowledge in one or more domains of pharmaceutical sciences.
4.	Modern tool usage (Creative/innovation skills, computational and statistical knowledge): Learn, create, select and apply appropriate techniques, resources, procedures and modern pharmacy-related instruments and computer software tools, including prediction and modeling, statistical applications to interpret and infer complex

	pharmaceutical activities with an understanding of the limitations to optimize the formulations.
5.	Collaborative and Multidisciplinary work: Possess knowledge and appreciative of group dynamics, recognize opportunities and contribute positively to collaborative-multidisciplinary scientific research in pharmacy and applied sciences, demonstrate a capacity for self-management, and teamwork, decision-making based on open-mindedness, objectivity and rational analysis in order to achieve collective goals and foster the learning of themselves as well as others.
6.	Project Management and Finance: Demonstrate knowledge and understanding of pharmaceutical and management principles and apply the same to one's own work, as a member and leader in a team, manage projects efficiently in respective disciplines and multidisciplinary environments after consideration of economic and financial factors.
7.	Communication: Communicate confidently and effectively with the pharmacy community and society at large, with regard to complex health activities, such as, being able to comprehend and write effective reports and design documentation by adhering to appropriate standards, make effective presentations, and give and receive clear instructions.
8.	Research outcomes and Entrepreneurship: Acquire ability to disseminate the research outcomes useful to government, pharmaceutical industries, health care providers and the community, through publications and presentations. Contribute as reliable resource for industry research, consultation and training partnerships. Understand the basics of establishing management of pharmaceutical enterprise.
9.	Ethical practices and Social responsibility (Environment and sustainability: Acquire professional and intellectual integrity, professional code of conduct, ethics of research and scholarship, consideration of the impact of research outcomes on professional practices and an understanding of responsibility to contribute to the community for sustainable development of society.
10.	Life-long learning: Recognize the need for, and have the preparation and ability to engage in life-long learning independently, with a high

	level of enthusiasm and commitment to update knowledge and competence continuously in order to meet industrial needs and societal needs for having a rewarding career.
11.	Independent and Reflective Learning: Observe and assess critically the outcomes of one's actions and make corrective measures subsequently, and learn from mistakes without depending on external feedback.

### **M. Pharmacy (Pharmaceutics and Pharmaceutical Biotechnology)**

#### **Program Educational Objectives (PEOs)**

<b>PEO. No.</b>	<b>Program Educational Objectives (PEOs)</b>
<b>PEO1:</b>	To enrich students with proficiency in advanced theoretical and practical knowledge of pharmaceutics and pharmaceutical biotechnology and other allied sciences, with an ability to analyze, evaluate, design, discriminate, interpret, create and integrate existing and new knowledge in order to develop quality, safe and effective pharmaceutical formulations.
<b>PEO2:</b>	To nurture creative thinking, analytical skills, computational skills to judge independently to conceive information for conducting research and reflect to conceptualize and carry out the solutions for a potential problem and derive out innovative strategies to overcome therapeutic challenges with customized medicines in order to cater the needs of pharmaceutical industries and society at large.
<b>PEO3:</b>	To train the students to adopt into competitive work culture and flourish as an individual or team member in industrial or academic environments, perform consistently with high technical competency in design and process optimization as a prelude to become an entrepreneur in bio pharma domain.

**M. PHARMACY (PHARMACEUTICS AND PHARMACEUTICAL  
BIOTECHNOLOGY)**

PSO.	Program Specific Outcomes (PSOs)
1.	<b>Formulation strategies:</b> To acquire practical knowledge, expertise to develop, design disease-centric formulations, targeting approaches using current, advanced scientific principles for better patient care and compliance.
2.	<b>Advanced technologies:</b> To impart knowledge relevant to advanced pharmaceutical technologies and their applications that results in better quality, safer formulations for effective treatments.
3.	<b>Computational education:</b> To demonstrate the applications of artificial intelligence and computer software tools useful in the screening of formulations, interpretation of experimental data as well as their validation.
4.	<b>Project Management:</b> To utilize, manage resources from natural, semi-synthetic and synthetic origin in order to develop quality pharmaceutical products. To provide structure and focus through the tumultuous ride from project identification to successful products, write effective reports and presentations, publications and apply the knowledge of ethical and management principles required to work in a team as well as to lead a team.
5.	<b>Pharmaceutical regulations:</b> To appreciate the objectives and functions of different pharmaceutical regulatory authorities that governs quality, safety and efficacy of pharmaceuticals from production to patient door.



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### M. Pharmacy (Pharm. Chem.) Program Outcomes

Upon completion of the program, the graduate is able to:

PO. No	Program Outcomes
1.	Attain knowledge about recent advances in the field of medicinal chemistry at the molecular level. It includes different drug targets and various techniques for rational drug design, including computer-assisted drug design.
2.	Acquire detailed knowledge on chemistry of medicinal compounds from natural origin and general methods of structural elucidation of such compounds. It also emphasizes on isolation, purification and characterization of medicinal compounds from natural origin.
3.	Obtain in-depth knowledge concerning advances in organic chemistry, different techniques available for organic compound synthesis, and their applications to process chemistry and drug discovery.
4.	Accomplish knowledge on the development and optimization of a synthetic routes and the pilot plant procedure for the manufacture of Active Pharmaceutical Ingredients (APIs) and new chemical entities (NCEs) for the drug development phase.
5.	Understand the principle, instrumentation, and applications of diverse analytical techniques to identify/quantify the active pharmaceutical ingredients/chemicals/pharmaceuticals/natural products.
6.	Attain skills in data collection, presentation, critical thinking, identification of research problems, and selection of appropriate research methodology to conduct the research works, analysis of results, and draw the conclusion(s).

**Program Specific Outcomes (PSOs):**

<b>PSO.</b>	<b>After completion of the program, the postgraduates are able to</b>
<b>1.</b>	Collect the data, analyze, present/identify the research problems, and select appropriate research methodology to conduct the research work independently or in a team.
<b>2.</b>	Design new chemical entities (NCEs) for various diseases/disorders and design/apply appropriate synthetic routes for the preparation of NCEs.
<b>3.</b>	Select appropriate techniques for extraction/isolation, purification, and characterization of chemical entities from natural or synthetic origin.





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**M. Pharmacy - Pharmaceutical Analysis**

**Program Outcomes (POs)**

Upon completion of the program, the graduate is able to:

PO. No	Program Outcomes
PO 1	Knowledge on Pharmaceutical Analysis: Understand the concept of instrumentation with hands on experience.
PO 2	Development of Methods: Optimize and validate an analytical method for new drug moieties, related substances and degradation products to meet the regulatory requirements.
PO 3	Problem Analyzing Ability: Interpret the analytical data and results statistically as per monograph.
PO 4	Modern Tool Usage: Outline the concept of hyphenated techniques and bio-analytical techniques for drug analysis in different matrices.
PO 5	Industrial Perspective: Understand the concept of regulatory guidelines and intellectual property rights.
PO 6	The Analyst and Society: Understand the future of drug analysis for the benefit of humanity.
PO 7	Ethics and Communication: Impart ethically and effectively with scientific community.
PO 8	Individual and Team Work: Acquaint to the work environment and can work individually or with team members.
PO 9	Life-long Learning: Recognize the need for, and have the preparation and ability to engage in independent and lifelong learning in the broadest context of technological change.

### **Program Specific Outcomes (PSOs)**

Upon completion of the program, the graduate is able to:

<b>PSO</b>	<b>Program Specific Outcomes (PSOs)</b>
<b>PSO 1</b>	Analyze, design and develop analytical methods for identification and quantification of new drug moieties, related substances and degradation products.
<b>PSO 2</b>	Apply skills pertaining to intellectual properties and regulatory guidelines.
<b>PSO 3</b>	Perform interdisciplinary activities in research and development.



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**Pharm. D and Pharm.D (PB) Program Outcomes (POs)**

Upon completion of the program, the graduate is able to:

Po No.	Program Outcome
1	To acquire basic and fundamental knowledge of medical, pharmaceutical and chemical sciences
2	To achieve thorough knowledge on drug development, drug approval, data management skills, research methodology and implementation of research projects
3	To understand the concepts of pharmacology, toxicology and pharmacotherapeutics including therapeutic drug monitoring, adverse reactions of different classes of drugs
4	To gain thorough knowledge on administration of drugs in clinic, prescription and dispensing of medicines in health care centres at different levels.
5	To acquire knowledge on diagnostic tests of different diseases, analytical testing and evaluation of various classes of drugs / drug products.
6	To assess the ethical principles in a professional context and life long learning in technical aspects of the healthcare system

## **PROGRAM SPECIFIC OUTCOMES**

At the end of successful completion of program, a graduate should be able to

<b>PSO No.</b>	<b>PROGRAM SPECIFIC OUTCOMES</b>
1	Achieve enhanced technical and professional skills to succeed in academia, industry, and the health care system.
2	Propagate the basic knowledge in medical science, pharmaceutical, chemical, and analytical technology complying with various pharmaceutical sectors
3	Apply professional ethics, good communication skills, and a multidisciplinary approach towards their professional growth.