P.R.S Educational Trust

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MOOC Courses for B. Pharm.

1. Scientific and Technical Communication Skills

This course is designed to enhance the scientific and technical communication skills essential for pharmacy students and professionals. It focuses on the principles and practices involved in the preparation and delivery of professional documents, presentations, and publications in the pharmaceutical and healthcare domains. Students will learn how to write research papers, lab reports, abstracts, technical manuals, and SOPs in a clear, concise, and structured manner. The course also trains learners in oral communication, including the effective use of visual aids, body language, and voice modulation in professional settings. Emphasis is placed on scientific grammar, citation formats (APA, MLA, Vancouver), paraphrasing techniques, and avoiding plagiarism. By the end of the course, students will be able to communicate their ideas effectively to academic, scientific, and regulatory audiences. The use of digital tools for creating infographics, poster presentations, and data visualization will also be introduced. Practical exercises include peer-reviewed writing, mock interviews, and group discussions. This course is essential for students aspiring to pursue higher studies, research, or industry roles, where precise and impactful communication is vital.

Course Duration: 45 hours

2. Recent Techniques in First Aid

This course equips pharmacy students with the essential skills and updated knowledge required to provide effective first aid in emergency situations. Covering the most recent international guidelines, the course includes training in cardiopulmonary resuscitation (CPR), bleeding control, burn management, fracture immobilization, and the use of Automated External Defibrillators (AEDs). Students will learn how to assess emergency scenes, perform primary surveys, and respond to medical crises such as seizures, allergic reactions, poisoning, and unconsciousness. Special focus is given to handling emergencies involving children, elderly individuals, and patients with chronic illnesses. The course incorporates simulated case studies to enhance decision-making and practical response under pressure. Psychological first aid and

emergency preparedness during disasters are also addressed. By the end of the course, learners will be capable of delivering prompt, effective care before professional help arrives. This training is especially valuable for pharmacy students working in hospitals, community pharmacies, or remote healthcare settings.

Course Duration: 45 hours

3. Pharmaceutical Microbiology and Virology

This course provides a comprehensive understanding of microorganisms, with a special emphasis on their relevance in pharmaceutical sciences. Students will explore the classification, structure, growth, and control of bacteria, fungi, and viruses, along with their roles in health, disease, and drug development. The course also focuses on good manufacturing practices (GMP) and quality control in pharmaceutical microbiology. The virology section highlights the structure, replication, and pathogenicity of viruses, including emerging viral threats and the mechanisms of antiviral drugs. Students will gain insight into virological diagnostics, vaccine development, and biosafety practices essential for handling infectious materials. By the end of the course, learners will be well-prepared to apply microbiological principles in quality assurance, infection control, and drug development processes essential skills for careers in pharmaceutical manufacturing, hospital laboratories, and regulatory environments.

Course Duration: 45 hours

4. Biochemical Diagnostic Testing

This course introduces students to the principles and practical applications of biochemical diagnostics used in clinical and pharmaceutical settings. It focuses on the analysis and interpretation of biochemical markers essential for disease detection, monitoring, and therapeutic decision-making. Topics covered include diagnostic tests for liver and kidney function, blood glucose levels, lipid profiles, thyroid function, and enzyme assays. Students will also learn about point-of-care testing methods, specimen collection, storage, and processing techniques to ensure accuracy and reliability of test results. Emphasis is placed on understanding the clinical significance of laboratory values, correlating test results with physiological and pathological conditions, and applying critical thinking in diagnostic decision-making. The course also explores the role of diagnostic testing in chronic disease management, therapeutic drug monitoring, and personalized medicine. Hands-on demonstrations and real-world case discussions enhance the learning experience. By the end

of the course, students will be equipped with essential diagnostic knowledge and analytical skills, preparing them for roles in hospital laboratories, diagnostic centers, and pharmaceutical research environments.

Course Duration: 45 hours

5. Disaster Management and Emergency Pharmacy Services

This course provides pharmacy students with essential knowledge and skills to manage pharmaceutical services during disasters and emergencies. It focuses on the coordination, planning, and execution of pharmacy roles in various crisis scenarios, including natural disasters, pandemics, chemical spills, and mass casualty incidents. Students will explore disaster risk assessment, emergency preparedness planning, inventory and supply chain management, and rapid deployment of essential medicines. The course also emphasizes the establishment of mobile pharmacy units, triage support, and collaboration with healthcare teams in disaster zones. Key regulatory frameworks such as the Disaster Management Act, WHO emergency guidelines, and national disaster response policies are discussed to ensure compliance and effective action. Ethical considerations, communication protocols, and psychological first aid are integrated to develop well-rounded emergency responders. Practical sessions and case-based simulations prepare students for real-time decision-making and pharmacy operations in high-pressure environments. Upon completion, students will be equipped to contribute effectively to public health resilience by ensuring timely and safe access to medications during crises, particularly in hospital, community, and rural healthcare settings.

Course Duration: 45 hours

6. Rural and Urban Health Systems

This course offers an in-depth exploration of the healthcare delivery systems in rural and urban settings, highlighting the challenges, disparities, and strategies for improving public health outcomes. It is designed to help pharmacy students understand the structural and functional differences in healthcare infrastructure across diverse geographic regions. Key topics include the organization of primary, secondary, and tertiary care services; government health programs; and public-private partnerships. The course examines the social, economic, and environmental determinants of health that influence access, quality, and equity in both rural and urban communities. Students will study the role of pharmacists in bridging healthcare gaps, especially in underserved rural areas, through community outreach, medication counseling, and health promotion initiatives. Urban health issues such as overburdened facilities, pollution-related

illnesses, and lifestyle diseases are also discussed. Through real-world case studies, students gain insight into healthcare policy implementation, resource allocation, and interprofessional collaboration. By the end of the course, learners will be equipped to contribute meaningfully to health system strengthening, policy advocacy, and improved healthcare delivery in both rural and urban contexts.

Course Duration: 45 hours

7. Instrumentation Handling and Analytical Techniques

This course is designed to provide pharmacy students with a strong foundation in the principles, operation, and applications of modern analytical instruments used in pharmaceutical analysis. It emphasizes both theoretical understanding and hands-on skills essential for quality control, drug development, and research. Students will learn the working principles, calibration, and maintenance of key instruments. The course also covers sample preparation techniques, error analysis, and data interpretation. Real-time applications of these instruments in analyzing raw materials, finished dosage forms, and stability testing are explored. Emphasis is placed on Good Laboratory Practices (GLP), standard operating procedures (SOPs), and regulatory compliance in pharmaceutical laboratories. Hands-on demonstrations, virtual labs, and problem-solving exercises help students develop analytical thinking and technical proficiency. By the end of the course, students will be equipped to operate instrumentation confidently and contribute to the accuracy and reliability of pharmaceutical testing, making them industry-ready for roles in quality assurance, R&D, and regulatory affairs.

Course Duration: 45 hours

8. Recent Development in Pharmaceutical Industry

This course immerses students in the cutting-edge innovations, market shifts, and regulatory updates that are reshaping the global pharmaceutical landscape. Learners first explore scientific breakthroughs such as mRNA platforms, CRISPR-based gene editing, targeted biologics, and long-acting drug delivery systems and examine how these technologies transition from bench to bedside. The curriculum then analyzes digital transformation, covering artificial-intelligence-driven drug discovery, real-world evidence, and the integration of blockchain for supply-chain transparency. A dedicated module reviews accelerated approval pathways, adaptive clinical trial designs, and evolving pharmacovigilance standards under authorities like the US FDA, EMA, and CDSCO, highlighting their impact on time-to-market and post-marketing surveillance. Students assess sustainability initiatives, including green chemistry

principles and net-zero manufacturing goals, alongside strategies for circular packaging and waste reduction. Market intelligence segments delve into patent cliffs, biosimilar competition, and pricing-access dynamics in emerging economies. Interactive workshops sharpen students' ability to critically evaluate pipeline portfolios, interpret regulatory guidance, and forecast commercial viability. By course end, participants will possess a holistic understanding of contemporary drivers in pharmaceutical R&D, manufacturing, and market strategy—preparing them to navigate and contribute to this rapidly evolving industry.

Course Duration: 45 hours

MOOC Courses for M. Pharm.

1. AI in Pharmaceutical Research

This course explores the transformative role of Artificial Intelligence (AI) in advancing pharmaceutical research and development. It is designed for postgraduate students to understand and apply AI techniques across various stages of the drug discovery and development pipeline. Learners will study how machine learning, deep learning, and data mining are utilized to accelerate target identification, lead optimization, and predictive modeling of drug efficacy and toxicity. Emphasis is placed on real-world applications through case studies, showcasing the use of AI by pharmaceutical companies in areas such as repurposing existing drugs, identifying biomarkers, and optimizing clinical trials. Tools like Python, R, and AI-driven platforms are introduced for hands-on experience in data handling and model development. Students will also explore ethical considerations, data privacy regulations, and the challenges of integrating AI into traditional workflows. By the end of the course, learners will be prepared to leverage AI technologies to enhance research efficiency, innovation, and decision-making in pharmaceutical sciences.

Course Duration: 45 hours

2. AI in Biostatistical Analysis

This course provides a comprehensive overview of how Artificial Intelligence (AI) is revolutionizing biostatistical analysis in pharmaceutical and biomedical research. It is designed for postgraduate students aiming to integrate modern AI tools into statistical modeling and data interpretation. The course introduces foundational concepts in biostatistics, including descriptive statistics, probability distributions, hypothesis testing, and regression analysis. Building on this foundation, students explore how AI techniques such as machine learning

algorithms, neural networks, and natural language processing enhance the analysis of complex clinical and epidemiological datasets. Learners gain practical experience using AI-powered software and programming tools such as Python, R, and SAS to conduct exploratory data analysis, build predictive models, and visualize large-scale health data. Applications include clinical trial analytics, pharmacovigilance signal detection, patient stratification, and real-world evidence generation. Special modules cover ethical data handling, bias reduction in AI models, and regulatory perspectives on AI in biostatistics. By the end of the course, students will be capable of applying AI methodologies to improve data-driven decision-making, optimize study design, and enhance the reliability of outcomes in pharmaceutical research.

Course Duration: 45 hours

MOOC Course for Ph.D

1. Scientific Writing, Publishing, and Research Communication

This course is designed for Ph.D. scholars and early-career researchers to develop advanced skills in scientific writing, publishing, and effective research communication. It provides a structured approach to writing high-quality scientific documents and disseminating research findings to academic, professional, and public audiences. Students will learn the fundamentals of manuscript preparation, including structuring original research articles, reviews, and case reports. Key components such as writing abstracts, introductions, methodology, results, discussions, and conclusions are covered in detail. The course also emphasizes referencing styles, ethical publishing practices, and tools to avoid plagiarism. Learners explore the peer-review process, journal selection strategies, impact factor analysis, and open-access publishing models. Communication skills for conference presentations, poster design, grant writing, and media engagement are also developed. Practical assignments, peer-feedback sessions, and case studies from leading journals enhance the learning experience. By the end of the course, students will be equipped to write and publish impactful scientific work and communicate their research with clarity and credibility skills essential for academic growth, funding opportunities, and professional advancement.

Course Duration: 45 hours