SOP-MPharm(PharmaCeutics)

Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	Regulatory Affairs
Course Code	MPH 104T
Course Outcomes & Bloom's Level	**CO1-** Understand the concepts of innovator and generic drugs, drug development process, regulatory guidance's and guidelines for filing and approval process.**(BL2-Understand)** **CO2-** Know the preparation of dossiers and their submission to regulatory agencies in different countries**(BL2-Understand)** **CO3-** Knowledge on post approval regulatory requirements for actives and drug products, submission of global documents in CTD/ eCTD formats**(BL2-Understand)** **CO4-** Know the Regulatory guidance's and guidelines for filing and approval process in different countries.**(BL3-Apply)** **CO5-** Understand the clinical trials requirements for approvals for conducting clinical trials, pharmacovigilance and process of monitoring in clinical trials**(BL3-Apply)**

Course Elements	Skill Development ✓ Entrepreneurship ✗ Employability ✓ Professional Ethics ✗ Gender ✗ Human Values ✗ Environment ✗	SDG (Goals)	SDG4(Quality education)

Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	1	1	-	1	1	-	-	2	-	-	3	-	1	-	1
CO2	2	-	-	-	2	1	-	3	-	-	3	-	2	1	2
CO3	1	2	-	-	-	-	-	2	-	-	2	-	-	-	-
CO4	3	2	-	1	-	2	-	3	-	-	2	-	-1	2	-
CO5	2	1	-	-	1	1	-	1	-	-	2	-	-	2	-
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

SOP-MPharm(PharmaCeutics)

Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	Modern Pharmaceutical Analytical Techniques
Course Code	MPH 101T
Course Outcomes & Bloom's Level	**CO1-** Investigate the pharmaceutical substance by absorption and emission techniques**(BL2-Understand)** **CO2-** Investigate the pharmaceutical substance by Nuclear Magnetic spectroscopy techniques.**(BL3-Apply)** **CO3-** Investigate the pharmaceutical substance by Mass spectroscopy techniques.**(BL3-Apply)** **CO4-** Recognize the principle, instrumentation and applications of different chromatographic techniques.**(BL4-Analyze)** **CO5-** Apprehend the fundamentals of immunological assays.**(BL4-Analyze)**

Course Elements	Skill Development ✓ Entrepreneurship ✗ Employability ✓ Professional Ethics ✗ Gender ✗ Human Values ✗ Environment ✗	SDG (Goals)	SDG4(Quality education)

Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	1	3	-	3	-	-	-	-	-	3	-	1	-	1
CO2	3	2	3	-	2	1	-	-	-	-	3	-	2	1	2
CO3	3	1	1	-	1	2	-	-	-	-	3	-	2	-	1
CO4	3	1	1	2	2	2	-	-	-	-	3	-	1	2	2
CO5	2	1	2	-	2	2	-	-	-	-	3	-	-	1	-
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	Drug Delivery System
Course Code	MPH 102T
Course Outcomes & Bloom's Level	**CO1-** Explain drug delivery systems which give detailed information on transporting a pharmaceutical compound in the body as needed to safely achieve its desired therapeutic effect. Also about the approaches, formulations, technologies, and systems for transporting a pharmaceutical compound in the body as needed to safely achieve its desired therapeutic effect with suitable drug delivery **(BL2-Understand)** **CO2-** Know vaccine delivery and different mode of application approach for clinical use. **(BL2-Understand)** **CO3-** Ability to communicate different types of Drug carrier used in the process of drug delivery which serves to improve the selectivity, effectiveness, and/or safety of drug administration**(BL3-Apply)** **CO4-** Apply latest drug delivery knowledge and think to develop new formulation based on the individual requirement**(BL3-Apply)** **CO5-** Create recent developments in protein and peptide for parenteral delivery approaches will give new dimension of drug deliver for antibiotics, insulin, etc**(BL4-Analyze)**

Course Elements	Skill Development ✓ Entrepreneurship ✗ Employability ✓ Professional Ethics ✗ Gender ✗ Human Values ✗ Environment ✗	**SDG (Goals)**	SDG1(No poverty) SDG3(Good health and well-being) SDG4(Quality education) SDG17(Partnerships for the goals)

Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	-	3	-	3	1	-	-	-	-	3	-	1	-	1
CO2	3	-	2	-	1	2	-	-	-	-	3	-	2	1	-
CO3	3	1	3	-	2	-	-	-	-	-	3	-	-	-	2
CO4	3	-	1	-	2	1	-	-	-	-	3	-	-	1	2
CO5	2	2	3	1	1	-	-	-	-	-	3	-	1	2	-
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

SOP-MPharm(PharmaCeutics)

Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	Modern Pharmaceutics
Course Code	MPH 103T
Course Outcomes & Bloom's Level	**CO1-** Apply the concepts of preformulation and optimization techniques during formulation development.**(BL3-Apply)** **CO2-** Recognize the importance of validation of methods, equipments and processes during pharmaceutical manufacturing**(BL2-Understand)** **CO3-** Describe current good manufacturing practices guidelines and industrial management**(BL2-Understand)** **CO4-** Analyze the importance of tablet compression and compaction studies.**(BL4-Analyze)** **CO5-** Understand different consolidation parameters employed in formulation development and evaluation.**(BL5-Evaluate)**

Course Elements	Skill Development ✓ Entrepreneurship ✗ Employability ✓ Professional Ethics ✗ Gender ✗ Human Values ✗ Environment ✗	**SDG (Goals)**	SDG1(No poverty) SDG3(Good health and well-being) SDG4(Quality education) SDG17(Partnerships for the goals)

Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	1	-	3	-	1	-	-	-	-	-	3	-	1	-	1
CO2	3	1	1	-	2	-	-	-	-	-	3	-	-	1	-
CO3	2	2	2	1	2	-	-	-	-	-	3	-	2	2	2
CO4	2	1	1	-	2	-	-	-	-	-	3	-	1	-	2
CO5	2	2	2	2	-	1	-	-	-	-	3	-	1	-	2
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

SOP-MPharm(PharmaCeutics)

Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	Pharmaceutics Practical I
Course Code	MPH 105P
Course Outcomes & Bloom's Level	**CO1-** Chemicals and Excipients**(BL4-Analyze)** **CO2-** The analysis of various drugs in single and combination dosage forms**(BL5-Evaluate)** **CO3-** Theoretical and practical skills of the instruments**(BL3-Apply)**

Course Elements	Skill Development ✓ Entrepreneurship ✓ Employability ✓ Professional Ethics ✗ Gender ✗ Human Values ✗ Environment ✗	SDG (Goals)	SDG1(No poverty) SDG3(Good health and well-being) SDG4(Quality education) SDG17(Partnerships for the goals)

Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	1	1	3	1	1	-	-	-	-	-	3	-	1	-	1
CO2	3	1	2	2	2	-	-	-	-	-	3	-	2	1	2
CO3	3	2	3	-	1	-	-	-	-	-	3	-	3	-	2
CO4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

SOP-MPharm(PharmaCeutics)

Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	Assignments
Course Code	MPH 106A
Course Outcomes & Bloom's Level	**CO1-** To understand modern pharmaceutical techniques**(BL4-Analyze)** **CO2-** To understand various pharmaceutical formulations**()** **CO3-** To understand the IPR in pharmacy**()**

Course Elements	Skill Development ✘ Entrepreneurship ✘ Employability ✘ Professional Ethics ✘ Gender ✘ Human Values ✘ Environment ✘	**SDG (Goals)**	SDG4(Quality education)

Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	1	1	1	-	-	-	-	-	-	-	1	-	1	-	1
CO2	2	2	2	-	-	-	-	-	-	-	1	-	-	2	-
CO3	1	1	-	-	-	-	1	-	-	-	1	-	-	-	1
CO4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

SOP-MPharm(PharmaCeutics)

Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	Online Certificate Course
Course Code	MPH 107ET
Course Outcomes & Bloom's Level	**CO1-** TO INCREASE CREATIVE AND TECHNICAL SKILLS**(BL4-Analyze)**

Course Elements	Skill Development ✓ Entrepreneurship ✗ Employability ✓ Professional Ethics ✗ Gender ✗ Human Values ✗ Environment ✗	**SDG (Goals)**	SDG4(Quality education)

Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	1	1	-	-	-	-	3	-	-	3	-	3	1	2
CO2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

SOP-MPharm(PharmaCeutics)

Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	Good Manufacturing in Pharma
Course Code	MPH 108ET
Course Outcomes & Bloom's Level	**CO1-** Meaning and importance of GMP in the manufacturing and pharmaceutical industries.**(BL1-Remember)** **CO2-** General and specific requirements for documentation and records**(BL2-Understand)** **CO3-** The role of Production, Quality Control (QC), Quality Assurance (QA) and the Qualified Person (QP) in GMP**(BL3-Apply)** **CO4-** To apply the GMP certification in industry **(BL3-Apply)** **CO5-** To learn the documentation and GMP SOPs **(BL3-Apply)**

Course Elements	Skill Development ✓ Entrepreneurship ✗ Employability ✓ Professional Ethics ✗ Gender ✗ Human Values ✗ Environment ✓	SDG (Goals)	SDG1(No poverty) SDG3(Good health and well-being) SDG4(Quality education) SDG6(Clean water and sanitation) SDG8(Decent work and economic growth) SDG12(Responsible consuption and production) SDG17(Partnerships for the goals)

Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	-	-	-	1	-	1	1	2	-	3	-	1	1	1
CO2	1	-	-	1	1	-	1	1	2	-	3	-	1	1	1
CO3	1	-	-	-	1	-	2	1	2	-	3	-	2	1	1
CO4	2	-	-	1	1	-	1	2	2	-	2	-	1	-	3
CO5	1	-	-	1	1	-	2	2	2	-	2	-	-	-	-
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

SOP-MPharm(PharmaCeutics)

Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	Molecular Pharmaceutics (Nano Tech and Targeted DDS)
Course Code	MPH 201T
Course Outcomes & Bloom's Level	**CO1-** Recall the basic aspects and approaches of targeted drug delivery systems**(BL2-Understand)** **CO2-** Describe methods for the preparation and evaluation of polymeric nanoparticles and liposome's**(BL3-Apply)** **CO3-** Outline the preparation methods and applications of monoclonal antibodies and vesicular nanocarriers.**(BL3-Apply)** **CO4-** Discuss the different aspects of pulmonary drug delivery systems**(BL4-Analyze)** **CO5-** Choose components of nucleic acid based therapeutic delivery systems**(BL5-Evaluate)**
Course Elements	Skill Development ✓ Entrepreneurship ✗ Employability ✓ Professional Ethics ✗ Gender ✗ Human Values ✗ Environment ✗	SDG (Goals)	SDG3(Good health and well-being) SDG4(Quality education)

Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	1	3	3	3	-	-	-	-	-	3	-	3	-	3
CO2	2	2	2	3	2	-	-	-	-	-	3	-	2	1	2
CO3	2	1	3	2	1	-	-	-	-	-	3	-	2	-	1
CO4	3	2	3	2	3	-	-	-	-	-	3	-	3	2	2
CO5	1	1	3	2	2	-	-	-	-	-	2	-	2	2	3
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

SOP-MPharm(PharmaCeutics)

Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	Advanced Biopharmaceutics & Pharmacokinetics
Course Code	MPH 202T
Course Outcomes & Bloom's Level	**CO1-** Understand basic concepts in biopharmaceutics and pharmacokinetics **(BL2-Understand)** **CO2-** Explain design and evaluation of dosage regimens of the drugs using pharmacokinetic and biopharmaceutics parameters**(BL2-Understand)** **CO3-** Analyze raw data and derive the pharmacokinetic models and parameters the best describe the process of drug absorption, distribution, metabolism and elimination**(BL3-Apply)** **CO4-** Know critical evaluation of biopharmaceutics studies involving drug product equivalency**(BL5-Evaluate)** **CO5-** Identify potential clinical pharmacokinetic problems and apply basic pharmacokinetic principles to solve them**(BL5-Evaluate)**
Course Elements	Skill Development ✓ Entrepreneurship ✗ Employability ✓ Professional Ethics ✗ Gender ✗ Human Values ✗ Environment ✗	**SDG (Goals)**	SDG3(Good health and well-being) SDG4(Quality education)

Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	1	1	3	1	3	-	-	-	-	3	-	1	1	1
CO2	2	1	2	2	2	2	-	-	-	-	2	-	2	2	2
CO3	2	2	3	1	2	1	-	-	-	-	2	-	1	2	2
CO4	3	-	1	2	2	2	-	-	-	-	3	-	2	-	2
CO5	3	1	3	2	3	2	-	-	-	-	2	-	1	1	3
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	Computer Aided Drug Delivery System
Course Code	MPH 203T
Course Outcomes & Bloom's Level	**CO1-** Describe statistical modeling and quality by design in pharmaceutical research and development**(BL2-Understand)** **CO2-** Discuss the descriptors of drug disposition utilized in computational modeling**(BL2-Understand)** **CO3-** Understand the ethics and legal protection of computing in pharmaceutical research**(BL2-Understand)** **CO4-** Defend in silico approaches for biopharmaceutical characterization**(BL3-Apply)** **CO5-** Recognize the importance of automation in pharmaceutical development**(BL4-Analyze)**

Course Elements	Skill Development ✓ Entrepreneurship ✗ Employability ✓ Professional Ethics ✗ Gender ✗ Human Values ✗ Environment ✗	SDG (Goals)	SDG3(Good health and well-being) SDG4(Quality education) SDG7(Affordable and clean energy) SDG9(Industry Innovation and Infrastructure)

Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	1	1	3	-	3	-	1	-	-	-	3	-	1	-	1
CO2	2	2	3	-	3	-	-	-	-	-	3	-	-	1	2
CO3	1	-	2	-	2	-	-	-	-	-	3	-	2	2	2
CO4	3	1	2	-	3	-	1	-	-	-	2	-	1	-	-
CO5	3	-	1	-	3	-	1	-	-	-	2	-	-	2	-
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	Cosmetics and Cosmeceuticals
Course Code	MPH 204T
Course Outcomes & Bloom's Level	**CO1-** Gain information on key ingredients used in cosmetics and cosmeceuticals **(BL1-Remember)** **CO2-** Understand key building blocks of cosmetics for various formulations **(BL2-Understand)** **CO3-** Know the current technologies in the market**(BL2-Understand)** **CO4-** Understand the scientific principles to develop cosmetics and cosmeceuticals with desired safety**(BL2-Understand)** **CO5-** Understand the regulatory aspects in cosmetics**(BL4-Analyze)**

Course Elements	Skill Development ✔ Entrepreneurship ✘ Employability ✔ Professional Ethics ✘ Gender ✘ Human Values ✘ Environment ✘	**SDG (Goals)**	SDG3(Good health and well-being) SDG4(Quality education) SDG9(Industry Innovation and Infrastructure)

Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	1	-	-	-	2	-	-	-	-	-	3	-	1	1	1
CO2	3	1	-	-	2	-	-	-	-	-	3	-	2	2	2
CO3	2	2	-	-	2	-	-	-	-	-	1	-	1	-	2
CO4	1	2	-	-	1	-	-	-	-	-	2	-	1	-	3
CO5	3	-	-	-	-	-	-	-	-	-	1	-	-	2	2
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

SOP-MPharm(PharmaCeutics)

Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	Pharmaceutics Practical II
Course Code	MPH 205P
Course Outcomes & Bloom's Level	**CO1-** To understand and apply the practical knowledge**(BL2-Understand)** **CO2-** To understand the concepts of bioavailability and bioequivalence of drug products and their significance**(BL2-Understand)** **CO3-** To prepare several herbal and cosmetic formulations**(BL3-Apply)** **CO4-** Hands training on new deug devlopment softwares**(BL3-Apply)**

Course Elements	Skill Development ✓ Entrepreneurship ✓ Employability ✓ Professional Ethics ✗ Gender ✗ Human Values ✗ Environment ✗	SDG (Goals)	SDG3(Good health and well-being) SDG4(Quality education)

Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	-	-	-	-	-	-	-	-	-	3	-	1	-	1
CO2	3	-	1	1	-	-	-	-	-	-	3	-	-	1	2
CO3	2	-	2	2	-	-	-	-	-	-	3	-	2	-	3
CO4	3	-	-	1	-	-	-	-	-	-	3	-	-	-	2
CO5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

SOP-MPharm(PharmaCeutics)

Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	Seminars
Course Code	MPH 206S
Course Outcomes & Bloom's Level	**CO1-** The purpose of a seminar is to enable students to improve their knowledge and understanding of a topic by engaging with key issues**(BL3-Apply)** **CO2-** To Focus on sharing the knowledge**(BL3-Apply)** **CO3-** To improve the communicative ,presentation and understanding skills in students**(BL3-Apply)**

Course Elements	Skill Development ✓ Entrepreneurship ✗ Employability ✓ Professional Ethics ✗ Gender ✗ Human Values ✗ Environment ✗	SDG (Goals)	SDG3(Good health and well-being) SDG4(Quality education) SDG7(Affordable and clean energy)

Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	1	1	1-	-	-	-	-	-	-	3	3	1	1	-	3
CO2	-	2	2	-	-	-	-	-	-	3	3	2	-	-	1
CO3	2	-	1	-	-	-	-	-	-	3	3	1	2	-	2
CO4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

SOP-MPharm(PharmaCeutics)

Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	Online Certificate Course
Course Code	MPH 207ET
Course Outcomes & Bloom's Level	**CO1-** Why QbD, what is QbD? FDA objectives, the QbD approach**()** **CO2-** QbD and continuous processing: FDA perspective, advantages, challenges**()** **CO3-** Determining CPPs and CMAs, CQA,QTPP,RISK ASSESMENT**()**
Course Elements	Skill Development ✓ Entrepreneurship ✗ Employability ✓ Professional Ethics ✗ Gender ✗ Human Values ✗ Environment ✗	**SDG (Goals)**	SDG3(Good health and well-being) SDG4(Quality education) SDG9(Industry Innovation and Infrastructure)

Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	1	1	-	-	-	-	-	-	-	3	-	1	1	1
CO2	2	2	2	-	-	-	-	-	-	-	3	-	2	2	2
CO3	3	-	-	-	-	-	-	-	-	-	3	-	1	1	1
CO4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

SOP-MPharm(PharmaCeutics)

Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	Introduction to intellectual property rights
Course Code	MPH 208ET
Course Outcomes & Bloom's Level	**CO1-** To create awareness of IPR among pharmacy students.**(BL2-Understand)** **CO2-** To make the pharmacy students aware about the pharmaceutical R & D and the activities therein.**(BL2-Understand)** **CO3-** Develop the understanding of the Intellectual Property Rights necessary for research activities in the pharmaceutical industry.**(BL3-Apply)** **CO4-** To know the database of intellectual property and TKDL**(BL2-Understand)** **CO5-** To apply the Knowledge of IPR in drafting and fillng of IPR**(BL3-Apply)**

Course Elements	Skill Development ✓ Entrepreneurship ✓ Employability ✓ Professional Ethics ✗ Gender ✗ Human Values ✓ Environment ✗	**SDG (Goals)**	SDG1(No poverty) SDG3(Good health and well-being) SDG4(Quality education) SDG6(Clean water and sanitation) SDG8(Decent work and economic growth) SDG17(Partnerships for the goals)

Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	-	2	-	1	-	-	-	3	-	2	3	-	1	1	1
CO2	-	1	-	-	-	-	-	3	-	-	2	-	1	-	1
CO3	-	1	-	-	-	-	-	2	-	-	-	-	-	-	-
CO4	-	-	-	-	-	-	-	2	-	-	2	-	-	-	-
CO5	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

SOP-MPharm(PharmaCeutics)

Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	Research Methodology and Biostatistics
Course Code	MPH 301T
Course Outcomes & Bloom's Level	**CO1-** Develop the ability to apply the methods while working on a research project work**(BL2-Understand)** **CO2-** Describe the appropriate statistical methods required for a particular research design **(BL2-Understand)** **CO3-** Choose the appropriate research design and develop appropriate research hypothesis for a research project**(BL3-Apply)** **CO4-** Develop an appropriate framework for research studies**(BL4-Analyze)**

Course Elements	Skill Development ✓ Entrepreneurship ✗ Employability ✓ Professional Ethics ✗ Gender ✗ Human Values ✗ Environment ✗	**SDG (Goals)**	SDG3(Good health and well-being) SDG4(Quality education)

Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	-	3	3	3	-	-	-	-	-	-	3	-	1	1	1
CO2	-	2	2	1	-	-	-	-	-	-	3	-	2	2	2
CO3	-	3	1	2	-	-	-	-	-	-	2	-	1	2	1
CO4	-	3	3	3	-	-	-	-	-	-	2	-	2	-	2
CO5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

SOP-MPharm(PharmaCeutics)

Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	Journal Club
Course Code	MPH 302P
Course Outcomes & Bloom's Level	**CO1-** To accquire communication skills,group discussion, team work and to gain new knowledge**(BL2-Understand)** **CO2-** o critically evaluate recent articles in the academic literature **(BL3-Apply)**

Course Elements		SDG (Goals)	
Course Elements	Skill Development ✓ Entrepreneurship ✗ Employability ✗ Professional Ethics ✗ Gender ✗ Human Values ✗ Environment ✗	**SDG (Goals)**	SDG4(Quality education) SDG17(Partnerships for the goals)

Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	1	1	-	1	-	-	-	-	-	-	3	-	1	2	3
CO2	1	2	-	2	-	-	-	-	-	-	3	-	-	3	1
CO3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

SOP-MPharm(PharmaCeutics)

Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	Discussion Presentation (Proposal Presentation)		
Course Code	MPH 303P		
Course Outcomes & Bloom's Level	**CO1-** To know how to frame a research problem**()** **CO2-** to know how to set a hypothesis**()** **CO3-** can able to perform literature survey, and prepare a proposal of thesis**()**		
Course Elements	Skill Development ✔ Entrepreneurship ✘ Employability ✘ Professional Ethics ✘ Gender ✘ Human Values ✘ Environment ✘	**SDG (Goals)**	SDG3(Good health and well-being) SDG4(Quality education) SDG17(Partnerships for the goals)

Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	1	2	2	-	-	-	-	-	-	3	-	1	2	2
CO2	3	1	1	1	-	-	-	-	-	-	3	-	2	2	1
CO3	1	2	2	3	-	-	-	-	-	-	2	-	1	1	1
CO4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

SOP-MPharm(PharmaCeutics)

Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	Research Work
Course Code	MPH 304P
Course Outcomes & Bloom's Level	**CO1-** To know how to conduct a research**(BL2-Understand)** **CO2-** To know about different research methodolgies**(BL2-Understand)** **CO3-** Apllication of research principles and stastical principles**(BL3-Apply)**

Course Elements	Skill Development ✓ Entrepreneurship ✓ Employability ✓ Professional Ethics ✗ Gender ✗ Human Values ✓ Environment ✗	SDG (Goals)	SDG4(Quality education)

Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	3	3	3	2	2	-	-	-	-	3	-	1	3	3
CO2	3	2	3	2	2	1	-	-	-	-	3	-	2	1	3
CO3	3	3	3	2	2	1	-	-	-	-	3	-	3	1	3
CO4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

SOP-MPharm(PharmaCeutics)

Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	Research Presentation in Seminar/ Conference/Symposium		
Course Code	MPH 305P		
Course Outcomes & Bloom's Level	**CO1-** develop the communication skills**(BL2-Understand)** **CO2-** develop presentation skills**(BL3-Apply)**		
Course Elements	Skill Development ✓ Entrepreneurship ✗ Employability ✗ Professional Ethics ✗ Gender ✗ Human Values ✗ Environment ✗	SDG (Goals)	SDG4(Quality education)

Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	1	-	-	-	-	-	-	-	-	3	3	3	1	2	3
CO2	1	1	1	-	-	-	-	-	-	3	3	3	2	2	2
CO3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	Journal Club
Course Code	MPH 401P
Course Outcomes & Bloom's Level	**CO1-** To accquire communication skills,group discussion, team work and to gain new knowledge**(BL2-Understand)** **CO2-** To critically evaluate recent articles in the academic literature **(BL3-Apply)**

Course Elements	Skill Development ✔ Entrepreneurship ✘ Employability ✘ Professional Ethics ✘ Gender ✘ Human Values ✘ Environment ✘	**SDG (Goals)**	SDG4(Quality education)

Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	1	1	-	-	-	-	-	-	-	-	3	-	1	-	3
CO2	3	-	1	-	-	-	-	-	-	-	3	-	-	-	1
CO3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

SOP-MPharm(PharmaCeutics)

Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	Discussion/Presentation (Proposal Presentation)		
Course Code	MPH 402P		
Course Outcomes & Bloom's Level	**CO1-** 1.To know how to frame a research problem**(BL2-Understand)** **CO2-** 2. To know how to set a hypothesis **(BL3-Apply)** **CO3-** 3. can able to perform literature survey and prepare project proposal**(BL4-Analyze)**		
Course Elements	Skill Development ✔ Entrepreneurship ✘ Employability ✘ Professional Ethics ✘ Gender ✘ Human Values ✘ Environment ✘	**SDG (Goals)**	SDG4(Quality education)

Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	2	3	3	-	-	-	-	-	-	3	-	1	-	2
CO2	3	3	1	3	-	-	-	-	-	-	3	-	2	-	1
CO3	3	3	2	2	-	-	-	-	-	-	2	-	2	2	2
CO4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	Discussion/Final Presentation
Course Code	MPH 403P
Course Outcomes & Bloom's Level	**CO1-** To know how to conduct a research**(BL2-Understand)** **CO2-** To know about different research methodolgies**(BL2-Understand)** **CO3-** Apllication of research principles and stastical principles**(BL3-Apply)**

Course Elements	Skill Development ✓ Entrepreneurship ✗ Employability ✗ Professional Ethics ✗ Gender ✗ Human Values ✗ Environment ✗	SDG (Goals)	SDG4(Quality education)

Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	-	3	3	3	1	-	-	-	-	-	3	-	1	-	3
CO2	-	2	3	3	1	-	-	-	-	-	3	-	-	-	1
CO3	-	3	3	3	-	-	-	-	-	-	2	-	1	-	3
CO4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

SOP-MPharm(PharmaCeutics)

Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	Research Publication /Report
Course Code	MPH 404T
Course Outcomes & Bloom's Level	**CO1-** students should improve thier publication writing skills**(BL2-Understand)** **CO2-** Improve their communication skills **(BL3-Apply)** **CO3-** should get sound knowledge of various databases ,referencing styles and softwares**(BL3-Apply)**

Course Elements	Skill Development ✔ Entrepreneurship ✘ Employability ✔ Professional Ethics ✘ Gender ✘ Human Values ✘ Environment ✘	SDG (Goals)	SDG4(Quality education)

Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	1	3	2	2	1	-	-	-	-	-	3	-	1	1	3
CO2	1	1	2	2	-	-	-	-	-	-	2	-	2	2	3
CO3	1	3	3	2	1	-	-	-	-	-	3	-	1	2	1
CO4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-