

DEPARTMENT OF PHARMACEUTICAL SCIENCES
HEMVATI NANDAN BAHUGUNA GARHWAL UNIVERSITY
(A CENTRAL UNIVERSITY)
SRINAGAR, GARHWAL



Agenda for the meeting of Board of studies held on May 04, 2019

1. Interview for admission in Pre-Ph.D. (Pharmaceutical Sciences).
2. Approval of synopsis for Ph.D. registration of Ms. Meenakshi Negi and Mr. Mohit Kumar.
3. Increase intake of 5% in admission and subsequent break up of seats in all categories (OBC, SC and ST) in all courses of Pharmacy (B. Pharm I sem, B. Pharm III sem (IInd year lateral entry) and M. Pharm I sem. for Economic Weaker Sections (EWS) from 2019- 2020 academic session as per the directives of MHRD Vide Letter F.No.19-3/2019 CU Dated: 18th Jan 2019.
4. Appropriate conversions of Marks at Uniform level of all B. Pharm. and M. Pharm. end semester following PCI syllabus.
5. Regarding instruction for paper setting of M. Pharm. course of all semester following PCI syllabus.
6. Approval for the Course Outcome (CO) & Programme Specific Outcome (PSO) of B. Pharm. and M. Pharm. course.
7. The suggestions obtained by IQAC as feedback from IV sem. M. Pharm. students batch of 2017-18 is to be discussed.
8. Proposal for provision of M. Pharm./Ph.D. students for doing experimental work in other laboratories and sample analysis outside HNB Garhwal University.
9. To consider offering the SWAYAM MOOC Courses for UG, PG and Pre-Ph.D. students of Pharmaceutical Sciences Department.

Minutes of Board of Studies (Pharmaceutical Sciences) held on May 04, 2019

Meeting of the Board of Studies (Pharmaceutical Sciences) held on May 04, 2019 at 11.00 am in the office of Principal, Government Polytechnic, Srinagar-Garhwal.

Agenda No. 1: Interview for admission in Pre-Ph.D. (Pharmaceutical Sciences)

As per the constitution of BOS, following members attended the meeting:

1. Dr. Abdul Faruk, HOD, Department of Pharmaceutical Sciences (Convener).
2. Prof. Vijay Juyal, Department of Pharmaceutical Sciences, Kumaun University, Nainital, (External Member)
3. Prof. S N Bahuguna, Professor, Dept. of Zoology & Biotechnology, HNBGU, Srinagar.
4. Prof. R P Gairola, Dean School of Sciences, HNBGU, Srinagar.

The chairman welcomed all the members of the committee. As per the agenda, interview for the admission in Pre-Ph.D. (Pharmaceutical Sciences) against declared Pre-Ph.D. result 2018-19 academic session, provided to the department by University (ref. letter/HNBGU/2018-19/210 Dated 04/04/2019), was held on 04.05.2019 at 11.00 am onwards in the office of Principal, Government Polytechnic, Srinagar-Garhwal.

Since no candidate qualified pre-Ph.D. entrance test conducted by the University, therefore candidates from list of exempted category were called for the interview/presentation. Total 03 turned up and appeared before board for interview. The University has allotted 01 seats to the Department of Pharmaceutical Sciences for the admission in Pre-PhD.

Based on the performance in the interview/ research presentation on power point (50 marks) and academic career (UG-20%, PG-30% of total marks obtained) as per the para 5.4.1 of University Ordinance for admission in Pre-Ph.D., following candidates are recommended for admission in order of merit for 2018-19 academic session.

1. Popin Kumar

Wait list candidates: Rohit

1. Dr. Abdul Faruk, HOD, Department of Pharmaceutical Sciences (Convener).
2. Prof. Vijay Juyal, Department of Pharmaceutical Sciences, Kumaun University, Nainital, (External Member).
3. Prof. (Dr.) S N Bahuguna, Professor, Dept. of Zoology & Biotechnology, HNBGU, Srinagar.
4. Prof. (Dr.) R P Gairola, Dean School of Sciences, HNBGU, Srinagar.

Agenda No. 2: Approval of synopsis for Ph.D. registration of Ms. Meenakshi Negi and Mr. Mohit Kumar.

Resolution:

The detail power point presentation about the proposed research work for Ph.D. was given by the candidate, BOS members suggested for some corrections to be made in the proposed experimental work and approved the following synopsis submitted in partial fulfilment of the requirement for the degree of Ph.D. in the Department of Pharmaceutical Sciences.

1. by Ms. Meenakshi Negi entitled, **"SYNTHESIS, CHARACTERIZATION AND PHARMACOLOGICAL EVALUATION OF SOME NOVEL SUBSTITUTED 4-THIAZOLIDINONE DERIVATIVES"** under the supervision of Dr. Abdul Faruk, Associate Professor, Department of Pharmaceutical Sciences, HN BGU, Srinagar (Garhwal) and co-supervision on of Dr. Pooja Chawla, Professor. ISF College of Pharmacy, Moga, Punjab.
2. and by Mr. Mohit Kumar entitled, **"PREPARATION, CHARACTERISATION & EVALUATION OF SOLID SELF EMULSIFYING DRUG DELIVERY SYSTEM OF POORLY WATER SOLUBLE DRUGS"** under the supervision of Dr. Abdul Faruk, Associate Professor, Department of Pharmaceutical Sciences, HN BGU, Srinagar (Garhwal).
(The copy of synopsis is annexed)

Agenda No. 3: Increase intake of 5% in admission and subsequent break up of seats in all categories (OBC, SC and ST) in all courses of Pharmacy (B. Pharm I sem, B. Pharm III sem (IInd year lateral entry) and M. Pharm I sem. for Economic Weaker Sections (EWS) from 2019- 2020 academic session as per the directives of MHRD Vide Letter F.No.19-3/2019 CU Dated: 18th Jan 2019.

Resolution:

As per the directives of MHRD Vide Letter F.No.19-3/2019 CU Dated: 18th Jan 2019, BOS members approved for increase intake of 5% in admission and subsequent break up of seats in all categories (OBC, SC and ST) in all courses of Pharmacy (B. Pharm I sem, B. Pharm III sem (IInd year lateral entry) and M. Pharm I sem. for Economic Weaker Sections (EWS) from 2019-2020 academic session. This increased 5% seat in admission and subsequent break up of seats in all categories (OBC, SC and ST) in all courses of Pharmacy is an anticipatory approval from Pharmacy Council of India, New Delhi. The same may be required to be approved finally from the Pharmacy Regulating body (PCI, New Delhi).

Following is the increase in seat and its breakup for admission.

B. PHARM-I SEMESTER: Total Sanctioned Seats: 60

General (50.5 %)	OBC (27%)	SC (15%)	ST (7.5%)
Total = 31	Total = 16	Total = 09	Total = 04

Total available seat shall be 67 for B. Pharm I sem. after including 5% reservation to EWS for admission in 2019-20 academic session

General (50.5 %)	OBC (27%)	SC (15%)	ST (7.5%)
Normal (45.5%)	EWS (5%)	Total = 18	Total = 10
Total = 31	Total = 03		

B. Pharm. II year (Lateral Entry): Total Sanctioned Seats: 06

General (50.5 %)	OBC (27%)	SC (15%)	ST (7.5%)
Total = 03	Total = 02	Total = 01	Total = Nil

Total available seat shall be 07 for B. Pharm. III sem. year (IInd year Lateral Entry) after including 5% reservation to EWS for admission in 2019-20 academic session

General (50.5 %)	OBC (27%)	SC (15%)	ST (7.5%)
Normal (45.5%)	EWS (5%)	Total = 02	Total = 01
Total = 03	01		Nil

M. Pharm. I Semester: Total Sanctioned Seats: 15

General (50.5 %)	OBC (27%)	SC (15%)	ST (7.5%)
Total = 08	Total = 04	Total = 02	Total = 01

Total available seat shall be 17 for M. Pharm. I Semester (IInd year Lateral Entry) after including 5% reservation to EWS for admission in 2019-20 academic session

General (50.5 %)	OBC (27%)	SC (15%)	ST (7.5%)
Normal (45.5%)	EWS (5%)	Total = 05	Total = 02
Total = 08	01		Total = 01

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Agenda No. 4: Appropriate conversions of Marks at Uniform level of all B. Pharm. and M. Pharm. end semester following PCI syllabus.

Resolution:

The distribution of marks in B. Pharm. and M. Pharm course as prescribed in the PCI syllabus is not uniform. Some subjects comprised of total 100 marks and some are of 75, 50 and 25. It creates lot of problems while awarding Grades in respective subjects and Semester grade point average (SGPA) results. To resolve, it was decided by the members of BOS that all subjects should suitably/appropriately be converted at uniform level i.e., 75 marks for end sem. /external and 25 marks for Internal/sessional as necessary for theory & practical examination. This conversion shall be made after awarding marks out of the originally allotted marks as per PCI syllabus in respective subjects of all semester of B. Pharm. and M. Pharm. courses.

Agenda No. 5: Regarding instruction for paper setting of M. Pharm. course of all semester following PCI syllabus.

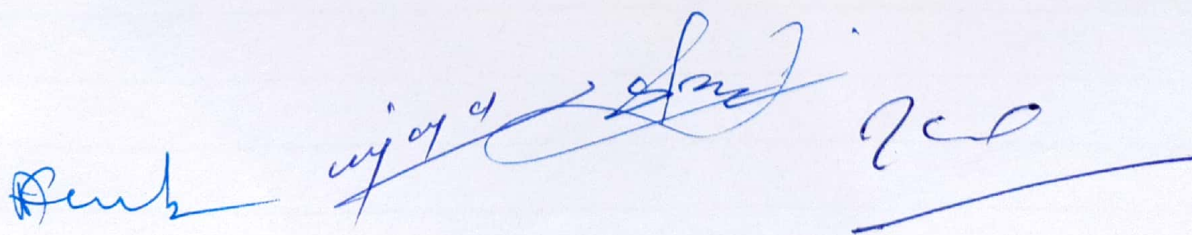
Resolution:

Since no instruction to paper setters is given in the ordinances of PCI for M. Pharm question paper setting, BOS members suggested that it should be as per the Ordinances of the University generally followed for other PG programme. Given below is the detail instruction to paper setters

1. The maximum marks for each theory paper shall be one hundred only and out of it 25 marks shall be allocated for internal assessment as per PCI syllabus. The paper-setter shall be required to set theory paper for maximum marks of seventy five only.
2. The maximum time for each theory paper shall be of three hours.
3. Each theory paper shall have eight questions and candidate shall be required to attempt five questions.

Instructions to candidate

1. Answer any Five Questions
2. All parts of a question should be answered together.



Agenda No. 6: Approval for the Course Outcome (CO) & Programme Specific Outcome (PSO) of B. Pharm. and M. Pharm. course.

Resolution:

BOS members approved following Course Outcome (CO) & Programme Specific Outcome (PSO) of B. Pharm. and M. Pharm. course.

Pharmaceutical Sciences is a dynamic and interdisciplinary field that aims to integrate fundamental principles of physical and organic chemistry, engineering, biochemistry, and biology to understand how to optimize delivery of drugs to the body and translate this integrated understanding into new and improved therapies against human disease.

Department of Pharmaceutical Sciences focuses its efforts on creating knowledge through its enterprising spirit to prepare specialists who can contribute to drug manufacture, research and development in drug discovery, pharmaceutical administration/ regulation, environmental issues, develop educators and researchers in pharmaceutical sciences.

The program outcomes (POS) of B. Pharmacy have been well illustrated in the curriculum designed by University as per Pharmacy Council of India guidelines. The curriculum and profession of pharmacy is very dynamic and progressive. This does not restricted to just mere passing the university examination but to produce trained qualified pharmacist who could work in areas of modern pharmaceutical industry, in community, clinical, biotechnology, bioinformatics, biomedical and hospital pharmacies. The course input is for the development of Professional Identity, technical knowledge, planning abilities, professional Communication, Problem analysis/ cognitive ability, entrepreneurship / Leadership skill, Pharmaceutical Ethics, pharmaceutical regulation, social liability, sense of Environment sustainability.

Program Specific Outcomes (PSO's)

PSO 1: Detail understanding of theoretical and practical knowledge of all core and allied subjects of pharmaceutical sciences, which consist of dosage form design, routes of administration of various drugs, their mechanism of action, chemical moiety involved, doses of drugs, patient treatment, patient counseling, drug dispensing, hospital administration, drug manufacturing, QA/QC and regulation etc.

PSO2: Highlight the concepts and operative components of pharmacovigilance, clinical pharmacy, hospital pharmacy, community pharmacy, pharmaceutical care, pharmacovigilance, pharmacoeconomics, clinical research, clinical pharmacokinetics and other related areas for the benefit of academicians, hospital/community pharmacists and industry, emphasizing the consequences of the use of medications.

PSO3: Rigorous core course-work in biopharmaceutics, drug transport, pharmacokinetics & pharmacodynamics, drug delivery systems, cell and molecular biology, synthetic and macromolecular chemistry, chemical and biomedical engineering, materials science, physiology and pharmacology.

PSO4: Emphasis on Drug Discovery and Design, Drug Delivery, Drug Action and Clinical Sciences, Drug Analysis, Cost Effectiveness of Medicines (Pharmacoeconomics), Drug Regulatory Affairs etc.



Course outcomes (COs):

YEAR /Sem.	SUBJECT CODE & SUBJECT	OUTCOME
I sem.	BP101T. HUMAN ANATOMY AND PHYSIOLOGY-I	CO1: This subject is designed to impart fundamental knowledge on the structure and functions of the various systems of the human body. It also helps in understanding both homeostatic mechanisms. The subject provides the basic knowledge required to understand the various disciplines of pharmacy.
	BP102T. PHARMACEUTICAL ANALYSIS	CO2: This course deals with the fundamentals of analytical chemistry and principles of electrochemical analysis of drugs.
	BP103T. PHARMACEUTICS-I	CO3: This course is designed to impart a fundamental knowledge on the preparatory pharmacy with arts and science of preparing the different conventional dosage forms.
	BP104T. PHARMACEUTICAL INORGANIC CHEMISTRY	CO4: This subject deals with the monographs of inorganic drugs and pharmaceuticals.
	BP105T. COMMUNICATION SKILLS	CO5: This course will prepare the young pharmacy student to interact effectively with doctors, nurses, dentists, physiotherapists and other health workers. At the end of this course the student will get the soft skills set to work cohesively with the team as a team player and will add value to the pharmaceutical business.
	BP 106RBT. REMEDIAL BIOLOGY	CO6: To learn and understand the components of living world, structure and functional system of plant and animal kingdom.
	BP 106RMT. REMEDIAL MATHEMATICS	CO7: This is an introductory course in mathematics. This subject deals with the introduction to Partial fraction, Logarithm, matrices and Determinant, Analytical geometry, Calculus, differential equation and Laplace transform.
II sem.	BP 201T. HUMAN ANATOMY AND PHYSIOLOGY-II	CO8: This subject is designed to impart fundamental knowledge on the structure and functions of the various systems of the human body. It also helps in understanding both homeostatic mechanisms. The subject provides the basic knowledge required to understand the various disciplines of pharmacy.
	BP202T. PHARMACEUTICAL ORGANIC CHEMISTRY -I	CO9: This subject deals with classification and nomenclature of simple organic compounds, structural isomerism, intermediates forming in reactions, important physical properties, reactions and methods of preparation of these compounds. The syllabus also emphasizes on mechanisms and orientation of reactions.
	BP203 T. BIOCHEMISTRY	CO10: Biochemistry deals with complete understanding of the molecular levels of the chemical process associated with living cells. The scope of the subject is providing biochemical facts and the principles to understand metabolism of nutrient molecules in physiological and pathological conditions. It is also emphasizing on genetic organization of mammalian genome and hetero & autocatalytic functions of DNA.
	BP 204T. PATHOPHYSIOLOGY	CO11: Pathophysiology is the study of causes of diseases and reactions of the body to such disease producing causes. This course is designed to impart a thorough knowledge of the relevant aspects of pathology of various conditions with reference to its pharmacological applications, and understanding of basic pathophysiological mechanisms. Hence it will not only help to study the syllabus of pathology, but also to get baseline knowledge required to practice medicine safely, confidently, rationally and effectively.
	BP205 T.	CO12: This subject deals with the introduction Database. Database

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	COMPUTER APPLICATIONS IN PHARMACY	Management system, computer application in clinical studies and use of databases.
	BP 206 T. ENVIRONMENTAL SCIENCES	CO13: Environmental Sciences is the scientific study of the environmental system and the status of its inherent or induced changes on organisms. It includes not only the study of physical and biological characters of the environment but also the social and cultural factors and the impact of man on environment.
III Sem.	BP301T. PHARMACEUTICAL ORGANIC CHEMISTRY –II	CO14: This subject deals with general methods of preparation and reactions of some organic compounds. Reactivity of organic compounds are also studied here. The syllabus emphasizes on mechanisms and orientation of reactions. Chemistry of fats and oils are also included in the syllabus.
	BP302T. PHYSICAL PHARMACEUTICS-I	CO15: The course deals with the various physical and physicochemical properties, and principles involved in dosage forms/formulations. Theory and practical components of the subject help the student to get a better insight into various areas of formulation research and development, and stability studies of pharmaceutical dosage forms.
	BP 303 T. PHARMACEUTICAL MICROBIOLOGY	CO16: Study of all categories of microorganism especially for the production of alcohol antibiotics, vaccines, vitamins enzymes etc.
	BP 304 T. PHARMACEUTICAL ENGINEERING	CO17: This course is designed to impart a fundamental knowledge on the art and science of various unit operations used in pharmaceutical industry.
IV sem.	BP401T. PHARMACEUTICAL ORGANIC CHEMISTRY –III	CO18: This subject imparts knowledge on stereo-chemical aspects of organic compounds and organic reactions, important named reactions, chemistry of important hetero cyclic compounds. It also emphasizes on medicinal and other uses of organic compounds.
	BP402T. MEDICINAL CHEMISTRY – I	CO19: This subject is designed to impart fundamental knowledge on the structure, chemistry and therapeutic value of drugs. The subject emphasizes on structure activity relationships of drugs, importance of physicochemical properties and metabolism of drugs. The syllabus also emphasizes on chemical synthesis of important drugs under each class.
	BP 403 T. PHYSICAL PHARMACEUTICS-II	CO20: The course deals with the various physical and physicochemical properties, and principles involved in dosage forms/formulations. Theory and practical components of the subject help the student to get a better insight into various areas of formulation research and development, and stability studies of pharmaceutical dosage forms.
	BP 404 T. PHARMACOLOGY-I	CO21: The main purpose of the subject is to understand what drugs do to the living organisms and how their effects can be applied to therapeutics. The subject covers the information about the drugs like, mechanism of action, physiological and biochemical effects (pharmacodynamics) as well as absorption, distribution, metabolism and excretion (pharmacokinetics) along with the adverse effects, clinical uses, interactions, doses, contraindications and routes of administration of different classes of drugs.
	BP 405 T. PHARMACOGNOSY AND PHYTOCHEMISTRY I	CO22: The subject involves the fundamentals of Pharmacognosy like scope, classification of crude drugs, their identification and evaluation, phytochemicals present in them and their medicinal properties.
V sem.	BP501T. MEDICINAL CHEMISTRY – II	CO23: This subject is designed to impart fundamental knowledge on the structure, chemistry and therapeutic value of drugs. The subject emphasizes on structure activity relationships of drugs, importance of physicochemical properties and metabolism of drugs. The syllabus also emphasizes on chemical synthesis of important drugs under each class.
	BP 502 T. INDUSTRIAL	CO24: Course enables the student to understand and appreciate the

	PHARMACY-I	influence of pharmaceutical additives and various pharmaceutical dosage forms on the performance of the drug product
	BP503.T. PHARMACOLOGY- II	CO25: This subject is intended to impart the fundamental knowledge on various aspects (classification, mechanism of action, therapeutic effects, clinical uses, side effects and contraindications) of drugs acting on different systems of body and in addition, emphasis on the basic concepts of bioassay.
	BP504 T. PHARMACOGNOSY AND PHYTOCHEMISTR Y II	CO26: The main purpose of subject is to impart the students the knowledge of how the secondary metabolites are produced in the crude drugs, how to isolate and identify and produce them industrially. Also this subject involves the study of producing the plants and phytochemicals through plant tissue culture, drug interactions and basic principles of traditional system of medicine.
	BP 505 T. PHARMACEUTICA L JURISPRUDENCE	CO27: This course is designed to impart basic knowledge on important legislations related to the profession of pharmacy in India.
VI sem.	BP601T. MEDICINAL CHEMISTRY – III	CO28: This subject is designed to impart fundamental knowledge on the structure, chemistry and therapeutic value of drugs. The subject emphasis on modern techniques of rational drug design like quantitative structure activity relationship (QSAR), Prodrug concept, combinatorial chemistry and Computer aided drug design (CADD). The subject also emphasizes on the chemistry, mechanism of action, metabolism, adverse effects, Structure Activity Relationships (SAR), therapeutic uses and synthesis of important drugs.
	BP602 T. PHARMACOLOGY- III	CO29: This subject is intended to impart the fundamental knowledge on various aspects (classification, mechanism of action, therapeutic effects, clinical uses, side effects and contraindications) of drugs acting on respiratory and gastrointestinal system, infectious diseases, immuno-pharmacology and in addition, emphasis on the principles of toxicology and chronopharmacology.
	BP 603 T. HERBAL DRUG TECHNOLOGY	CO30: This subject gives the student the knowledge of basic understanding of herbal drug industry, the quality of raw material, guidelines for quality of herbal drugs, herbal cosmetics, natural sweeteners, nutraceutical etc. The subject also emphasizes on Good Manufacturing Practices (GMP), patenting and regulatory issues of herbal drugs.
	BP 604 T. BIOPHARMACEUTI CS AND PHARMACOKINETI CS	CO31: This subject is designed to impart knowledge and skills of Biopharmaceutics and pharmacokinetics and their applications in pharmaceutical development, design of dose and dosage regimen and in solving the problems arised therein.
	BP 605 T. PHARMACEUTICA L BIOTECHNOLOGY	CO32: Biotechnology has a long promise to revolutionize the biological sciences and technology. Scientific application of biotechnology in the field of genetic engineering, medicine and fermentation technology makes the subject interesting. Biotechnology is leading to new biological revolutions in diagnosis, prevention and cure of diseases, new and cheaper pharmaceutical drugs. Biotechnology has already produced transgenic crops and animals and the future promises lot more.
	BP606T. PHARMACEUTICA L QUALITY ASSURANCE	CO33: This course deals with the various aspects of quality control and quality assurance aspects of pharmaceutical industries. It deals with the important aspects like cGMP, QC tests, documentation, quality certifications and regulatory affairs.
VII sem.	BP701T. INSTRUMENTAL METHODS OF ANALYSIS	CO34: This subject deals with the application of instrumental methods in qualitative and quantitative analysis of drugs. This subject is designed to impart a fundamental knowledge on the principles and instrumentation of spectroscopic and chromatographic technique. This also emphasizes on theoretical and practical knowledge on modern analytical instruments that

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		are used for drug testing.
	BP 702 T. INDUSTRIAL PHARMACYII	CO35: This course is designed to impart fundamental knowledge on pharmaceutical product development and translation from laboratory to market.
	BP 703T. PHARMACY PRACTICE	CO36: In the changing scenario of pharmacy practice in India, for successful practice of Hospital Pharmacy, the students are required to learn various skills like drug distribution, drug information, and therapeutic drug monitoring for improved patient care. In community pharmacy, students will be learning various skills such as dispensing of drugs, responding to minor ailments by providing suitable safe medication, patient counseling for improved patient care in the community set up.
	BP 704T. NOVEL DRUG DELIVERY SYSTEMS	CO37: This subject is designed to impart basic knowledge on the area of novel drug delivery systems.
VIII sem.	BP801T. BIOSTATISTICS AND RESEARCH METHODOLOGY	CO38: To understand the applications of Biostatistics in Pharmacy. This subject deals with descriptive statistics, Graphics, Correlation, Regression, logistic regression Probability theory, Sampling technique, Parametric tests, Non Parametric tests, ANOVA, Introduction to Design of Experiments, Phases of Clinical trials and Observational and Experimental studies, SPSS, R and MINITAB statistical software's, analyzing the statistical data using Excel.
	BP 802T. SOCIAL AND PREVENTIVE PHARMACY	CO39: The purpose of this course is to introduce to students a number of health issues and their challenges. This course also introduced a number of national health programmes. The roles of the pharmacist in these contexts are also discussed.
	BP803ET. PHARMA MARKETING MANAGEMENT	CO40: The pharmaceutical industry not only needs highly qualified researchers, chemists and, technical people, but also requires skilled managers who can take the industry forward by managing and taking the complex decisions which are imperative for the growth of the industry. The Knowledge and Know-how of marketing management groom the people for taking a challenging role in Sales and Product management.
	BP804 ET: PHARMACEUTICAL REGULATORY SCIENCE	CO41: This course is designed to impart the fundamental knowledge on the regulatory requirements for approval of new drugs, and drug products in regulated markets of India & other countries like US, EU, Japan, Australia, UK etc. It prepares the students to learn in detail on the regulatory requirements, documentation requirements, and registration procedures for marketing the drug products.
	BP 805T. PHARMACOVIGILANCE	CO42: This paper will provide an opportunity for the student to learn about development of pharmacovigilance as a science, basic terminologies used in pharmacovigilance, global scenario of Pharmacovigilance, train students on establishing pharmacovigilance programme in an organization, various methods that can be used to generate safety data and signal detection. This paper also develops the skills of classifying drugs, diseases and adverse drug reactions.
	BP 806 ET. QUALITY CONTROL AND STANDARDIZATION OF HERBALS	CO43: In this subject the student learns about the various methods and guidelines for evaluation and standardization of herbs and herbal drugs. The subject also provides an opportunity for the student to learn cGMP, GAP and GLP in traditional system of medicines.
	BP 807 ET. COMPUTER AIDED DRUG DESIGN	CO44: This subject is designed to provide detailed knowledge of rational drug design process and various techniques used in rational drug design process.
	BP808ET. CELL AND MOLECULAR BIOLOGY	CO45: Cell biology is a branch of biology that studies cells – their physiological properties, their structure, the organelles they contain,

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	interactions with their environment, their life cycle, division, death and cell function. This is done both on a microscopic and molecular level. Cell biology research encompasses both the great diversity of single-celled organisms like bacteria and protozoa, as well as the many specialized cells in multi-cellular organisms such as humans, plants, and sponges.
BP809 ET. COSMETIC SCIENCE	CO46: This subject deals with the study of cosmetics including their preparation, uses and effects. This course is designed to impart knowledge and skills necessary forth fundamental need for cosmetic and cosmeceutical products.
BP810 ET. PHARMACOLOGIC AL SCREENING METH ODS	CO47: This subject is designed to impart the basic knowledge of preclinical studies in experimental animals including design, conduct and interpretations of results.
BP 811 ET. ADVANCED INSTRUMENTATIO N TECHNIQUES	CO48: This subject deals with the application of instrumental methods in qualitative and quantitative analysis of drugs. This subject is designed to impart advanced knowledge on the principles and instrumentation of spectroscopic and chromatographic hyphenated techniques. This also emphasizes on theoretical and practical knowledge on modern analytical instruments that are used for drug testing.
BP 812 ET. DIETARY SUPPLEMENTS AND NUTRACEUTICALS	CO49: This subject covers foundational topic that are important for understanding the need and requirements of dietary supplements among different groups in the population.

M. Pharm. (Pharmaceutics)

PO1: Imparting theoretical knowledge and practical skills with the use of various advanced analytical instruments including NMR, Mass spectrometer, IR, HPLC, GC etc. It shall be applicable for identification, characterization, qualitative and quantitative analysis of various drugs in single and combination dosage forms.

PO2: In depth knowledge in the area of advances in novel drug delivery systems. This shall enable students to know the approaches for development of novel drug delivery systems, criteria for selection of drugs and polymers for the development of delivering system and about the formulation and evaluation of Novel drug delivery systems.

PO3: Imparting knowledge on various aspects viz. manufacturing of bulk, formulations in pharmaceutical industries. To understand the system as whole component wise studies is dispensed i.e., about preformulation studies, Active Pharmaceutical Ingredients, Generic drug Product development, Industrial Management, GMP Considerations, Optimization Techniques, Pilot Plant Scale Up Techniques, Stability Testing, sterilization process and packaging of dosage forms.

PO4: The information on regulatory affairs serves to gain advanced knowledge and skills required to learn the concept of generic drug and their development, various regulatory filings in different countries, different phases of clinical trials and submitting regulatory documents : filing process of IND, NDA and ANDA.

PO5: The knowledge of Biopharmaceutics & Pharmacokinetics is for development of skills necessary for dose calculations, dose adjustments and to apply biopharmaceutics

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theories in practical problem solving. Basic theoretical discussions of the principles of biopharmaceutics and pharmacokinetics are provided to help the students' to clarify the concepts.

PO6: Necessary training is imparted on computer applications in pharmaceutical research and development, it helps to understand the application of computers across the entire drug research and development process. Basic theoretical discussions of the principles of more integrated and coherent use of computerized information (informatics) in the drug development process are provided to help the students to clarify the concepts.

PO7: Appreciable knowledge and exercise is imparted on Biostatistics And Research Methodology to make the students understand the applications like descriptive statistics, Graphics, Correlation, Regression, logistic regression Probability theory, Sampling technique, Parametric tests, Non Parametric tests, ANOVA of Biostatistics in Pharmacy.

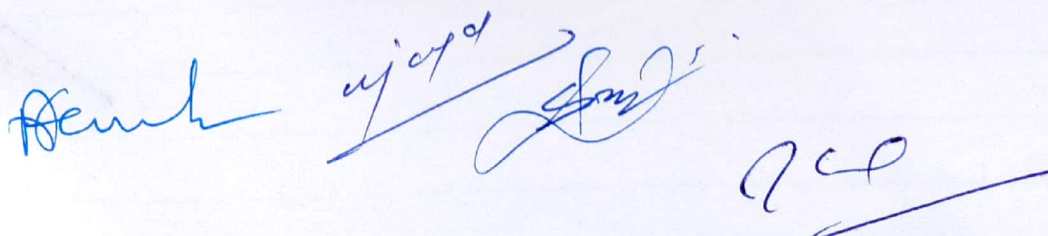
Program Specific Outcomes (PSOs)

PSO1: To develop new/ groundbreaking medications / bulk drug/pharmaceutical formulation require latest methods, technologies and processes. In this, phase/topic wise is covered in the syllabus e.g., selection of drugs, dose calculations, dose adjustments by applying biopharmaceutics theories, pharmacokinetic and bioequivalence models, *in-vitro* and *in-vivo* studies using computer simulations, population modeling's, potential clinical pharmacokinetic and problem analysis, selection of polymers and various preformulation elements, pilot plant scale up techniques, industrial management, GMP considerations, stability testing, sterilization, formulation, evaluation and packaging of dosage forms.

PSO2: Professional Training to the students to work on drug compounds and develop new medications based on research. In this students learn test medications for efficiency and safety, oversee the production process to ensure medication are produced accurately, conducting clinical drug trials and evaluating the results of these trials to gauge a drugs's effectiveness and to determine potential risks or side effects.

PSO3: Students are trained to collaborate with various pharmaceutical companies and variety of health care professionals to ensure clinical drug trials are conducted safely as per regulatory guidelines for the testing of drugs.

PSO4: To develop a scientific innovation thought /innovation by assigning independent research projects to each students under specialized subjects supervisors. The findings/outcome of the research are promoted to be published in reputed national/international journals.



Course outcomes (COs):

YEAR/S em.	SUBJECT & SUBJECT CODE	OUTCOME
I sem.	MODERN PHARMACEUTICAL ANALYTICAL TECHNIQUES (MPH 101T)	CO1: This subject deals with various advanced analytical instrumental techniques for identification, characterization and quantification of drugs. Instruments dealt are NMR, Mass spectrometer, IR, HPLC, GC etc.
	DRUG DELIVERY SYSTEMS (MPH 102T)	CO2: This course is designed to impart knowledge on the area of advances in novel drug delivery systems.
	MODERN PHARMACEUTICS (MPH 103T)	CO3: Course designed to impart advanced knowledge and skills required to learn various aspects and concepts at pharmaceutical industries.
	REGULATORY AFFAIRS (MPH 104T)	CO4: Course designed to impart advanced knowledge and skills required to learn the concept of generic drug and their development, various regulatory filings in different countries, different phases of clinical trials and submitting regulatory documents : filing process of IND, NDA and ANDA
II sem.	MOLECULAR PHARMACEUTICS (NANO TECHNOLOGY & TARGETED DDS) (NTDS) (MPH 201T)	CO5: This course is designed to impart knowledge on the area of advances in novel drug delivery systems.
	ADVANCED BIOPHARMACEUTICS & PHARMACOKINETICS (MPH 202T)	CO6: This course is designed to impart knowledge and skills necessary for dose calculations, dose adjustments and to apply biopharmaceutics theories in practical problem solving. Basic theoretical discussions of the principles of biopharmaceutics and pharmacokinetics are provided to help the students' to clarify the concepts.
	COMPUTER AIDED DRUG DEVELOPMENT (MPH 203T)	CO7: This course is designed to impart knowledge and skills necessary for computer Applications in pharmaceutical research and development who want to understand the application of computers across the entire drug research and development process. Basic theoretical discussions of the principles of more integrated and coherent use of computerized information (informatics) in the drug development process are provided to help the students to clarify the concepts.
	COSMETICS AND COSMECEUTICALS (MPH 204T)	CO8: This course is designed to impart knowledge and skills necessary forth fundamental need for cosmetic and cosmeceutical products.
III sem.	RESEARCH METHODOLOGY & BIOSTATISTICS (MRM 301T)	CO9: The student will be known the Biostatistics arrangement, presentation and formation of tables and charts. They also know the correlation and regression & application of different methods, analysis of data and also learn how to write dissertation, thesis and Research paper.

[Handwritten signatures and initials]

Agenda No. 7: The suggestions obtained by IQAC as feedback from IV sem. M. Pharm. students batch of 2017-18 is to be discussed.

Following are the suggestions by batch of 2017-18 students on curriculum (PG Programme)

1. Books should be made available.
2. Workshops should be conducted as per syllabus.
3. Students should be made aware of the recent advances by organizing workshops & conferences.

Resolution:

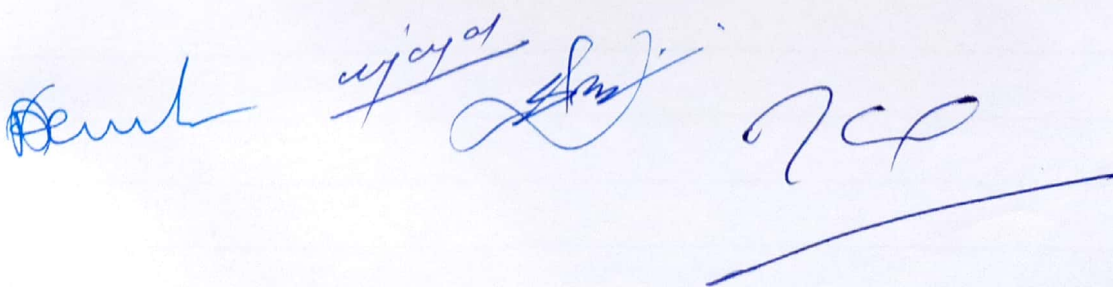
BOS members appreciated the above three point suggestions by the M. Pharm. students. Regarding the availability of books as mentioned in point no. 1, BOS members are made aware that the university has allotted Rs. 60,000/- for the purchase of books in 2018-19 academic session. The good books relevant to the M. Pharm course were purchased and are available in Departmental library. BOS members suggested more amount to be allocated by the University to purchase more books and scientific Journals of National and International repute.

Point no. 2 and 3 are of same nature. Regarding these suggestion points the Members of the BOS were made aware that PG students are always promoted/encouraged to participate and present research paper in the conferences/symposia/workshop held at national/state level. Recently in Nov., 2018 National workshop on Intellectual Property Rights (IPR) was held at Academic Activity Centre of the University, which was sponsored by the UCOST, (UK).

Agenda No. 8: Proposal for provision of M. Pharm./Ph.D. students for doing experimental work in other laboratories and sample analysis outside HNB Garhwal University.

Resolution:

For the facilities which are not available in the Department of Pharmaceutical sciences, BOS members recommended that M. Pharm. and Ph.D. students by the departmental Committee may be allowed to take up work at outside i.e., advanced research laboratories run under Central/State Govt. and University laboratories of repute. On arrival he/she will have to submit certificate and attendance of outside stay.



Agenda No. 9: To consider offering the SWAYAM MOOC Courses for UG, PG and Pre-Ph.D. students of Pharmaceutical Sciences Department.

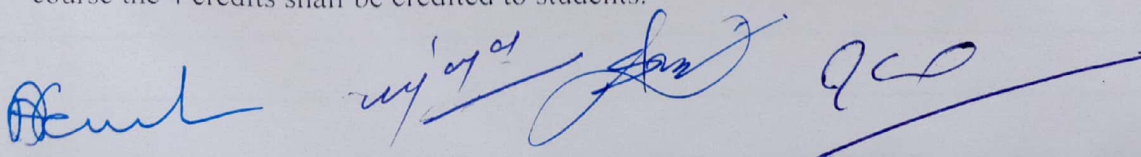
Resolution:

The board agreed to offer the SWAYAM MOOC courses with following suggestions

1. If a course of SWAYAM MOOC matches with the prescribed syllabi by more than 80 %, then it can be offered to the students for credit transfer (20% of total credits limit).
2. The list of course/s offered for credit transfer shall be notified to students and SWAYAM Coordinator every semester by the convener BOS.

The list of chosen courses per semester offered for credit transfer:

3. If the syllabus matches more than 80 % then university can take the credit call as per the syllabus. (For completing a similar course of 4 credits which is of 6 credits in syllabi, credit call can be taken for 6 credits against the received 4 credits through SWAYAM MOOC.).
4. If any student passes course/s from SWAYAM MOOCs and that course is not in the prescribed syllabi, then no credits will be given for that course. But the name of the SWAYAM MOOC course passed shall be mentioned in the marks sheet, if it is relevant to the said degree programme.
5. Board agreed and approve to offer the first SWAYAM MOOC of Garhwal University entitled "Academic Writing" by Course Coordinator Dr Ajay Semalty to all students preferably PG and Pre Ph D students. The students can do the course as self-study course and for the same after successful completion of the course the 4 credits (or as applicable) shall be credited to students.
6. "Academic Writing" course is free to enroll for all students irrespective of level and subject and it would be mentioned in the mark sheet (if passed) of student with or without credits as applicable.
7. Board agreed and approve to offer the SWAYAM MOOC of Garhwal University entitled "Industrial Pharmacy -I" by Course Coordinator Dr Ajay Semalty, Co-CC Dr Mona Semalty to all the Sciences and life sciences UG and PG students who are interested in the course. The course will be an additional knowledge for their career in Pharma Industry. After successful completion of the course a certificate will be issued and it shall be mentioned in the marks sheet as add on course (without credit).
8. Board agreed and approve to offer the SWAYAM MOOC of Garhwal University entitled "Industrial Pharmacy -I" (04 credit theory course) by Course Coordinator Dr Ajay Semalty, Co-CC Dr Mona Semalty to B. Pharmacy V semester. As per UGC SWAYAM policy host university students have to mandatorily enroll and pass the course through the said subject MOOC only, it was decided that all the B. Pharmacy V semester students will enroll the course for passing this course. After successful completion of the course the 4 credits shall be credited to students.



The meeting end with the vote of thanks to the chair

1. Dr. Abdul Faruk, HOD, Department of Pharmaceutical Sciences (Convener).

Abdul Faruk

2. Prof. Vijay Juyal, Department of Pharmaceutical Sciences, Kumaun University, Nainital.
(External Member).

Vijay Juyal

3. Prof. (Dr.) S N Bahuguna, Professor, Dept. of Zoology & Biotechnology, HNBGU, Srinagar.

S N Bahuguna

4. Prof. (Dr.) R P Gairola, Dean School of Sciences, HNBGU, Srinagar.

R P Gairola

*Except co-supervisor or
agenda - 2 minutes may be
approved.*

C. A. Approved

D. Gairola
20.7.2019

19/7