JSS ACADEMY OF HIGHER EDUCATION AND RESEARCH MAURITIUS

JSS Academy of Higher Education and Research (Mauritius)

Programme Document

Bachelor of Pharmacy

Bachelor of Pharmacy

A. Programme Information

Bachelor of Pharmacy is an undergraduate degree course of a duration of 4 years. Pharmacy integrates the main strands of the chemical and biological sciences, which relate to medicines and combines these sciences with all the related aspects of health care for the benefit of patients. Pharmacy is also concerned with the provision of evidence-based advice to patients and the public on general health matters. Pharmacists are scientists in the health care community, bringing together physical, biological, clinical, social and behavioural sciences in relation to medicines and their usage. The breadth and multi-disciplinary character of the pharmacy degree, along with the ever-changing nature of pharmaceutical services gives a central role to pharmacists for research into the discovery, characterisation, formulation, administration and therapeutic activity of medicines. Pharmacists are therefore expected to play a leading role in research into the safe and economically responsible use of medicine in practice.

B. Programme Aims

The program aims to train, develop and provide students with knowledge, skills and competencies in fields of:

- Pharmaceutical technology involving preparation of various dosage forms, handling of instruments
- Clinical Pharmacy where in a student is trained for service to the community
- Pharmacology aids to learning from anatomy, physiology to mechanism of action of drug with effects and side effects
- Pharmaceutical Chemistry involving structure dependent actions, reactions of drug and drug designing
- Pharmaceutical Analysis
- Pharmacognosy dealing with medicinal properties of plants
- Computer & Communication Skills - not only the programme trains with in-depth knowledge but also monitors the overall development of an individual

Job Prospects:

- Pharmacist – Hospital, Community and Clinical
- Pharmaceutical Industry
- Scientist (Research field)
- Teacher (Junior Lecturer)

- Quality Control Officer
- Clinical Research professional
- Drug regulatory authority
- Marketing professional

C. Programme Objectives

The following objectives of the programme should be achieved by acquiring an in-depth knowledge & thorough understanding, necessary skills and developing the right attitude.

a. Knowledge and Understanding

The graduates should acquire the following during their B.Pharm Course;

1. Adequate knowledge and scientific information regarding basic principles of Pharmaceutical & Medicinal Chemistry, Pharmaceutics including Cosmeticology, Pharmacology, Pharmacognosy including herbal medicines.
2. Adequate knowledge of practical aspects of
    a. Synthesis of APIs & its intermediates and analysis of various pharmaceutical dosage forms
    b. Formulationdevelopments &quality assurance of various pharmaceutical dosage forms including those of herbal originas per standards of official books, WHO and other regulatory agencies like USFDA, MHRA, TGA etc.
    c. Pharmacological screening and biological standardization and in-vivo drug interactions.
    d. Preparation & analysis of suitable plants material/extracts of medicinal importance for various herbal formulations.
    e. Clinical studies for patient counselling leading to physical and social wellbeing of the patients.
    f. Product detailing, marketing, distribution and selling of pharmaceutical products.

b. Skills:

a. A graduate should be able to demonstrate following skills necessary for practice of Pharmacy
b. Able to synthesize, purify, identify and analyze medicinal agents.
c. Able to formulate, store, dispense, analyse the prescriptions and manufacture the pharmaceutical products.
d. Able to learn and apply the quality assurance principles inregulatory and ethical aspects
e. Abletoextract, purify, identify and understand the therapeutic value of herbal/crude/natural products
f. Able to screen various medicinal agents using animal models for pharmacological activity.

c. Attitudes:

A graduate should develop the following attitudes during the course;

a. Willing to apply the current knowledge of Pharmacy in the best interest of the patients and the community.
b. Maintain high standards of professional ethics in discharging professional obligations.
c. Continuously upgrade professional information and be conversant with latest advances in the field of pharmacy to serve community better.
d. Willing to participate in continuing education programmes of PCI/AICTE/ University to upgrade the knowledge and professional skills.
e. To help and participate in the implementation of National Health Programmes.

D. Overall Programme Learning Outcomes

This programme will enable students to:

- Possess knowledge and understanding of the core and basic information associated with the profession of pharmacy, including biomedical sciences; pharmaceutical sciences; behavioral, social and administrative pharmacy sciences and manufacturing practices.
- Demonstrate effective planning abilities including time management, resource management, delegation skills and organizational skills. Develop and implement plans and organize work to meet deadlines.
- Develop 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.
- Learn, select and apply appropriate methods and standard operating procedures, resources and modern pharmacy-related computing tools with an understanding of the limitations.
- 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.
- Understand, analyze and communicate the value of pharmacy professional roles in society (e.g. Researchers, health care professionals, promoters of health, educators, managers, employers, employees).
- Use ethical frameworks; apply ethical principles of pharmacy while making decisions and take responsibility for the outcomes associated with the decisions. Honour personal values and ethical principles in professional and social contexts. Demonstrate behaviour that recognizes cultural and personal variability in values, communication and lifestyles.

- 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.
- Apply reasoning informed by the knowledge to assess societal, health, safety and legal issues and the consequent responsibilities relevant to the professional pharmacy practice.
- Understand the impact of the professional pharmacy solutions in societal and environmental contexts and demonstrate the knowledge of and need for sustainable development.
- 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.
- Collect, manipulate, plot and interpret experimental data. Draw conclusions from experimental data and suggest solutions to various problems.

E. General Entry Requirements

JSSAHERM will follow the admission requirements of HEC for tertiary education level programmes. The Faculty of Health Sciences, on a case-to-case basis, will make admission decisions.

Candidates must have:

Either

(i) Pass in 3 Subjects at A-level and 1 subject at subsidiary level of Higher School Certificate Examination;

Or

(iii) Pass in 3 Subjects at A-level at the London General Certificate Examination;

Or

(iv) A qualification equivalent to the above.

F. Programme Entry Requirements

"A" Level in Mathematics and Chemistry

As per the Pharmacy Council Act2015, any person who applies for registration as pharmacist or pre-registration trainee, after having completed a degree, diploma or equivalent qualification in the field of Pharmacy, should produce a certificate stating that he has passed at one sitting any three subjects at Advanced (A) level or its equivalent, with a minimum of 21 Points, based on the regulations of the Pharmacy Council of Mauritius.

Overseas Candidates

For foreign candidates the entry requirement should be as prescribed by the Pharmacy Council of the home country of the prospective student.

Overseas candidates whose first language is not English and who do not hold a degree or equivalent professional qualification taught in English will be required to produce evidence of their competence in English.

G. Programme Mode and Duration

Full-Time: Minimum 4 years (8 Semesters) – Maximum 6 years (12 semesters)

H. Teaching and Learning Strategies

The programme will consist of a wide variety of teaching methods, including lectures, tutorial and practical sessions, individual or group projects, assignments, presentations, workshops, seminars and case studies. The programme will also consist of class tests, structured discussions, self-development activities, hospital placements and ward rounds. Self-learning will be the key feature of the programme, enabling students to explore, investigate and research in various issues related to pharmacy.

Positive learning outcomes reflect an interplay between the teaching activities and learning environment provided by JSSAHERM and the skills, knowledge, attitudes and behaviour of its students. The institution has brought forward a few principles to help ensuring that the quality of teaching and learning is always respected.

The following principles aim to guide excellence in learning and teaching practices, while recognising that effective learning and teaching involves a partnership between students and the institution:

a) Creating an engaging, motivating, and intellectually stimulating learning environment and experience.
b) Encouraging the spirit of critical inquiry and creative innovation informed by current research.
c) Emphasisingtheimportance,relevance,andintegrationoftheoryandknowledgewith professional practice to develop solutions to real world issues.
d) Providing learning experiences that develop inter-culturally capable graduates who can make a difference as socially and ethically responsible global citizens.
e) Valuing and recognising individual and cultural diversity through the provision of an inclusive

context of support and respect for all students.

f) Enhancing student engagement and learning through effective curriculum design, pedagogy and assessment strategies.

g) Continuously improving teaching practice through academic staff professional development, and critical reflection informed by a range of evaluation approaches.;

h) Conducting evaluation (feedback) exercises, through which the students will be encouraged to give their view and rate the teaching quality of each lecturer – The feedback survey forms would be analysed and reports would be generated.Appropriate measures would be taken to improve weaknesses and shortcomings;All feedback survey forms would be securely kept for verification and consultation as and when required;The feedback exercise will be conducted every semester before the end of courses to ensure that students' views are appropriately taken care prior to their sitting for examinations;

i) Conducting Performance Appraisal exercises for all teaching and non-teaching staff members; This exercise allows the institution to find room for improvement, evaluate the staff's opportunities for promotion and to channel staff members for training and development as learning is an on-going process not only students but for lecturers and other staff members also.

JSSAHERM considers feedback from students as vital and has established a student feedback form for each module being taught every semester.The criterion under which a course will be evaluated is as follows:

a) Knowledge of the lecturer related to the subject;
b) Coverage of the syllabus – Was the syllabus covered completely and thoroughly or was any topic not covered;
c) Delivery of lecturer or demonstration for practical;
d) Discipline in class (theory and practical)–Did the lecturer have control over his batch of students;
e) Interaction in class – Did the lecturer invite students to participate in class?
f) Audibility of voice – Did the lecturer express himself clearly and could all students hear / understand when he/ she explained?
g) Explanation and emphasis on important points – Was the subject being explained with respect to the syllabus and were important points highlighted? Did the lecturer make use of relevant examples to support the explanations?
h) Evaluation of subject notes or learning materials being provided to students–clarity, conciseness and relevance;
i) Infrastructure being given for the subject being taught – classroom quality (clarity of white board, aeration, LCD and multimedia projector equipments, etc)
j) Evaluation of practical sessions – laboratories, equipments, safety, knowledge of the lecturer, etc;
k) Information being given students – Did the lecturer provide students with information that were related to only the subject matter or did they provide a broader picture of the subject for more

learning.

l) Were students motivated to attend conferences/ seminars / industrial training to enhance their knowledge?

The feedback exercise would be carried out anonymously meaning that students do not divulge their identities while filling the form.Once the feedback exercise has been carried out, the administrative department would work on each form and compile the data and submit same to the Head of Faculty. The latter will analyze the information and call the lecturers to inform them of the evaluation of the subject and work on ways to improve effectiveness and efficiency of lecturers and implementation of new ways of teaching and learning.

The feedback mechanism is expected to assist JSSAHERM, to improve the following:

- Quality of teaching
- Service provided to students both academic and non-academic
- Infrastructure – new equipments in laboratories, classrooms
- Organization of extra-curricular activities – outings, sports activities, cultural events, etc
- Quality of learning materials distributed to students
- Importance of courses being delivered;
- Objectives and career pathway of students
- Creation of short training programmes to enhance learning
- Encouraging faculty members to pursue their studies to higher levels
- Converting weaknesses of faculties to strengths to provide better learning opportunities for students.

I. Student Support and Guidance

Each cohort of the programme is allocated a Programme Coordinator who will act as a liaison officer between the students and the institution. The programme coordinator will also provide support for academic management of the programme

The student support and guidance include:

- Tutoring
- Access to library / E-library
- Access to IT workshop
- A variety of student welfare activities
- Workshop and Laboratories

J. Attendance Requirements

The students must secure a minimum of 80% attendance in each subject to become eligible to take term end examination. All students must attend every lecture, tutorial and practical classes except for approved leave like medical emergencies etc., Each course of the semester shall be treated as a separate unit for calculation of the attendance. A student, who does not satisfy the attendance requirement, mentioned as above, shall not be eligible to appear for the examination of that semester and not promoted to higher semester. The student shall be required to repeat that semester along with regular students later by paying the prescribed fee as per the regulations of JSSAHERM.

K. Credit System

A. Credit Equivalence

1. (i) 1 credit = 15 hours of lecture/tutorial
   (ii) 1 credit = 30 hours of practical/seminars
   (iii) 1 credit = 60 hours of Professional Placement

2. Project / Dissertation: 6 credits.

B. Credits per level

Each level shall constitute of the following number of credit subject to the required number of credits for award:

Level 1 : 53-56 credits
Level 2 : 48 credits
Level 3 : 58 credits
Level 4 (B.Pharm) : 52 credits

Total Number of Credits	
Semester	**No. of Credits**
I	27/29*/30#
II	26
III	22
IV	26
V	30
VI	28
VII	30
VIII	22
TOTAL	**211/212*/214#**

*Applicable ONLY for the students studied Physics / Chemistry / Botany / Zoology at HSC and appearing for Remedial Mathematics course.
#Applicable ONLY for the students studied Mathematics / Physics / Chemistry at HSC and appearing for Remedial Biology course.

L. Student Progress and Assessment

- The evaluation of performance of the student is based on the marks obtained in each module. Semester Grade Point Average (SGPA) and Cumulative Grade Point Average (CGPA) are calculated to determine their final awards at the end of their programme of study.
- Modules are assessed through written examinations of duration of 3 hours.
- All modules are normally assessed over 100 marks, except for project/dissertation which will be assessed over 200 marks.
- The overall pass mark for a module shall be 40%, subject to the students submitting their continuous assessment within set deadlines.
- All modules must be passed in the examinations, coursework and other forms of assessment.

The modules will be assessed as follows:

- End semester examinations contributing to 70% of the total marks for theory and 60% for practicals
- Continuous assessment including sessional exams carrying 30% of total marks for theory and 60% for practicals of total marks. Continuous assessment can be based on attendance, seminars and/or assignments and other activities.

In order to pass in a module, a minimum of 50% should be attained in:

a) Continuous assessment, and in
b) End semester examination

Scheme for awarding Continuous mode marks;

Criteria	MaximumMarks
Attendance	4
Academic activities (Average of any 3 activities e.g. quiz, assignment, open book test, fieldwork, group discussion and seminar). For Practicals - Based on Practical Records, Regular viva voce, etc.	3
Student–Teacher interaction	3
Total	**10**

Guidelines for the allotment of marks for attendance

Percentage of Attendance	Marks
95 – 100	4
90 – 94	3
85 – 89	2
80 – 84	1
Less than 80	0

Scheme for internal assessments and end semester examinations

Subject	Assessment				End Semester Exams		Total Marks
	Continuous Mode	Sessional Exams		Total	Marks	Duration	
		Marks	Duration				
Theory	10	20	1 Hr	30	70	3 Hrs	100
Practical	10	30	4 Hrs	40	60	4 Hrs	100

Letter grades and grade points allocations:

Award classifications shall be based on the performance of each candidate in examinations/coursework as determined by the Academic Council.
Based on the performances, each student shall be awarded a final letter grade at the end of the semester for each course as given below:

Undergraduate/ Postgraduate		
Overall Marks	Grade	Remarks
80≤ X ≤100	A	Excellent
70 ≤ X <80	B	Very Good
60≤ X <70	C	Good
50≤ X <60	D	Satisfactory
X <50	F	Failed

Grade Points equivalent to Percentage of marks and performances

Percentage of Marks Obtained	Grade Point (G)
90.00 – 100	10
80.00 – 89.99	9
70.00 – 79.99	8
60.00 – 69.99	7
50.00 – 59.99	6
Less than 50	0
Absent	0

A learner who remains absent for any end semester examination shall be assigned a letter grade of AB and a corresponding grade point of zero. He/she should reappear for the said evaluation/examination in due course.

Calculation of Semester grade point average (SGPA)

The performance of a student in a semester is indicated by a number called 'Semester Grade Point Average' (SGPA). The SGPA is the weighted average of the grade points obtained in all the courses by the student during the semester. For example, if a student takes five courses (Theory/Practical) in a semester with credits C1, C2, C3, C4 and C5 and the student's grade points in these courses are G1, G2, G3, G4 and G5, respectively, and then students' SGPA is equal to:

$$\text{SGPA} = \frac{C_1G_1 + C_2G_2 + C_3G_3 + C_4G_4 + C_5G_5}{C_1 + C_2 + C_3 + C_4 + C_5}$$

The SGPA is calculated to two decimal points. It should be noted that, the SGPA for any semester shall take into consideration the F grade awarded in that semester. For example if a learner has a F grade in course 4, the SGPA shall then be computed as:

$$\text{SGPA} = \frac{C_1G_1 + C_2G_2 + C_3G_3 + C_4 * \text{ZERO} + C_5G_5}{C_1 + C_2 + C_3 + C_4 + C_5}$$

Calculation of Cumulative Grade Point Average (CGPA)

The CGPA is calculated with the SGPA of all the semesters to two decimal points and is indicated in final grade report card/final transcript showing the grades of all semesters and their courses. The CGPA shall reflect the failed status in case of F grade(s), till the course(s) is/are passed. When the course(s) is/are passed by obtaining a pass grade on subsequent examination(s) the CGPA shall only reflect the new grade and not the fail grades earned earlier. The CGPA is calculated as:

$$\text{CGPA} = \frac{C_1S_1 + C_2S_2 + C_3S_3 + C_4S_4 + C_5S_5 + C_6S_6 + C_7S_7 + \ldots + C_nS_n}{C_1 + C_2 + C_3 + C_4 + C_5 + C_6 + C_7 + \ldots + C_n}$$

where C_1, C_2, C_n,.... is the total number of credits for semester I,II,…n, and S_1,S_2, S_n,....is the SGPA of each semester I,II,,,,n.

Note: Practice School

In the VII semester, every candidate shall undergo practice school in the laboratories of JSSAHERM, for a period of 150 hours evenly distributed throughout the semester. The student shall opt for any one of the domains for practice school as declared by the program committee from time to time.

At the end of the practice school, every student shall submit a printed report (in triplicate) on the practice school he/she attended (not more than 25 pages). Along with the exams of semester VII, the report submitted by the student, knowledge and skills acquired by the student through practice school shall be evaluated by the subject experts at college level and grade point shall be awarded.

Evaluation of Performance

All modules carry equal weight, except for dissertation, which counts for the equivalent of 2 modules.

Project/dissertation

Candidates should compulsorily submit a related project at the end of the final semester of the programme or a dissertation. The scope of the research will be assessed and approved through a project proposal that will be due after completion of Biostatistics and Research Methodology module. The project will mainly involve real problems solving situation or will be on Pharmacy themes. The project should be around 8000-10000 words and may have to be defended in a viva-voce.

The project shall be evaluated as per the criteria given below;

Parameter	**Marks**
Evaluation of Dissertation Book	
Objective(s) of the work done	20
Methodology adopted	25
Results and Discussions	25
Conclusions and Outcomes	30
Total	100
Evaluation of Presentation	
Presentation of work	30
Communication skills	30
Question and answer skills	40
Total	100

M. Award Classification

The class shall be awarded on the basis of CGPA as follows:

Classification of Award	CGPA
Distinction	8.00 and above
Merit	7.00 to 7.99
Pass	6.00 to 6.99
No Award	less than 6.00

N. Programme Organisation and Management

Programme Coordinator :

Name : Dr Vishal Kumar Gupta
Email : vishalkumargupta@jssuni.edu.in

O. Programme Structure

Bachelor of Pharmacy (B-Pharm) – Full Time (Version1.0)

YEAR 1 (Level 1)							
Semester I				***Semester II***			
Code	**Modules**	**Hrs/Wk** L T/P	**Credits**	**Code**	**Modules**	**Hrs/Wk** L T/P/SD	**Credits**
BP101T	Human Anatomy and Physiology I – Theory	4	4	BP201T	Human Anatomy and Physiology II – Theory	4	4
BP102T	Pharmaceutical Analysis I – Theory	4	4	BP202T	Pharmaceutical Organic Chemistry I – Theory	4	4
BP103T	Pharmaceutics I – Theory	4	4	BP203T	Biochemistry – Theory	4	4
BP104T	Pharmaceutical Inorganic Chemistry – Theory	4	4	BP204T	Pathophysiology – Theory	4	4
BP105T	Communication skills – Theory	2	2	BP205T	Computer Applications in Pharmacy – Theory	3	3
BP106RBT/ BP106RMT	Remedial Biology* /Remedial Mathematics# – Theory	2	2	BP206P	Human Anatomy and Physiology II – Practical	4	2
BP107P	Human Anatomy and Physiology – Practical	4	2	BP207P	Pharmaceutical Organic Chemistry I– Practical	4	2
BP108P	Pharmaceutical Analysis I – Practical	4	2	BP208P	Biochemistry – Practical	4	2
BP109P	Pharmaceutics I – Practical	4	2	BP209P	Computer Applications in Pharmacy – Practical	2	1
BP110P	Pharmaceutical Inorganic Chemistry – Practical	4	2				
BP111P	Communication skills – Practical	2	1				
BP112RBP	Remedial Biology – Practical	2	1				
		Total	**30**			**Total**	**26**

*Applicable ONLY for the students studied Mathematics / Physics / Chemistry at HSC and appearing for Remedial Biology (RB) course**.**

#Applicable ONLY for the students studied Physics/Chemistry/Botany/Zoology at HSC and appearing for Remedial Mathematics (RM) course**.**

YEAR 2 (Level 2)							
Semester III				***Semester IV***			
Code	**Modules**	**Hrs/Wk** L T/P/SD	**Credits**	**Code**	**Modules**	**Hrs/Wk** L T/P/SD	**Credits**
BP301T	Pharmaceutical Organic ChemistryII–Theory	4	4	BP401T	Pharmaceutical Organic ChemistryIII–Theory	4	4
BP302T	Industrial Pharmacy - I–Theory	4	4	BP402T	Medicinal ChemistryI–Theory	4	4
BP303T	Pharmaceutical Microbiology–Theory	4	4	BP403T	PharmacologyI–Theory	4	4
BP304T	Pharmaceutical Jurisprudence–Theory	4	4	BP404T	Pharmacognosy and PhytochemistryI–Theory	4	4
BP305P	Pharmaceutical Organic Chemistry II– Practical	4	2	BP405T	Community Pharmacy – Theory	4	4
BP306P	IndustrialPharmacy - I – Practical	4	2	BP406P	Medicinal ChemistryI–Practical	4	2
BP307P	Pharmaceutical Microbiology–Practical	4	2	BP407P	Pharmacology I–Practical	4	2
				BP408P	Pharmacognosy and PhytochemistryI–Practical	4	2
		Total	**22**			**Total**	**26**

YEAR 3 (Level 3)							
Semester IV				***Semester V***			
Code	**Modules**	**Hrs/Wk** L T/P/SD	**Credits**	**Code**	**Modules**	**Hrs/Wk** L T/P/SD	**Credits**
BP501T	Medicinal ChemistryII–Theory	4	4	BP601T	Medicinal ChemistryIII–Theory	4	4
BP502T	PhysicalPharmaceuticsI–Theory	4	4	BP602T	PharmacologyIII–Theory	4	4
BP503T	PharmacologyII–Theory	4	4	BP603T	Herbal Drug Technology–Theory	4	4
BP504T	Pharmacognosy and PhytochemistryII–Theory	4	4	BP604T	Biopharmaceutics and Pharmacokinetics–Theory	4	4
BP505T	Pharmaceutical Biotechnology - Theory	4	4	BP605T	Physical Pharmaceutics II –Theory	4	4
BP506T	Quality assurance–Theory	4	4	BP606P	Medicinal chemistryIII –Practical	4	2
BP507P	Physical Pharmaceutics I –Practical	4	2	BP607P	PharmacologyIII–Practical	4	2
BP508P	PharmacologyII–Practical	4	2	BP608P	Herbal DrugTechnology–Practical	4	2
BP509P	Pharmacognosy and PhytochemistryII–Practical	4	2	BP609P	Physical Pharmaceutics II –Practical	4	2
	Total		**30**		**Total**		**28**

YEAR 4 (Level 4)							
Semester 1				***Semester 2***			
Code	**Modules**	**Hrs/Wk** L T/P/SD	**Credits**	**Code**	**Modules**	**Hrs/Wk** L T/P/SD	**Credits**
BP701T	Instrumental Methods of Analysis–Theory	4	4	BP801T	Biostatistics and Research Methodology	4	4
BP702T	Industrial Pharmacy II–Theory	4	4	BP802T	Social and Preventive Pharmacy	4	4
BP703T	Pharmaceutical Engineering – Theory	4	4	-	Elective 1	4	4
BP704T	Pharmacy Practice - Theory	4	4	-	Elective 2	4	4
BP705T	Novel Drug Delivery System–Theory	4	4	BP813PW	Project Work		6
BP706P	Instrumental Methods of Analysis–Practical	4	2				
BP707P	Pharmaceutical Engineering – Practical	4	2				
BP708PS	Practice School	12	6				
		Total	**30**			**Total**	**22**

List of Electives			
Code	**Modules**	**Hrs/Wk** L T/P/SD	**Credits**
BP803ET	Pharmaceutical Marketing	4	4
BP804ET	Pharmaceutical Regulatory Science	4	4
BP805ET	Pharmacovigilance	4	4
BP806ET	Quality Control and Standardizations of Herbals	4	4
BP807ET	Computer Aided Drug Design	4	4
BP808ET	Cell and Molecular Biology	4	4
BP809ET	Cosmetic Science	4	4
BP810ET	Experimental Pharmacology	4	4
BP811ET	Advanced Instrumentation Techniques	4	4
BP812ET	Dietary Supplements and Nutraceuticals	4	4