VELS
INSTITUTE OF SCIENCE, TECHNOLOGY & ADVANCED STUDIES (VISTAS)
(Deemed to be University under section 3 of UGC Act, 1956)
NAAC ACCREDITED WITH 'A' GRADE
Velan Nagar, P.V.Vaithiyalingam Road, Pallavaram, Chennai – 600 117
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SELF-ASSESSMENT REPORT (SAR)

For Accreditation of Undergraduate Pharmacy Programme

Submitted to

NATIONAL BOARD OF ACCREDITATION

NBCC Place, 4th Floor East Tower, Bhisham Pitamah Marg,
Pragati Vihar New Delhi 110003
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April'2019

SAR CONTENTS

PART A: Institutional Information

1. Name and Address of the Institution

School of Pharmaceutical Sciences,
Vels Institute of Science, Technology and Advanced Studies (VISTAS),
Pallavaram, Chennai- 600117

2. Name and Address of the Affiliating University:

Vels Institute of Science, Technology and Advanced Studies (VISTAS),
(Deemed to be University)
Pallavaram, Chennai- 600117

3. Year of Establishment of the Institution: 2008

4. Type of the Institution:

University	
Deemed University	√
Autonomous	
Affiliated	
Any Other (Please specify)	

5. Ownership Status:

Central Government	
State Government	
Grant-in-Aid	
Self financing	
Trust	√
Society	
Section 25 Company	
Any Other (Please specify)	
Provide Details:	

6. Other Academic Institutions of the Trust/Society/etc., if any:

Name of the Institution(s)	Year of Establishment	Programs of Study	Location
Vels Institute of Science, Technology and Advanced Studies (VISTAS),Pallavaram, Chennai-600117	2008	**Please Refer – Annexure -I**	Pallavaram, Chennai- 600117

7. Details of all the programs being offered by the Institution under consideration:

S. No.	Program Name	Year of Start	Intake	Increase in intake, if any	Year of increase	AICTE Approval	Accreditation Status
1	B.Pharm	2008	60	Applied for increase in intake (60 to 100)	Applied in March 2019	F.No. Southern/ 1-3512386475/ 2018/EOA Dated 20.07.2018	Granted accreditation for two/three years for the period (2012 to 2015)
2.	M.Pharm. Pharmaceutics	2008	15	-	-		-
3.	M.Pharm. P'Ceutical Analysis	2008	08	-	-		-
4.	M.Pharm., Pharmacy Practice	2018	15	-	-	F.No. Southern /2018-19/1-3628130411 dated 30.04.2018	-
5.	Pharm.D	2018	30	-	-		-
6.	Pharm.D PB	2018	10	-	-		-

8. Programs to be considered for Accreditation vide this application:

S. No.	Program Name
1	B.Pharmacy

9. Total number of employees:

A. Regular*Faculty and Staff:

Items		CAY		CAYm1		CAYm2	
		MIN	MAX	MIN	MAX	MIN	MAX
Faculty in Pharmacy	M	21	21	18	21	17	21
	F	26	26	24	26	23	26
Faculty in Sciences & Humanities	M	1	1	1	1	1	1
	F	2	2	2	2	2	2
Non-teaching staff	M	9	9	9	9	9	9
	F	7	7	7	7	7	7

* Note: Minimum 75% should be Regular/Full Time faculty and the remaining shall be Contractual Faculty as per AICTE norms and standards.

The contractual faculty (doing away with the terminology of visiting/adjunct faculty, whatsoever) who have taught for 2 consecutive semesters in the corresponding academic year on full time basis shall be considered for the purpose of calculation in the Student Faculty Ratio.

CAY – Current Academic Year

CAYm1- Current Academic Year minus1= Current Assessment Year

CAYm2 - Current Academic Year minus2=Current Assessment Year minus 1

B. Contractual Staff (Not covered in Table A):

Items		CAY		CAYm1		CAYm2	
		MIN	MAX	MIN	MAX	MIN	MAX
Faculty in Pharmacy	M	-	-	-	-	-	-
	F	-	-	-	-	-	-
Faculty in Sciences & Humanities	M	-	-	-	-	-	-
	F	-	-	-	-	-	-
Non-teaching staff	M	-	-	-	-	-	-
	F	-	-	-	-	-	-

10. Total number of Pharmacy students:

Student Numbers	CAY	CAYm1	CAYm2
Boys	109	95	75
Girls	113	89	63
Total Number of Students	222	184	138

(Instruction: The data may be categorized in tabular form in case institute runs UG, PG and doctoral programs, Please prepare separate table for each level, if applicable)

11. Vision of the Institution:

Vels Institute of Science, Technology and Advanced Studies (VISTAS) Strives to be an Epitome of Excellence in Higher Education by effectively providing its students with high standards of education and rigorous training with ample scope for the all-round development of personality of the students and to promote positive change and social justice for the betterment of society.

12. Mission of the Institution:

By providing them various kinds of learning processes such as Experimental learning, Experienced learning, Independent learning, Problem based learning, Project based learning, e-learning, Participatory learning and Computer Aided Learning (CAL).

By actively promoting and preserving higher value and ethics in education apart from sensitizing them towards the societal responsibility.

By making them to do original, quality and innovative research which can be proven by measurable outcome.

By providing LMS, KMS and EMS to all the students apart from governance through MIS

By instilling the spirit of equity, communal and social harmony, sense of tolerance among students apart from enriching them with right citizenship and love for the nation through outreach and extension activities.

13. Contact Information of the Head of the Institution and NBA coordinator, if designated:

i. Name: Dr. P.Shanmugasundaram

Designation: Director, School of Pharmaceutical Sciences, Vels Institute of Science, Technology and Advanced Studies (VISTAS), Pallavaram, Chennai- 600117

Mobile No:9840126575

Email id: director.sps@velsuniv.ac.in

ii. NBA coordinator, if designated:

Name: Dr. M.Vijeyaanandhi

Designation: Professor and Head, Department of Pharmaceutical Chemistry

Mobile No:984095919

Email id: hodpchemistry@velsuniv.ac.in

1. Vision, Mission and Program Educational Objectives (50)

1.1. State the Vision and Mission

VISION OF THE INSTITUTE

Vels Institute of Science, Technology and Advanced Studies (VISTAS) Strives to be an Epitome of Excellence in Higher Education by effectively providing its students with high standards of education and rigorous training with ample scope for the all-round development of personality of the students and to promote positive change and social justice for the betterment of society.

MISSION OF THE INSTITUTE

By providing them various kinds of learning processes such as Experimental learning, Experienced learning, Independent learning, Problem based learning, Project based learning, e-learning, Participatory learning and Computer Aided Learning (CAL).

By actively promoting and preserving higher value and ethics in education apart from sensitizing them towards the societal responsibility.

By making them to do original, quality and innovative research which can be proven by measurable outcome.

By providing LMS, KMS and EMS to all the students apart from governance through MIS

By instilling the spirit of equity, communal and social harmony, sense of tolerance among students apart from enriching them with right citizenship and love for the nation through outreach and extension activities.

VISION OF THE PROGRAM

Evolving the Institution into a Center of Academic and Research Excellence in Pharmaceutical Education and will be world leader in the field of pharmaceutical sciences and pharmacy practice with the mission of strengthening the healthcare of the country.

MISSION OF THE PROGRAM

The program is intended to impart pharmaceutical education. The highlights are

Pharmaceutical care: To meet societal needs for safe and effective drug therapy by imparting advanced knowledge, aptitude and skills.

Quality education: To provide quality education that effectively integrates outcome-based, self-learning strategies and leadership skills through practice and research.

The moral and ethical values: Inculcate core ethical values and enable the graduates to reflect human values in the health sector.

1.2. State the Program Educational Objectives (PEOs) (5)

Program Educational Objectives (PEOs) of the B.Pharmacy are established through a consultation process as described in Sec.1.2.4 and these address the following broad aspects.

"What our graduates could do best"

"How our graduates would approach problem solving, using what skills"

"What values our graduates should have"

Program Educational Objectives (PEOs):

PEO1: To provide graduates with profound knowledge in various fields of Pharmaceutical sciences according to the needs of Pharmaceutical industry, community and Hospital Pharmacy with necessary skillset.

PEO2: Graduates will be able to acquire theoretical and practical concepts in Pharmacodynamics, pharmacokinetics, Drug properties, synthesis, molecular modeling, formulation & development, analytical aspects in research and Extend this knowledge to create novel Herbal & Synthetic Pharmaceutical products for the benefit of life.

PEO3: The philosophy of the institute is to prepare students to excel in postgraduate programmes and also to succeed in Pharmaceutical industry or in the profession wherever the student chose through innovative teaching methodologies that engage students in self-learning.

PEO4: Graduates will be prepared to become better communicators and leaders of Pharma and health sectors with ethical attitude, effective communication skills, teamwork skills, multidisciplinary approach, and an ability to relate Pharmaceutical Sciences issues to broader social context.

PEO5: Graduates will be equipped with integrity and ethical values and update their knowledge by organizing/attending the workshops, seminars and conferences at National and International level.

PEO 6: Graduates of the program will be able to evaluate pros and cons, benefits and deficiencies of the matter they studied pharmaceutical technology they learned and ideology they observed in the field of Pharmaceutical sciences.

1.3. Indicate where and how the vision, mission and PEOs are published and disseminated among stakeholders

Vision and Mission of the College and the programme are published in the website www.velsuniv.ac.in

They are also prominently displayed in the Class rooms, Departments, Labs, Library, Corridor, and Examination Hall.

Apart from this, Vision and Mission are disseminated to all the stakeholders of the programme through faculty meetings, student awareness workshops, student induction programs and parent meetings.

All the external and internal stakeholders are intimated about the vision, mission and PEO‟s. In addition to that, the dissemination of the vision, mission and PEO‟s are done in the following process.

Students: Information about the vision, mission and PEO‟s is executed by displaying them on notice boards and communicated to the students by faculty. They are also clarified at the time of joining the institution as part of induction program. Student’s feedback is considered to introduce innovative teaching and learning methodologies.

Parents: Parents are clarified during induction programme organized at the time of joining their ward in the college and also explained during the regular parent teacher meetings.

Faculty: When the Faculty meetings are conducted for newly joined faculties to introduce them to the existing staff members, during which the vision and mission of the college are explained to all by the head of the Institute and Faculty involves in various committees to check the consistency of the program. Faculty provides inputs for designing the program, PEOs/POs establishment, Course Objectives and assessment.

Alumni: The alumni members are encouraged to follow the vision, mission and PEO‟s during alumni meetings conducted every year and ideas are taken for the efficiency of exertion. Alumni feedback helps in curriculum design to meet recent trends in pharmaceutical sciences. Recollect their existence during their program study and advise the department with necessary inputs in point of student career.

Governing body: The vision, mission and PEO‟s of the Institute are intimated to governing body at regular meetings in an academic year and a similar will be disseminated to the representative body individuals.

Industry/Employers: The employers who visit for placements are briefed with the brochure which contains the vision, mission statements and PEO‟s of the Institute. Gives higher focus to the program on future data to create awareness with current industry. Gives inputs which overcome the gap between program and industry.

Professional bodies: While organizing events under Professional bodies, the events, brochures are designed to contain the Institute's vision, mission and PEO‟s which are sent to the Professional bodies

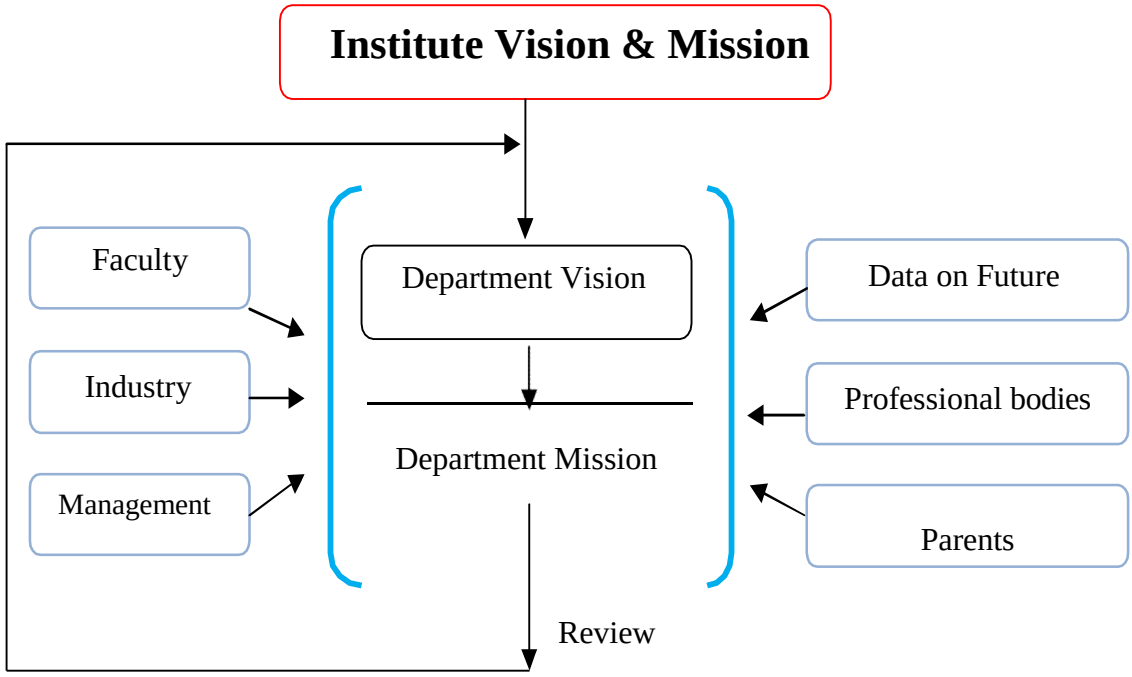


Figure 1.1 Flow Chart for dissemination of Vision and Mission among the stakeholders.

1.5. Establish consistency of PEOs with Mission of the Institute (15)

(Generate a "Mission of the Institute – PEOs matrix" with justification and rationale of the mapping)

Our Program Educational Objectives are highly consistent with our Mission Statements to produce theoretically and practically competent pharmacists with research motivation, continuous learning capabilities and high ethical standards.

PEO	Statements	M1 (P.C)	M2 (Q.E)	M3 (M & E Values)
PEO1	To provide graduates with profound knowledge in various fields of Pharmaceutical sciences according to the needs of Pharmaceutical industry, community and Hospital Pharmacy.	3	3	1
PEO2	Graduates will be able to acquire theoretical and practical concepts in delivering the quality pharmaceutical care to the general public.	3	3	1
PEO3	Graduates will be prepared to become better communicators and leaders of Pharma and health sectors.	3	2	2
PEO4	Graduates will be equipped with integrity and ethical values and update their knowledge by organizing/attending the workshops, seminars and conferences at national and International level.	2	1	3

P.C = Pharmaceutical Care

Q.E = Quality Education

M & E Values = Moral and Ethical Values

Note: M1, M2.....Mn is distinct elements of Mission statement. Enter correlation levels 1, 2 Or 3 as defined below:

1: Slight (Low) 2: Moderate (Medium) 3: Substantial (High)

It there is no correlation, put "-"

LOW (1)	MEDIUM (2)	HIGH (3)
Slight correlation	Moderate correlation	Substantial correlation

Justification of Mission in correlation with PEO's of the Institute:

PEO's	Mission	Justification
PEO 1	M1	Experienced teaching staff with commitment ensures to provide the basics in pharmacy field so as to apply the knowledge gained in societal needs for safe and effective drug therapy.
	M2	Expertise teaching staff ensures to provide strong and well defined knowledge so as to give quality education that effectively integrates with Self-learning strategies and leadership.
	M3	Encourages the learners to inculcate ethical values.
PEO 2	M1	Enhancement of the learning process and the practical application by providing advanced knowledge that makes the learner to have exposure to the pharmaceutical care.
	M2	Engage the students to acquire theoretical and practical concepts in a dynamic way and develops leadership skills.
	M3	Educate the graduates to acquire practical concepts in a judicious way so that they can reflect human values in the health sector.
PEO 3	M1	Preparing the students to become better communicators so that they can impart advance knowledge to the society.
	M2	Provides quality education to the students that effectively integrate leadership skills in the Pharma and health sector.
	M3	Establishing good communications with standards of professional ethics in the Pharma sector.

PEO 4	M1	Encourages the students to update their knowledge by organizing/ attending workshops, seminars and conferences so as to meet societal needs for safety and effective drug therapy.
	M2	Provides quality education that integrates self-learning strategies by attending/ organizing seminars and conferences.
	M3	Graduates are equipped with ethical values so as to reflect human values in the health sector.

Note: In this document wherever the term „Process" has been used its meaning is process formulation, notification and implementation.

Justification of Mission in correlation with PEO's of the Institute:

PEO's	Mission	Justification
PEO 1	M1	Experienced teaching staff with commitment ensures to provide the basics in pharmacy field so as to apply the knowledge gained in societal needs for safe and effective drug therapy.
	M2	Expertise teaching staff ensures to provide strong and well defined knowledge so as to give quality education that effectively integrates with Self-learning strategies and leadership.
	M3	Encourages the learners to inculcate ethical values.
PEO 2	M1	Enhancement of the learning process and the practical application by providing advanced knowledge that makes the learner to have exposure to the pharmaceutical care.
	M2	Engage the students to acquire theoretical and practical concepts in a dynamic way and develops leadership skills.
	M3	Educate the graduates to acquire practical concepts in a judicious way so that they can reflect human values in the health sector.

PEO 3	M1	Preparing the students to become better communicators so that they can impart advance knowledge to the society.
	M2	Provides quality education to the students that effectively integrate leadership skills in the Pharma and health sector.
	M3	Establishing good communications with standards of professional ethics in the Pharma sector.
PEO 4	M1	Encourages the students to update their knowledge by organizing/attending workshops, seminars and conferences so as to meet societal needs for safety and effective drug therapy.
	M2	Provides quality education that integrates self-learning strategies by attending/ organizing seminars and conferences.
	M3	Graduates are equipped with ethical values so as to reflect human values in the health sector.

Note: In this document wherever the term „Process‟ has been used its meaning is process formulation, notification and implementation.

Program Curriculum and Teaching-Learning Processes (150)

2.1. Program Curriculum (40)

2.1.1 Delivery of Syllabus Contents and compliance of the curriculum for attainment of POs (10)

(State the contents of the syllabus; about the course/learning material/content/laboratory experiments/projects etc. also mention identified curriculum gaps, if any) Note: In case all POs are being demonstrably met through University Curriculum then 2.1.2 will not be applicable and the weightage of 2.1.1 will be 30.

1. School of Pharmaceutical Sciences is a constituent college of Vels Institute of Science Technology and Advance Studies (VISTAS) a deemed to be University under section 3 University Grants Commission act of 1956, Government Of India, New Delhi The school of pharmaceutical scienceswas established in the year 2008

2. School of pharmaceutical sciences ,VISTAS offer undergraduate (B. Pharmacy) , Postgraduate (M.Pharmacy – Three specializations) Pharm.D& Post Bacculatte Programmes

3. Currently the School of Pharmaceutical Science , VISTAS, follows Choice Based Credit System effective from 2015 – 2019 as per the guidelines of University Grants Commission, All India Council of Technical Education & Pharmacy Council of India

4. As per the regulations of the University the programme B.Pharmacy is a four years degree Program conducted in semesters

5. The curriculum and the syllabus is framed by the duly appointed Board of Studies of Pharmacy by VISTAS under the faculty of pharmacy comprising of senior academicians , industrialists and ALUMINI

6. Curriculum is enriched through compulsory credits with personality development programs , value education and aptitude training programs

7. Free electives were offered which give them 9 credit points from three subjects offered by other schools

8. Syllabus specifies number of lectures and Practical's in eachcourse with references books and the contents of each theory subject are well defined and the experiments are specified for each laboratory component.

9. The syllabus also gives scope to have an industrial training (for 1 month). Furthermore the students have to do a project

10. The University also includes subjects like mathematics and biology for first year students to bridge the gap between the Bi.P.C and M.P.C streams of students. Though the syllabus covers all aspects of each subject faculty has taken efforts to identify the gaps and fulfill them at par with current knowledge. Each subject is dealt against the program outcome envisaged by NBA. However few gaps were identified and attempts were made to fill the gaps with relevant teaching – learning methods

The List of subjects and its structure for B.Pharmacy followed in VISTAS is given below

COURSE STRUCTURE

Total credits: 190

Semester-I

Category	Code No	Course	Hours/ week			Credits
			Lecture	Tutorial	Practical	
Core-Theory	C101	Pharmaceutical Analysis - I	3	0	0	3
Core-Practical	C108	Pharmaceutical Analysis - I	0	0	2	1
Core-Theory	C102	Pharmacognosy - I	0	0	3	2
Core-Practical	C109	Pharmacognosy - I	3	0	0	3
Core-Theory	C103	Pharmaceutics – I (physical Pharmacy – I)	3	0	0	3
Core-Practical	C110	Pharmaceutics – I (physical Pharmacy – I)	0	0	3	2
AECC – Theory	C104	Basic Electronics and Computer Applications	2	0	0	2
AECC – Practical	C111	Basic Electronics and Computer Applications	0	0	2	1
AECC – Theory	C105	Remedial Mathematics*	3	0	0	3
AECC – Theory	C106	Remedial Biology*	2	0	0	2
AECC – Practical	C112	Remedial Biology	0	0	2	1
AECC – Theory	C107	Environmental Sciences	2	0	0	2
SEC	-------	NSS-I	2	0	0	0
	Total		18/17	0	12	22

*** Each candidate may select any one out of Remedial Mathematics or Biology. Students studied BOTONY AND ZOOLOGY must opt for REMEDIAL MATHEMATICS alone.**

NSS is an Optional Skill enhancement program, students opting for NSS is not given credits but they have to pass the exam with minimum marks

Semester-II

Category	Code No	Course	Hours/ week			Credits
			Lecture	Tutorial	Practical	
Core-Theory	C201	Pharmaceutics – II(Physical Pharmacy -II)	3	0	0	3
Core-Practical	C206	Pharmaceutics – II(Physical Pharmacy -II)	0	0	3	2
Core-Theory	C202	Pharmaceutical Chemistry – I(Inorganic Chemistry)	3	0	0	3
Core-Practical	C207	Pharmaceutical Chemistry – I(Inorganic Chemistry)	0	0	3	2
Core-Theory	C203	Anatomy, Physiology & Health Education - I	3	0	0	3
Core-Practical	C208	Anatomy, Physiology & Health Education - I	0	0	3	2
Core-Theory	C204	Pharmaceutical Analysis – II	3	0	0	3
Core-Practical	C209	Pharmaceutical Analysis – II	0	0	2	1
Core-Theory	C205	Mathematics & Statistics	3	0	0	3
SEC	----------	NSS-II	2	0	0	0
		Total	18	0	14	22

NSS is an Optional Skill enhancement program, students opting for NSS is not given credits but they have to pass the exam with minimum marks

Semester-III

Category	Code No	Course	Hours/ week			Credits
			Lecture	Tutorial	Practical	
Core-Theory	C301	Pharmaceutical Chemistry – II (Organic Chemistry-I)	3	0	0	3
Core-Practical	C306	Pharmaceutical Chemistry – II (Organic Chemistry-I)	0	0	3	2
Core-Theory	C302	Pharmaceutics - III (Unit Operations-I)	3	0	0	2
Core-Practical	C307	Pharmaceutics - III (Unit Operations-I)	0	0	2	1
Core-Theory	C305	Pharmaceutics – IV (Dispensing and Community Pharmacy)	2	0	0	2
Core-Practical	C310	Pharmaceutics – IV (Dispensing and Community Pharmacy)	0	0	3	2
Core-Theory	C303	Pharmacognosy - II	3	0	0	3
Core-Practical	C308	Pharmacognosy - II	0	0	3	2
Core-Theory	C304	Anatomy, Physiology & Health Education-II	3	0	0	3
Core-Practical	C309	Anatomy, Physiology & Health Education-II	0	0	3	2
GE	----------	Elective-I	2	0	0	2
SEC	----------	NSS-III	2	0	0	0
			18	0	14	24

NSS is an Optional Skill enhancement program, students opting for NSS is not given credits but they have to pass the exam with minimum marks

Semester-IV

Category	Code No	Course	Hours/ week			Credits
			Lecture	Tutorial	Practical	
Core-Theory	C401	Pharmaceutical Chemistry – III (Organic Chemistry-II)	3	0	0	3
Core-Practical	C406	Pharmaceutical Chemistry – III (Organic Chemistry-II)	0	0	3	2
Core-Theory	C402	Pharmaceutics - V (Unit Operations-II)	3	0	0	3
Core-Practical	C407	Pharmaceutics - V (Unit Operations-II)	0	0	3	2
Core-Theory	C403	Pharmaceutical Microbiology	2	0	0	2
Core-Practical	C408	Pharmaceutical Microbiology	0	0	3	2
Core-Theory	C404	Pharmacognosy - III	3	0	0	3
Core-Practical	C409	Pharmacognosy - III	0	0	3	2
Core-Theory	C405	Pathophysiology of Common Diseases	3	0	0	3
SEC	----------	Hospital Pharmacy / Clinical Training (30 hrs)	0	0	2	1
GE	----------	Elective-II	2	0	0	2
SEC	----------	NSS-IV	2	0	0	0
			18	0	14	25

NSS is an Optional Skill enhancement program, students opting for NSS is not given credits but they have to pass the exam with minimum marks

Semester-V

Category	Code No	Course	Hours/ week			Credits
			Lecture	Tutorial	Practical	
Core-Theory	C501	Pharmaceutical Chemistry - IV(Biochemistry)	3	0	3	3
Core-Practical	C505	Pharmaceutical Chemistry - IV(Biochemistry)	0	0	3	2
Core-Theory	C502	Pharmaceutics - VI(Pharmaceutical Technology -I)	2	0	0	2
Core-Practical	C507	Pharmaceutics - VI (Pharmaceutical Technology -I)	0	0	2	1
Core-Theory	C505	Pharmaceutical Chemistry-V(Medicinal chemistry - I)	3	0	3	3
Core-Practical	C509	Pharmaceutical Chemistry-V(Medicinal chemistry - I)	0	0	3	2
Core-Theory	C504	Pharmacognosy - IV	3	0	0	3
Core-Practical	C508	Pharmacognosy - IV	0	0	3	2
Core-Theory	C503	Pharmacology - I	3	0	0	3
SEC	----------	NSS-V	2	0	0	0
		Total	16	0	17	21

NSS is an Optional Skill enhancement program, students opting for NSS is not given credits but they have to pass the exam with minimum marks

Semester-VI

Category	Code No	Course	Hours/ week			Credits
			Lecture	Tutorial	Practical	
Core-Theory	C601	Pharmaceutical Chemistry VI(Medicinal Chemistry - II)	3	0	0	3
Core-Practical	C606	Pharmaceutical Chemistry VI(Medicinal Chemistry - II)	0	0	3	2
Core-Theory	C602	Pharmaceutics - VII(Biopharmaceutics& Pharmacokinetics)	3	0	0	3
Core-Practical	C607	Pharmaceutics - VII(Biopharmaceutics& Pharmacokinetics)	0	0	3	2
Core-Theory	C603	Pharmacology - II	2	0	0	3
Core-Practical	C608	Pharmacology - II	0	0	3	2
Core-Theory	C605	Therapeutic Drug Monitoring & Bioavailability	2	0	0	2
Core-Practical	C609	Therapeutic Drug Monitoring & Bioavailability	0	0	3	2
Core-Theory	C604	Pharmaceutical Jurisprudence & Ethics	2	0	0	2
DSE	----------	DSE-I	2	0	3	2
SEC	----------	NSS-VI	2	0	0	0
Total			16	0	15	23

NSS is an Optional Skill enhancement program, students opting for NSS is not given credits but they have to pass the exam with minimum marks

Semester-VII

Category	Code No	Course	Hours/ week			Credits
			Lecture	Tutorial	Practical	
Core-Theory	C701	Pharmacognosy-V(Chemistry of Natural Products)	3	0	0	3
Core-Practical	C706	Pharmacognosy-V(Chemistry of Natural Products)	0	0	3	2
Core-Theory	C702	Pharmaceutics – VIII(Pharmaceutical Technology -II)	2	0	0	2
Core-Practical	C707	Pharmaceutics – VIII(Pharmaceutical Technology -II)	0	0	2	1
Core-Theory	C703	Pharmacology – III	3	0	0	3
Core-Practical	C708	Pharmacology – III	0	0	3	2
Core-Theory	C705	Pharmacology – IV(Clinical Pharmacy &Pharmacotherapeutics)	3	0	0	3
Core-Practical	C709	Pharmacology – IV(Clinical Pharmacy &Pharmacotherapeutics)	0	0	3	2
Core-Theory	C704	Pharmaceutical Biotechnology	3	0	0	3
DSE	----------	DSE-II	2	0	0	2
AECC		Industrial Training (120 hrs- One Month In Total)	0	0	0	4
Total			17	0	12	27

NSS is an Optional Skill enhancement program, students opting for NSS is not given credits but they have to pass the exam with minimum marks

Semester-VIII

Category	Code No	Course	Hours/ week			Credits
			Lecture	Tutorial	Practical	
Core-Theory	C801	Pharmaceutical Analysis – III	3	0	0	3
Core-Practical	C806	Pharmaceutical Analysis – III	0	0	3	2
Core-Theory	C802	Pharmacognosy - VI	3	0	0	3
Core-Practical	C807	Pharmacognosy - VI	0	0	3	2
Core-Theory	C803	Pharmaceutics – IX(Dosage form Design)	3	0	0	3
Core-Practical	C808	Pharmaceutics – IX(Dosage form Design)	0	0	3	2
Core-Theory	C805	Pharmaceutics - X(Hospital Pharmacy)	2	0	0	2
Core-Theory	C804	Pharmaceutical Industrial Management	2	0	0	2
DSE		Project Work/ Dissertation			3	6
SEC	----------	Personality Development (30 hrs- Only One Week)				1
	Total		13	0	09	26

NSS is an Optional Skill enhancement program, students opting for NSS is not given credits but they have to pass the exam with minimum marks

List of Electives

(For B-Pharmacy III Semester and IV Semester)

1. C 311 Applications in Bioinformatics
2. C312 Front office Operations
3. C313 Internet Basics
4. C314 Tourism Management
5. C315 Introduction to Nano science and nanotechnology
6. C 316 Environmental microbiology
7. C 410 Mushroom Cultivation and medicinal plant Gardening
8. C 411 Tourism Management
9. C412 Food adulteration
10. C413 Applications of Bioinformatics

NSS is an Optional Skill enhancement program, students opting for NSS are not given credits but they have to pass the exam with minimum marks

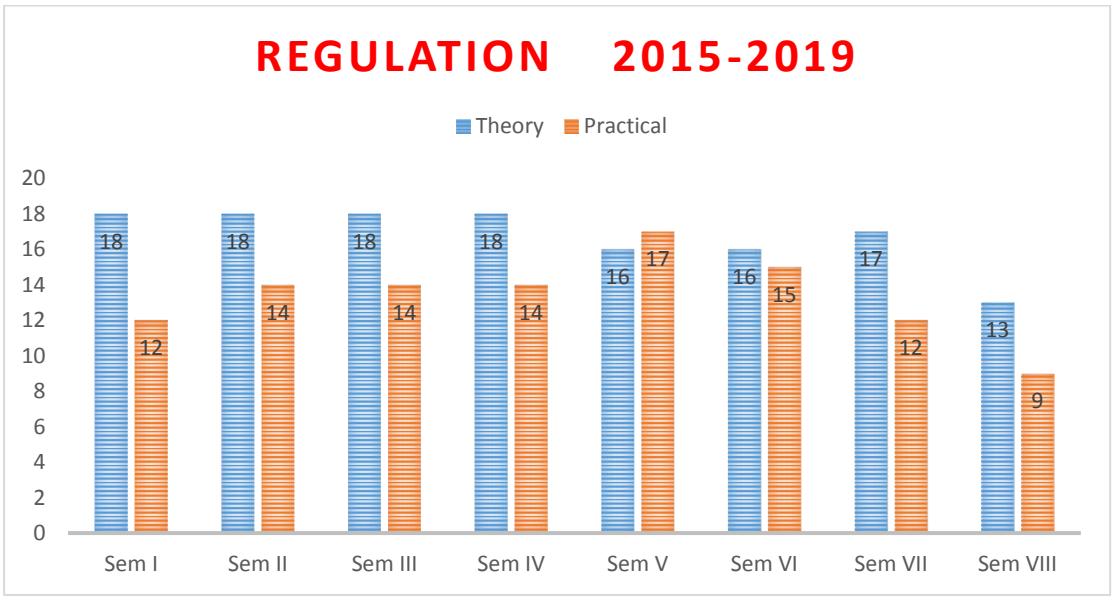


Figure: 2 .1 Contact Hours for Theory and Practical

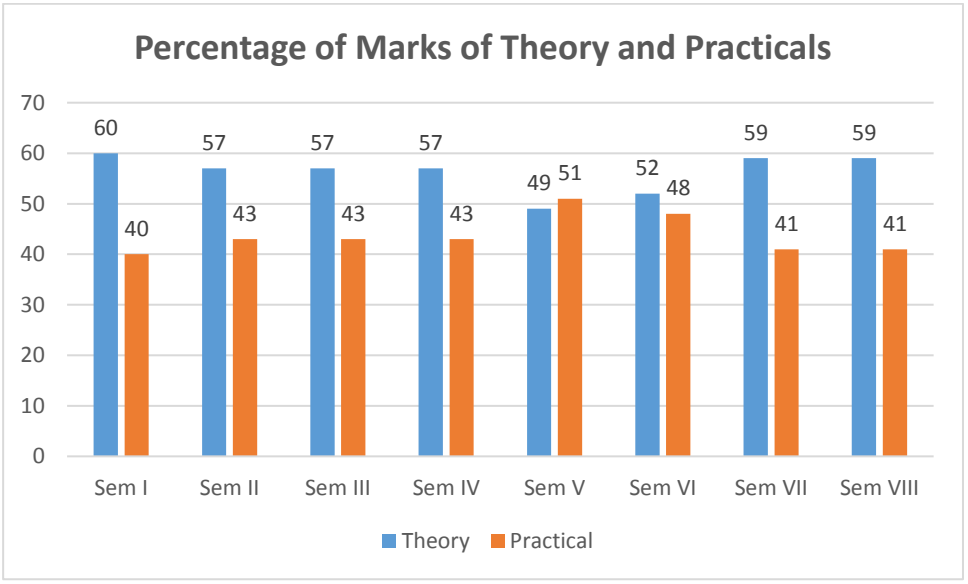


Figure: 2.2 Percentages of Marks for Theory and Practical

Core Pharmacy Courses against Program Out comes

Course Code

Table 2:1 Pharmacy Courses against Program Out comes

Sl.No	Course Code	Subject Name	Program Outcomes											
			1	2	3	4	5	6	7	8	9	10	11	12
1.	C101	Pharmaceutical Analysis - I	√	√	√	√	√	√	√	√	√	√	-	√
2.	C102	Pharmacognosy - I	√	√	√	√	√	√	√	√	√	√	√	√
3.	C103	Pharmaceutics – I (physical Pharmacy – I)	√	√	√	√	√	√	√	√	√	√	√	√
4.	C104	Basic Electronics and Computer Applications	√	√	√	√	√	√	√	√	-	√	√	-
5.	C105	Remedial Mathematics	√	√	√	√	√	√	√	√	-	√	√	-
6.	C106	Remedial Biology	√	√	√	√	√	√	√	√	√	-	√	√
7.	C107	Environmental Sciences	√	√	√	√	√	√	√	√	√	-	√	√
8.	C108	Pharmaceutical Analysis - I	√	√	√	√	√	√	√	√	√	-	√	√
9.	C109	Pharmacognosy - I	√	√	√	√	√	√	√	√	√	-	-	√
10.	C110	Pharmaceutics – I (physical Pharmacy – I)	√	√	√	√	√	√	√	√	√	-	-	√
11.	C111	Basic Electronics and Computer Applications	√	√	√	√	√	√	√	√	-	√	-	√
12.	C112	Remedial Biology	√	√	√	√	√	√	-	√	√	√	√	√
13.	C201	Pharmaceutics – II(Physical Pharmacy - II)	√	√	√	√	√	√	√	√	√	√	√	√
14.	C202	Pharmaceutical Chemistry – I(Inorganic Chemistry)	-	-	√	-	-	-	-	-	√	√	-	-
15.	C203	Anatomy, Physiology & Health Education - I	√	√	√	√	√	√	√	√	√	-	√	√

16.	C204	**Pharmaceutical Analysis – II**	√	√	√	√	√	√	√	√	√	√	√	√
17.	C205	**Mathematics & Statistics**	√	√	√	√	√	√	√	-	√	√	-	√
18.	C206	**Pharmaceutics – II(Physical Pharmacy - II)**	√	√	√	√	√	√	√	-	√	√	-	√
19.	C207	**Pharmaceutical Chemistry – I(Inorganic Chemistry)**	√	√	√	√	√	√	-	√	√	√	-	√
20.	C208	**Anatomy, Physiology & Health Education - I**	√	√	√	√	√	√	√	√	√	√	-	√
21.	C209	**Pharmaceutical Analysis – II**	√	√	√	√	√	√	√	√	√	√	√	√
22.	C301	**Pharmaceutical Chemistry – II (Organic Chemistry-I)**	√	√	√	√	√	√	√	√	√	√	√	√
23.	C302	**Pharmaceutics - III (Unit Operations-I)**	√	√	√	√	√	√	√	√	√	-	√	√
24.	C303	**Pharmacognosy - II**	√	√	√	√	√	√	√	√	√	-	√	√
25.	C304	**Anatomy, Physiology & Health Education-II**	√	√	√	√	√	√	√	√	√	√	√	√
26.	C305	**Pharmaceutics – IV (Dispensing and Community Pharmacy**	√	√	√	√	√	√	√	√	√	-	√	√
27.	C306	**Pharmaceutical Chemistry – II (Organic Chemistry-I)**	√	√	√	√	√	√	√	√	√	√	√	√
28.	C307	**Pharmaceutics - III (Unit Operations-I)**	√	√	√	√	√	√	√	√	√	√	√	√
29.	C308	**Pharmacognosy - II**	√	√	√	√	√	√	√	√	√	-	√	√
30.	C309	**Anatomy, Physiology & Health Education-II**	√	√	√	√	√	√	√	√	√	-	√	√
31.	C310	**Pharmaceutics – IV (Dispensing and Community Pharmacy**	√	√	√	√	√	√	√	√	√	-	-	√
32.	C401	**Pharmaceutical Chemistry – III (Organic Chemistry-II**	√	√	√	√	√	√	√	√	√	-	√	√

33.	C402	**Pharmaceutics - V (Unit Operations-II)**	√	√	√	√	√	√	√	√	√	√	√	√
34.	C403	**Pharmaceutical Microbiology**	√	√	√	√	√	√	√	√	√	√	√	√
35.	C404	**Pharmacognosy - III**	√	√	√	√	√	√	√	√	√	√	√	√
36.	C405	**Pathophysiology of Common Diseases**	√	√	√	√	√	√	√	√	√	√	√	√
37.	C406	**Pharmaceutical Chemistry – III (Organic Chemistry-II)**	√	√	-	√	√	√	√	√	-	-	√	√
38.	C407	**Pharmaceutics - V (Unit Operations-II)**	√	√	√	√	√	√	√	√	√	√	√	√
39.	C408	**Pharmaceutical Microbiology**	√	√	√	√	√	√	√	√	√	√	√	√
40.	C409	**Pharmacognosy - III**	√	√	√	√	√	√	√	√	√	√	√	√
41.	C501	**Pharmaceutical Chemistry - IV(Biochemistry)**	√	√	√	√	√	√	-	√	√	√	-	√
42.	C502	**Pharmaceutics - VI(Pharmaceutical Technology -I)**	√	√	√	√	√	√	√	√	√	√	√	√
43.	C503	**Pharmacology - I**	√	√	√	√	√	√	√	√	√	-	√	√
44.	C504	**Pharmacognosy - IV**	√	√	√	√	√	√	√	√	√	-	√	√
45.	C505	**Pharmaceutical Chemistry-V(Medicinal chemistry - I)**	√	√	√	√	√	√	√	√	√	-	√	√
46.	C506	**Pharmaceutical Chemistry - IV(Biochemistry)**	√	√	√	√	√	√	√	√	√	-	√	√
47.	C507	**Pharmaceutics - VI(Pharmaceutical Technology -I)**	√	√	√	√	√	√	√	√	√	√	-	√
48.	C508	**Pharmacognosy - IV**	√	√	√	√	√	√	√	√	√	√	√	√
49.	C509	**Pharmaceutical Chemistry-V(Medicinal chemistry**	√	√	√	√	√	√	√	√	√	√	√	√

		- I)											
50.	C601	**Pharmaceutical Chemistry VI(Medicinal Chemistry - II)**	√	√	√	√	√	√	√	√	√	-	√	√
51.	C602	**Pharmaceutics - VII(Biopharmaceutics &Pharmacokinetics)**	√	√	√	√	√	√	-	√	√	√	-	√
52.	C603	**Pharmacology - II**	√	√	√	√	√	√	√	√	√	-	√	√
53.	C604	**Pharmaceutical Jurisprudence & Ethics**	√	√	√	√	√	√	√	√	√	-	√	√
54.	C605	**Therapeutic Drug Monitoring & Bioavailability**	-	√	√	-	-	-	-	-	√	√	-	-
55.	C606	**Pharmaceutical Chemistry VI(Medicinal Chemistry - II)**	√	√	√	√	√	√	-	√	√	√	-	√
56.	C607	**Pharmaceutics - VII(Biopharmaceutics & Pharmacokinetics)**	√	√	√	√	√	√	-	√	√	√	-	√
57.	C608	**Pharmacology - II**	√	√	√	√	√	√	√	√	√	-	√	√
58.	C609	**Therapeutic Drug Monitoring & Bioavailability**	-	-	√	-	-	-	-	-	-	-	-	-
59.	C701	**Pharmacognosy-V(Chemistry of Natural Products)**	√	√	√	√	√	√	-	√	√	√	-	√
60.	C702	**Pharmaceutics – VIII(Pharmaceutical Technology -II)**	√	√	√	√	√	√	√	√	√	-	√	√
61.	C703	**Pharmacology – III**	√	√	√	√	√	√	-	√	√	-	√	√
62.	C704	**Pharmaceutical Biotechnology**	√	√	√	√	√	√	√	√	√	√	√	√
63.	C705	**Pharmacology – IV(Clinical Pharmacy &Pharmacotherapeutics)**	√	√	√	√	√	√	√	-	√	√	√	√

64.	C706	**Pharmacognosy-V(Chemistry of Natural Products)**	√	√	√	√	√	√	√	√	√	-	√	√
65.	C707	**Pharmaceutics – VIII(Pharmaceutical Technology -II)**	√	√	√	√	√	√	√	√	√	-	√	√
66.	C708	**Pharmacology – III**	√	√	√	√	√	√	-	√	√	-	√	√
67.	C709	**Pharmacology – IV(Clinical Pharmacy &Pharmacotherapeutics)**	√	√	√	√	√	√	√	√	√	-	√	√
68.	C801	**Pharmaceutical Analysis – III**	√	√	-	√	√	√	√	√	√	√	-	√
69.	C802	**Pharmacognosy - VI**	√	√	√	√	√	√	√	√	√	-	√	√
70.	C803	**Pharmaceutics – IX(Dosage form Design)**	√	√	√	√	√	√	√	√	√	√	√	√
71.	C804	**Pharmaceutical Industrial Management**	√	√	√	√	√	√	√	√	√	√	√	√
72.	C805	**Pharmaceutics - X(Hospital Pharmacy)**	√	√	√	√	√	√	√	√	√	√	√	√
73.	C806	**Pharmaceutical Analysis – III**	√	√	√	√	√	√	√	√	√	-	√	√
74.	C807	**Pharmacognosy - VI**	√	√	√	√	√	√	√	√	√	√	-	√
75.	C808	**Pharmaceutics – IX(Dosage form Design)**	√	√	√	√	√	√	√	√	√	√	√	√

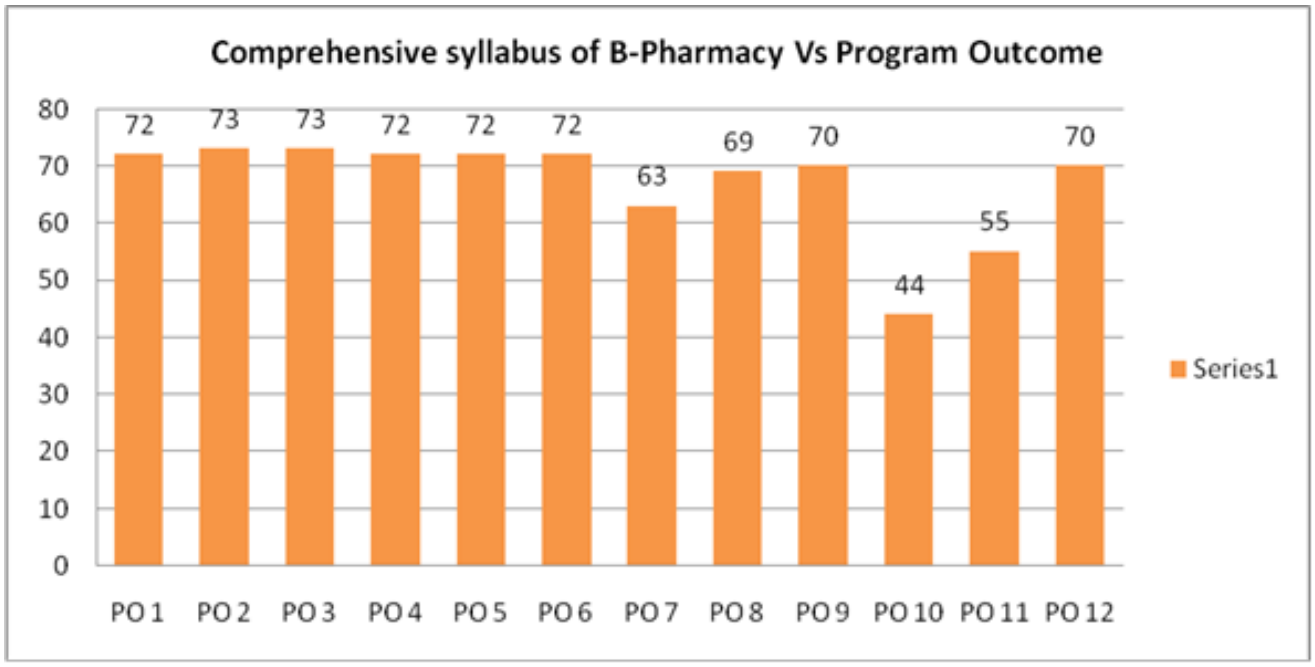


Figure 2.3: Comprehensive syllabus of B-Pharmacy Vs Program Outcome

Maximum level is covered by P01, P02, P03, P04, &P05 and the lowest is P10, P11

I SEMESTER

Pharmaceutical Analysis-I (C101)

- Outline the importance of quality control in Drug and Pharmaceutical Formulations.
- Apply the acid base titrations for analysis of drugs and Pharmaceuticals.
- Compare and contrast different oxidation and reduction reactions using various reducing/oxidising agents.
- Explain the concepts of precipitation titrations and the importance of various precipitation methods.
- Discuss about the various gravimetric techniques and application involved in analysis.

Pharmacognosy I (C102)

- Relate the scope of Pharmacognosy with various pharmaceutical fields. And summarise the knowledge about the various sources of crude drugs.

- Classify crude drugs as per alphabetical, morphological, taxonomical, chemical, pharmacological, chemo taxonomical and sero-taxonomical method and medicinally important plants using taxonomical characters.
- Discuss various factors influencing cultivation of medicinal plants.
- Analyze adulteration of crude drugs and evaluate using organoleptic, microscopical, physico chemical method and biological method.
- Develop knowledge on chemistry of active constituents – alkaloids, glycosides, tannins, flavonoids, volatile oil and resins.
- Discuss the Pharmacognosy of carbohydrate containing and lipid containing crude drugs and identify by chemical test

Pharmaceutics – I (Physical Pharmacy – I) (C103)

- Explain states of matter and classify properties of matter.
- Make use of HLB scale in solubilztion and explain surface and interfacial tensions.
- Classify types of colloids and explain its properties and apply in pharmacy.
- Determine the importance in rheological properties of suspensions and emulsion.
- Classify complexation and evaluate protein binding.

Basic Electronics and Computer Applications (C104)

- Define the scope and importance of Computers in Pharmacy
- Classify and summaries Chromatographic dada analysis(CDS), Laboratory Information management System (LIMS) and Text Information Management System(TIMS)
- Apply the Drug information storage and retrieval, Pharmacokinetics, Mathematical model in Drug design, Hospital and Clinical Pharmacy, Electronic Prescribing and discharge (EP) systems, barcode medicine identification and automated dispensing of drugs, mobile technology and adherence monitoring Diagnostic System, Lab-diagnostic System, Patient Monitoring System, Pharma Information System
- Analyze the Binary number system, Decimal number system, Octal number system, Hexadecimal number systems, conversion decimal to binary, binary to decimal, octal to binary etc, binary addition, binary subtraction – One's complement ,Two's complement method, binary multiplication, binary division

- Discuss the Information gathering, requirement and feasibility analysis, data flow diagrams, process specifications, input/outputdesign, process life cycle, planning and managing the project

Remedial Mathematics (C105)

- Relate the use of determinants and matrices in Pharmaceutical applications by knowing the algebra like simultaneous equations, Cramer's rule & En1, En2 and En3.
- Extend the application of logarithms in pharmaceutical computations with trigonometry.
- Illustrate the Certain co-ordinates, distance between two points, straight line; slope and intercept form, double-intercept form, slope-point and two point form, equation of first degree.
- Outline the Calculus**:** Parametric differentiation, differentiation of implicit functions, logarithmic differentiation, successive differentiation and its Integral.
- Explain the basic Statistics - Ideal measure, mean, mode and median.

Remedial Biology(C106)

- Recall the classification and salient features of classification of plants
- Understand the basic structure and cell inclusion of plant cell and plant tissue. Outline the process of the types of cell division.
- Identify the morphology and histology of root, stem, bark, wood, leaf and flower. Classify the different types of modification of roots and stem.
- Know and explain the survey of animal kingdoms and its structure and life history.
- Identify and summarize the general structure and life history of insects such as mosquito, housefly, mites and silkworm

Environmental Sciences (C107)

- Define the scope and importance of multidisciplinary nature of environmental studies
- Classify and summaries the types of natural resources and the management of natural resources and its effect
- Apply the concept of ecosystem structure and its function and its characteristic features with the use of food chain/food web and pyramid in ecosystem

- Analyze the causes, effect and control measures of different types of pollution and the waste from industry and its control measures on health care by conserving the natural resources
- Discuss the natural disasters for conservation through the environmental science and Create a public awareness on population, family welfare program, human health and rights, HIV/AIDS, Child welfare and women welfare and the Importance of environmental protection Act**.**

Pharmaceutical Analysis-I (C108)

- Outline the importance of quality control in Drug and Pharmaceutical Formulations and apply the titration method for analysis.
- Apply the acid base titrations for analysis of drugs and Pharmaceuticals
- Compare and contrast different oxidation and reduction reactions and analyze the reducing/oxidizing agents
- Explain the concepts of precipitation titrations and the application of various precipitation methods
- Discuss about the various gravimetric techniques and application involved in analysis

Pharmacognosy I (C109)

- Identify the morphological characters of different plant families of medicinally important crude drugs.
- Determine the dimensions of cell and cell content – Phloem fibers, starch grains, calcium oxalate crystals by microscopical method.
- Evaluate the leaf constant – stomatal number, stomatal, index, palaisade ratio, vein islet number, vein termination number using quantitative microscopy.\
- Test the presence of carbohydrates and lipids in powdered sample of crude drugs using chemical test.
- Create and compile the information of medicinal plants in a herbarium sheet.

Pharmaceutics – I (Physical Pharmacy – I) (C110)

- Find bulk density, true density and porosity of polymorphs.
- Determine critical micelle concentration and HLB value of surfactant.
- Demonstrate different types of colloids and their properties.

- Examine sedimentation volume of suspension with effect of different suspending agents.
- Measure protein binding of sulphamethoxazole

Basic Electronics and Computer Applications (C111)

- D

efine the scope and importance of Computers in Pharmacy

- Classify and summaries Chromatographic dada analysis(CDS), Laboratory Information management System (LIMS) and Text Information Management System(TIMS)
- Apply the Drug information storage and retrieval, Pharmacokinetics, Mathematical model in Drug design, Hospital and Clinical Pharmacy, Electronic Prescribing and discharge (EP) systems, barcode medicine identification and automated dispensing of drugs, mobile technology and adherence monitoring Diagnostic System, Lab-diagnostic System, Patient Monitoring System, Pharma Information System
- Analyze the Binary number system, Decimal number system, Octal number system, Hexadecimal number systems, conversion decimal to binary, binary to decimal, octal to binary etc, binary addition, binary subtraction – One's complement ,Two's complement method, binary multiplication, binary division
- Discuss the Information gathering, requirement and feasibility analysis, data flow diagrams, process specifications, input/output design, process life cycle, planning and managing the project

Remedial Biology (C112)

- Identify the morphological characters of plants parts
- Outline the care, use and types of microscopes
- Examine the gross identification of slides of structure and life cycle of lower plant/animals in theory.
- Dissect and observe the microscopic examination of stem, root and leaf of monocot and dicotyledonous leaves.
- Elaborate the structure of human parasites and insects mentioned in the theory.

II SEMESTER

Pharmaceutics – II (Physical Pharmacy – II) (C201)

- Analyze particle size and distribution of powder by different methods.
- Apply Newtonian and Non-Newtonian systems for course dispersions.
- Determine half-life and Test for stability of Pharmaceutical dosage forms.
- Importance of diffusion in biologic systems.
- Explain dissolution rate and factors affecting rate of dissolution.

Pharmaceutical Chemistry-I (Inorganic Chemistry) (C202)

- Explain properties of acids and bases. Outline the concepts of acid base theories. Classify, illustrate antacids and gastrointestinal agents.
- Physiological and pharmaceutical Importance of Major intra, extracellular electrolytes and trace elements. Study of Iron and haematinics, mineral supplements, Cationic and anionic components of inorganic drugs useful for systemic effects.
- Elaborate study of Protectives, Astringents, anti-infectives, Sclerosing agents, expectorants, emetics, poisons and antidotes, sedatives etc. Method of preparation, Assay of Pharmaceutical aids of some inorganic compounds (IP).
- Elaborate study of Dentifrices and anti-caries agents. Ideal characteristic of dentifrices. Abrasives and surfactants used. Oxygen, Anesthetics and respiratory stimulants.
- Discuss Complexing and chelating agents used in therapy. Elaborate the concepts of nuclear radio pharmaceuticals clinical applications and dosage, hazards and precautions.

Anatomy, Physiology & Health Education-I (C203)

- Develop a vocabulary of appropriate terminology to effectively communicate information related to anatomy and physiology. Identify the various tissues and organs of different systems of human body.
- Outline the composition and functions of bone, classify the joints, types of movements at joints and disorders of joints.
- Explain the gross morphology, structure and functions of Skeletal Muscle.
- List out the major components of the blood and lymph, Compare and contrast the blood and its components, Lymphatic vessels & lymph nodes structurally and functionally.

- Identify the types of circulation and major anatomical areas of the heart. Explain the Electrocardiogram, Blood pressure and cardiovascular disorders.

Pharmaceutical Analysis (C204)

- Classify different types of Non Aqueous and Complexometric titrations. Outline the principles involved in the titrations. Types of Solvents and interpret the indicators involved in the titrations.
- Make use of different miscellaneous method of analysis and its working procedure for the following techniques- Diazotisation titrations, Kjeldahl method of nitrogen estimation, Karl Fisher titration, Oxygen flask combustion, gasometry.
- Discuss Principle, Procedure and application involved in following extraction procedures- Infusion, decoction, digestion, and maceration and percolation method.
- Elaborate the theoretical aspect as well as working procedure involved in chromatographic methods like TLC, HPLC, GLC, HPTLC, Paper Chromatography and Column Chromatography.
- Discuss Different types of electrode used in electrometry. Elaborate the Principles and working procedure of following electrometric methods-Potentionmetry, Conductometry,Polarography, Amperometry.

Mathematics & Statistics (C205)

- Define the scope and importance of types of data distribution.
- Classify and summaries the types of graphs, histograms, pie charts, scatter plots and semilogarthimic plots.
- Apply the concept of central tendency distribution – average, median, and mode.
- Analyze the level of significance (Non parametric data) – sign test, wilcoxan's sign rank test, wilcoxan rank sum test, Kruskal – wall is test (one way ANOVA)
- Discuss the linear regression and correlation – introduction, personn's and spearmann's correlation and correlation co-efficient. Introduction to statistical software: SPSS, Epi info, SAS.

Pharmaceutics – II (Physical Pharmacy – II) (C206)

- Find particle size and surface area using sieve method.
- Determine particle size, distribution using sieving method and microscopic method.
- Determine rheological properties of various types of systems using different viscometers.

- Rate the reaction rate constant for first order and second order reactions.
- Determine compressibility index.

Pharmaceutical Chemistry-I (Inorganic Chemistry) (C207)

- Test for purity and identify limit tests for iron, arsenic, lead, heavy metals, chloride, sulphate.
- Prepare and Estimate test for purity of Boric acid and Potash Alum.
- Prepare and Estimate test for purity of Magnesium sulphate and Sodium citrate.
- Evaluate the Test for purity for Bentonite and aluminium hydroxide gel.
- Evaluate the Test for purity for kaolin and potash alum.

Anatomy, Physiology & Health Education-I (C208)

- Utilize the knowledge of Various Physiological instruments used for qualitative and quantitative estimations.
- Identify the various tissues of different systems of human body.
- Determine the hematological tests like bleeding time, clotting time and blood grouping.
- Estimate the blood cell counts (RBC, WBC) and haemoglobin content.
- Measure the Body temperature, Pulse rate, Blood pressure at sitting and standing posture.
- Develop coordinated working pattern of different organs of systems like Circulatory system, cardiovascular system and Lymphatic system.

Pharmaceutical Analysis (C 209)

- Determine the volume of EDTA and perchloric acid by standardization.
- Estimate calcium gluconate by complexometry and Phenobarbitone sodium by non-aqueous titration methods.
- Identify the drugs/amino acids by Circular Chromatography and Paper Chromatography Ascending Technique.
- Determine the pH by using Manual and instrumental method and determine molarity of alkali by potentiometer.
- Experiment with HPLC technique and Gas chromatography techniques.

III SEMESTER

Pharmaceutical Chemistry-II Organic Chemistry-I (C301)

- Apply and solve the problems of various areas of organic chemistry, including stereochemistry, Optical Isomerism, Chirality of the compounds. Construct the stereo models and study of allenes, biphenyls. Detail study of absolute configuration, racemic modification and resolution, asymmetric synthesis.
- Outline the Fundamental concepts of nomenclature, formulae, preparation and properties of organic compounds. Explain theoretical aspects and mechanism of Alkanes, alkenes, alkynes; cycloalkanes and dienes.
- Discuss the structure, nomenclature, and preparation and reaction mechanism of alkyl halides, alcohols, ethers, amines, aldehydes, ketones, carboxylic acids and functional derivatives of carboxylic acids.
- Elaborate the Aromatic, Poly aromatic compounds and Mechanism of electrophilic and nucleophilic aromatic substitution, theory of effect of substituent on reactivity and orientation.
- Importance of reactive intermediates in organic mechanisms and their applications. Preparation, test for purity and medicinal uses of important organic compounds.

Pharmaceutics - III (Unit Operations - I) (C302)

- Illustrate the basic laws, Types of flow, Reynolds number, Viscosity, Concept of boundary layer, basic equations of fluid flow, valves, flow meters, manometers and measurement of flow and pressure Different types of pumps Various types of fans, blowers and compressors Bins, Bunkers, Conveyers, Air transport.
- Identify the term Filtration and Centrifugation Theory of filtration, filter aids, filter media, industrial filters including filter press rotary filter, edge filter, etc. Factors affecting filtration, mathematical problems on filtration, optimum-cleaning cycle in batch filters. Principles of centrifugation, industrial centrifugal filters. Principles of centrifugation, industrial centrifugal filters, and centrifugal sedimenters. Characteristics of crystals like; purity, size, shape, geometry, habit, forms size and factors affecting them, Solubility curves and calculation of and heat balances around Swenson Walker Crystallizer, Supersaturation theory and its limitations, Nucleation mechanisms, crystal growth. Study of various types of Crystallizer, tanks, agitated batch, Swenson Walker,

Single vacuum, circulating magma and crystal Crystallizer, Caking of crystals and its prevention. Numerical problems on yields.

- Classify the Basic concepts and definition, wet bulb and adiabatic saturation temperatures, Psychometric chart and measurement of humidity, application of humidity measurement in pharmacy, equipments for dehumidification operations.Principles and applications of refrigeration and air conditioning.
- Explain the General study of composition, corrosion, resistance, properties and applications of the materials of construction with special reference to stainless steel and glass Mechanical, Chemical, Electrical, fire and dust hazards, Industrial dermatitis, Accident records etc.

Pharmacognosy - II (C303)

- Explain the pharmacognosy of resin and resin containing crude drugs under various pharmacognostic items.
- Explain the pharmacognosy of tannin and tannin containing crude drugs under various pharmacognostic items.
- Explain the pharmacognosy of volatile oil containing crude drugs under various pharmacognostic items and study the different isolation methods for extraction of the phytoconstituents.
- Develop various crude extracts and identify the various primary and secondary metabolites by preliminary qualitative chemical tests.
- Illustrate the various plant fibres and pharmaceutical aids of pharmacognostic importance.

Anatomy, Physiology & Health Education-II (C304)

- Explain the anatomy and physiology of the respiratory and digestive system.
- Compare the Central nervous system and Autonomous nervous system.
- Outline the various parts of the urinary system and reproductive system.
- Examine the functions of the sense organs by knowing the basic anatomy and physiology.
- Importance of the Health education like first aid and some other diseases.

Pharmaceutics IV (Dispensing and Community Pharmacy) (C305)

- Outline the Prescription: handling of prescription, source of errors inprescription, care required in dispensing procedures including labeling of dispensed products.
- Apply the Posology, calculation of doses for infants, adults and elderly patients, Enlarging and reducing recipes percentage solutions, alligation, alcohol dilution, proof spirit, isotonic solutions, milliequivalents, osmolal, displacement value
- Analyze theTypical prescriptions like mixtures, solutions, emulsions, creams, ointments, powders, capsules, pastes, jellies, suppositories, ophthalmic solutions, drops, ear drops, pastilles, lozenges, pills, lotions, liniments, inhalations, paints, sprays tablet triturates
- Explain the Physical, chemical and therapeutic incompatibilities, correction of incompatibilities.
- Discuss Organization and structure of retail and whole sale drug store ¬types of drug store and design, legal requirements for establishment, maintenance of drug store - dispensing of proprietary

Pharmaceutical Chemistry-II Organic Chemistry-I (C306)

- Prepare and Estimate percentage yield of Benzoic acid, Acetyl salicylic acid and salicylic acid.
- Prepare and Estimate percentage yield of Acetanilide, Parabromo acetanilide and para nitro acetanilide.
- Construct the stereo models of Alkanes, Alkenes, and Optical Isomers: Lacticacid.
- Identify the organic compounds by systematic qualitative analysis for the following - Carbohydrate, Alcohols, Phenols, Aldehydes and ketones.
- Identify the organic compounds by systematic qualitative analysis for the following- Amine, Amides, Aromatic acids and esters.

Pharmaceutics - III (Unit Operations - I) (C307)

- Determination of particle size distribution of using sieve method.
- Determination of humidity of air by dew point method.
- Determination of grinding efficiency.
- Determination of Solubility curve determination.
- Determination the Effect of viscosity on rate of filtration.
- Determination the Effect of filter aids in filtration process.

- Determination the Effect of filter aids in filtration process.
- Determination the Factors affecting the filtration rate.
- Determination the Effect of surface area on filter thickness on filtration.
- Determination of equilibrium moisture content of sample.

Pharmacognosy – II (C308)

- Identify the morphological characters of various medicinally important crude drugs containing resins.
- Identify the morphological characters of various medicinally important crude drugs containing tannins.
- Identify the morphological, microscopical and powder characters of various medicinally important crude drugs containing volatile oils such as Clove, Cinnamon, Coriander, Fennel etc.
- Test the presence of few secondary metabolites such as glycosides, alkaloids, tannins, flavanoids in powdered sample of crude drugs using chemical test.
- Identify a few plant fibres and pharmaceutical aids by various chemical tests**.**

Anatomy, Physiology & Health Education-II (C309)

- Define all the Anatomical terminology and relate the specimens.
- Distinguish the various slides of the given organs and glands.
- Demonstrate the digestive and respiratory system.
- Demonstrate the nervous, urinary and reproductive system.
- Demonstrate the endocrine and sensory system

Pharmaceutics IV (Dispensing and Community Pharmacy) (C310)

- Outline the Liquid paraffin oral emulsion, Preparation of Castor oil emulsion,White liniment , turpentine liniment Whitfield's ointment Compound zinc oxide paste.
- Apply Zinc oxide and salicylic acid paste, Percentage solution
- Analyze themouth washes and gargles, Effervescent mixture
- Explain the Kaolin mixture, vanishing cream
- Discuss the cold cream sodium salicylate mixture

IV SEMESTER

Pharmaceutical Chemsiry-III (Organic Chemistry-II) (C401)

- Understand the concept of Stereochemistry, Illustrate the concepts of geometrical isomerism, explain the mechanisms involved in SNI and SN2 reactions, El and E2 elimination, Diels - Alder reaction, neighboring group participation. Frontier orbital and orbital symmetry cycloaddition (Diels Alder Reaction), Sigmatropic reactions eg. Cope rearrangement, Electrocylic reactions.

- Define heterocyclic compounds, Classfiy them and explain the nomenclature, outline the synthesis and study of reactions,uses of Pyrrole, Furan, Thiophene, Pyridine, Piperidine, QuinolineIsoquinoline.

- Explain the synthesis and study of reactions ,uses of Pyrazole, Imidazole, Oxazole, IsoxazolePyrimidinePyrazine, PyridazineAzepines, Phenothiazines
- Illustrate the structure and lists the medicinal uses of heterocyclic derivsatives of Nicotonic acid, INH, MepyraminePhenazone, Phenylbutazone, chloroquine, Histamine, carbimazole, Piperazine, DEC, sulphadiazine, Metronidazole, Chlorpromazine, Imipramine, Diazepam.

Pharmaceutics - III (Unit Operations - II) (C402)

- Explain the Unit processes material and energy balances, molecular units, mole fraction, (tie substances), gas laws, mole volume, primary and secondary quantities, equilibrium state, rate process, steady and unsteady states, dimensionless equations, dimensionless formulae, dimensionless groups, different types of graphical representation, mathematical problems.Source of heat, heat transfer, steam and electricity as heating media. Determination of requirement of amount of steam/electrical energy, steam pressure, Boiler capacity, Mathematical problems on heat transfer.
- Identify the Basic concept of phase equilibria, factors affecting evaporation, evaporators, film evaporators, single effect and multiple effect evaporators, problems on evaporation.Raoult's law, phase diagrams, volatility: simple steam and flash distillations, principles of rectification, McCabe Thiele method for calculations of

number of theoretical plates, Azeotropic and extractive distillation, Mathematical problems on distillation.

- Examine the Moisture content and mechanism of drying, explain the rate of drying and time of drying calculations: classification and types of dryers, dryers used in pharmaceutical industries and special drying methods. Explain the Mathematical problems on drying. Explain the Theory of mixing, solid - solid, solid -liquid and liquid -liquid mixing equipments.
- Explain the Definition, objectives of size reduction, factors affecting size reduction, laws governing energy and power requirements of a mill, types of mills including ball mill, hammer mill, fluid energy mill etc.

Pharmaceutical Microbiology (C403)

- Outline the Prokaryotes and Eukaryotes, microbes and their taxonomy of bacteria, ricketssiae, spirochetes and viruses.
- Choose the bacterial cell, nutrition, cultivation, isolation of bacteria, actinomycetes, fungi, viruses,Stains and types of staining techniques, electron microscopy.
- Classify disinfectants and Factors influencing disinfection, Sterilization, different methods, validation of sterilization methods &equipments. Sterility testing of all Pharmaceutical products, Microbial genetics and variation.
- Explain the Immunity, Primary and secondary defensive mechanism of body, microbial resistance, and interferon.
- Discuss about the Microbial assays of antibiotics, vitamins & amino acids.

Pharmacognosy – III (C404)

- Develop knowledge about glycosides, its properties, different types, isolation methods and identification tests.
- Explain the pharmacognosy of cardiac and anthracene glycoside containing crude drugs under various pharmacognostic items.
- Explain the pharmacognosy of saponin, bitter glycoside containing crude drugs and other miscellaneous glycosides under various pharmacognostic items.
- Describe the monograph of various traditional drugs of significance by a thorough pharmacognostic study.
- Illustrate the marketed formulations of the indigenous drugs.
- Understand the holistic concepts of various traditional systems of medicine.

- Apply the concepts in preparation of few ayurvedic dosage forms like asavas, arishtas, ghutikas, tailas.

Pathophysiology of Common Diseases (C405)

- Explain the Morphology of Reversible cell injury
- Organise the process of repair
- Compare and classify the difference between acute and chronic renal failure
- Explain tuberculosis and justify its pathophysiological management
- Elaborate the Pathogenesis of Cancer

Pharmaceutical Chemsiry-III (Organic Chemistry-II) (C406)

- Outline the Synthetic tract and method of laboratory preparation techniques for heterocyclic compounds of *5, 5*- diphenylhydantion, 2 - methyl - 4 benzylidene - 5 oxazolone.
- Lists the Synthetic tract and method of laboratory preparation techniques for heterocyclic compoundsOf 2 - phenyl 4 - benzylidene - 5 oxazolone. 2,3 - diphenylquinoxaline
- Outline the Synthetic tract and method of laboratory preparation techniques for heterocyclic compounds of benzimidazole, benztriazole, 2-methyl benzimidazole.

Pharmaceutics - III (Unit Operations - II) (C407)

- Determination of Particle size separation and analysis by Sieve Method.
- Determination of Grinding Efficiency.
- Determination of Size reduction of chalk powder using Ball Mill.
- Determination of Effect of mixers on globule size of castor oil emulsion.
- Determination of mixing index of solids in liquids.
- Determination of Experiment to illustrate solid - solid mixing.
- Determination of rate of evaporation.
- Determination of influence of various factors over evaporation.
- Determination of Particle size distribution using sedimentation method.

Pharmaceutical Microbiology (C408P)

- Outline the sterilization of nutrient agar simple staining methodGram's staining method, Acid fast staining method.

- Experiment with the Isolation of pure culture of micro-organisms.
- Analyze of actinomycetes from soil and motility by hanging drop technique.
- Explain the concepts of Microbiological assay of antibiotics by cup plate method and other method.
- Discuss about the Sterility testing of pharmaceuticals and disinfectant by ridealWalker co-efficient method.

Pharmacognosy – III (C409)

- Identify the morphological characters of various medicinally important glycoside containing drugs.
- Identify the microscopical characters of few medicinally important glycoside containing drugs
- Analyze the powder characters of few medicinally significant glycosidic drugs.
- Standardize/Evaluate the various ayurvedic liquid dosage formulations such as asavas, arishtas by standard protocols (WHO guidelines/Ayurvedic Formulary).
- Standardize/Evaluate the various ayurvedic solid and semi-solid dosage formulations such as churna, lehya, taila etc by standard protocols (WHO guidelines/Ayurvedic Formulary).

V SEMESTER

Pharmaceutical Chemistry -IV (Biochemistry)(C501)

- Illustrate the role of different cell organelles and demonstrate the biomedical importance of different biomolecules like carbohydrates, proteins, haemoglobin, enzymes and nucleic acids,
- Compare and contrast the different metabolic pathways of carbohydrates and explain the role of enzymes and cofactors the metabolism of carbohydrates
- Interpret the metabolic pathways of lipids and justify their role in various disease conditions like hyperlipidemia, atheroscelorsis and other lipid storage diseases
- Compare the different pathways in protein and amino acid metabolism, nucleic acid biosynthesis and their degradation and categorize their role in various diseases like jaundice, gout and porphyria
- Explain about importance of genetic engineering, replication of DNA, DNA repair, mutation and its role in carcinogenesis;

Pharmaceutics – VI Pharmaceutical Technology –I (C502)

- Classify different types of additives used in liquid dosage form and explain each type with examples. Demonstrate the manufacturing packaging materials and for official tests in Pharmacopoeial preparation of suspensions and emulsions.
- Make use of studying in variety of semisolid dosage forms and ophthalmic preparation, their formulation, various parameters, packaging requirements and identify factors influencing penetration in selection of semisolid bases.
- Classify types of extraction methods for different galenicals. List out the general formulation procedures for propellants with their manufacturing, packaging methods and applications.
- Determine and evaluate formulation and packaging preparation of cosmetic products. Explain the fundamentals in cosmetic science and examine the structures and function of skin and hair.
- Discuss about the production of Radioactive Pharmaceuticals, radioactive dosimetry and isotopic tagging methods. Elaborate about the radiation hazards, specifications and prevention methods which should be followed in radioactive laboratory.

Pharmacology I (C503)

- Explain in detail about the general pharmacology.
- Outline the Neurohumoral transmission of the central nervous system and peripheral nervous system
- Classify the receptors in to types and explain about the stimulants.
- Distinguish the difference between the neuromuscular blocking agents.
- Identify the central nervous system drugs for experimental animals.

Pharmacognosy IV(C504)

- Develop knowledge on source, cultivation and collection, chemical constituents, diagnostic macroscopic, microscopic features, adulterants, substitutes, specific chemical test and uses of alkaloid containing crude drugs.
- Understand the source, chemistry, isolation, therapeutic uses, commercial products, mechanism of action of plant products and pharmacognostical study of plant bitters and plant sweeteners.

- Explain the biological sources, preparation, identification tests and uses of the following enzymes: Diastase, Papain, Pepsin, Trypsin, Pancreatin.
- Understand general techniques of biosynthetic studies and basic metabolic pathways and
- Biogenesis of secondary metabolites of pharmaceutical important such as flavonoids, glycosides, and alkaloids.
- Analyze herbal drugs using different chromatographic techniques such as TLC, PC, HPLC, HPTLC, and GC etc.

Pharmaceutical Chemistry -V (Medicinal chemistry-1) (C505)

- Define physiochemical properties and its biological activity of drugs, classify drug receptors, and explain the drug receptor interaction including transduction mechanisms. Illustrate the different drug metabolism pathways and explain prodrugs with its concepts.
- Explain the concepts of QSAR and illustrate the various parameters involved in the designing of drugs. Explain about Computer aided drug designing and molecular modeling
- Classify the medicinal compounds and outline the synthetic route for important medicinal compounds acting on CNS along with the mechanism of action and Explain the neurotransmitters and receptors involved in CNS
- Discuss the concept of drugs acting on autonomic nervous system, explain the receptors involved in it Outline the synthesis of some of important medicinal compounds and structure activity relationship of respective classes
- Define and classify local anesthetics discuss narcotic and non-narcotic drugs compare and contrast them explain its SAR

Pharmaceutical Chemistry -IV (Biochemistry) (C506)

- Outline the reactions of carbohydrates, Color reaction of proteins. Identify the normal and abnormal constituents of Urine
- Experiment with the analysis of milk and estimate the glucose and urea in blood
- Experiment with the identification of amino acids by using paper chromatography
- Estimate the amount of creatinine, bilirubin and calcium in Serum
- Estimate the titrable acidity and ammonia in urine

Pharmaceutics – VI Pharmaceutical Technology –I (C507)

- Demonstrate the formulation of suspension and emulsion and perform the experiment with their stability parameters.
- Develop the eye drops, eye ointment formulation and perform the sterility test.
- Develop cold cream, vanishing cream, shaving cream formulation.
- Develop and evaluate the ointment and creams.
- Formulate the preparation of tooth powder and face powder.
- Formulate the sunscreen lotion, tooth paste and nail color.

Pharmacognosy IV (C508)

- Identify the morphological characters of crude drugs containing alkaloids such as tropane, indole, quinoline, purine steroidal and alkaloidal amine.
- Evaluate the crude drugs containing alkaloids by diagnostic microscopical characters - Transverse section
- Analyze the crude drugs containing alkaloids by diagnostic powder microscopical characters.
- Test the presence of alkaloids, flavonoids and enzymes in the powdered sample of crude drugs using identifying chemical test.
- Analyze and interpret the tropane, quinoline and purine alkaloids present in the crude drugs applying Thin Layer Chromatography (TLC).

Pharmaceutical Chemistry -V (Medicinal chemistry-1) (C509)

- Plan the synthetic procedures of some important medicinal compounds
- Explain the principle , procedure to estimate the actual amount of drug present in given powder/ Formulation
- Interpret the impurity profile of official listed drugs by performing Monograph Analysis
- Define partition coefficient and illustrate the determination of partition coefficient using different solvent system

VI SEMESTER

Pharmaceutical Chemistry -VI (Medicinal Chemistry -II) (C601)

- Illustrate about different eicosanoids, their biochemical functions and the synthesis, mode of action of the antagonists
- Outline about different Cardiovascular diseases and explain about different classes of drugs acting on cardiovascular system, their mechanism of action, Structure activity relationship, synthesis and their uses
- Explain about the hemopoietic system, endocrine disorders and classify on various drugs acting on hemopoietic system, thyroid dysfunctions and diabetes mellitus
- Compare and contrast the different classes of Anti-microbial drugs, Antineoplastic agents & Immunosuppressive agents and demonstrate their role in treating various infectious and non-infectious diseases
- Categorize on the Drugs acting on uterine motility and discuss about the role of different diagnostic agents

Bio pharmaceutics & Pharmacokinetics (C602)

- Define Bio pharmaceutics and Pharmacokinetics and their role in formulation development and clinical setting
- Outline the mechanisms of Passage of drugs across biological barrier
- Interpret plasma drug concentration measurement by the application of compartment model.
- Analyse Drug administration by intra-vascular and extra vascular route by Curve fitting regression procedures.
- Predict the clinical significance of drug bioavailability and bioequivalence as related to drug product safety

Pharmacology-II (C603)

- Compare & study about the definition, Classification, Mechanism of Action & Pharmacokinetics Adverse effects, Uses, Dose and route of administration, Precautions contraindications and drug interactions of Pharmacology of drugs acting on Cardiovascular System.

- Classify and distinguish the definition, Mechanism of Action & Pharmacokinetics Adverse effects, Uses, Dose and route of administration, Precautions contraindications and drug interactions of Pharmacology of various drugs acting on Haemopoietic System.
- Illustrate & Summarize the Definition, Classification, Mechanism of Action & Pharmacokinetics Adverse effects, Uses, Dose and route of administration, Precautions contraindications and drug interactions of Pharmacology of drugs acting in Urinary System.
- Define and list the Classification, Mechanism of Action, Pharmacokinetics, Adverse effects & Uses of Autocoids.
- Apply & make use of definition, Classification, Mechanism of Action & Pharmacokinetics Adverse effects, Uses, Dose, and Route of administration, Precautions contraindications and drug interactions of Pharmacology of drugs acting on Respiratory System.

Pharmaceutical Jurisprudence & Ethics (C604)

- Outline and summarize the salient features of Pharmaceutical legislations, Drugs and Pharmaceutical industry and Pharmaceutical education.
- Explain Drug and Cosmetics act and Rules 1945.
- Make use of objectives, essential features, offences and penalties in detail study of Medicinal and Toilet preparations act, Narcotic Drugs control order.
- Apply the professional ethics in hospital and clinical pharmacy.
- Make use of education regulation followed in Pharmacy act and Plan the registration of pharmacist in respective state Pharmacy council.
- Explain the main provisions of Provisions act, Medicinal Termination of Pregnancy act, States and shops and establishments Act and rules, Insecticides act and rules, AICTE act, patents act and Minimum wages act.
- Support the prevention of cruelty to animals act.
- Elaborate the various prescription/nonprescription products, medical appliances, surgical accessories, diagnostic appliances available in market.

Therapeutic Drug Monitoring and Bioavailability (C605)

- Determine the primary pharmacokinetic parameters for the pharmacokinetic models.

- Discuss the pharmacokinetic variability of digoxin/aminoglycosides/antiepileptics across different age groups.
- Estimate creatinine clearance of renal impaired patients with given serum creatinine and discuss the pharmacokinetic variability of drugs for the given patient data.
- Explain the pharmacokinetic drug interactions with suitable examples.
- Elaborate on the role of pharmacist in the individualization and optimization of aminoglycosides/ anti-epileptics/cardiovascular drug dosage regimen.

Pharmaceutical Chemistry -VI (Medicinal Chemistry -II)(C606)

- Identify and develop synthetic schemes for some important structural moieties like coumarins
- Make use of the synthetic schemes that are available for the preparation of various sulpha drugs
- Select and utilize the synthetic protocols available for the preparation of important diagnostic agents like fluorescein
- Determine the percentage purity of the important drugs using acid-base, oxidation-reduction, diazotisation and non-aqueous titrimetric methods
- Interpret the structure of important drugs using IR spectrometry

Bio pharmaceutics & Pharmacokinetics (C607)

- Interpret the plasma concentrations of different formulations
- Assessment of AUC by trapezoidal rule and determine the plasma concentration time profile on ordinary and semi log graph paper
- Analyse the dissolution rate studies of marketed paracetamol preparations.
- Explain the test for different formulations and determine the Pharmacokinetic parameters following Oral and IV administration.
- Estimate the absorption rate constant by Method of residuals

Pharmacology-II (C608)

- Demonstrate Techniques involved blood collection, Euthanasia, Different routes of administration of drugs.
- Experiment with chicken ileum preparation and develop Concentration response curve of Acetyl Choline, Histamine & 5 HT.
- Examine the effect of drug Neostigmine & Atropine on concentration response curve of Acetyl Choline & Histamine.
- Analyse the ionotropic and chronotropic effect of drugs of isolated heart and examine the Drug Tachyphylaxis, Tolerance, and Resistance & Addiction with Standard graphs.

Therapeutic Drug Monitoring and Bioavailability (C609)

- Determine AUC (area under the curve) for the given plasma concentration – time data.
- Estimate the glomerular filtration rate for the given patient data.
- Design the drug dosage regimen of gentamicin for an anephric patient weighing 74 Kg and 55 year old female patient.
- Modify phenytoin dosage regimen for a patient who has been recently started on anti-tubercular drug therapy.
- Estimate the renal clearance of digoxin for the given patient data.

VII SEMESTER

Pharmacognosy V [Chemistry of Natural Products](C701)

- Analyze simple molecules of natural origin by chemical and spectral approaches to understand the concept of stereo isomerism taking example of natural products.
- Develop knowledge on chemistry, biogenesis and pharmacological activity of bioactive secondary metabolites viz. alkaloids (quinine, reserpine, morphine, ephedrine, ergot, vinca and xanthine) and glycosides (digitoxin, sennosides, diosgenin and sarsasapogemin).
- Explain the chemistry of vitamins, proteins, carbohydrates, hormones, oils, fats and waxes.
- Outline the chemistry, biogenesis and pharmacological activity of medicinally important monoterpenses, sesquiterpenes, diterpenes, terpenoids , medicinally important lignans and quassianoids.

- Elaborate the steroidal nomenclature and stereochemistry of androgens and anabolic agents, estrogens, progestational agents, adrenocorticoids, cholesterol, ergosterol, bile acids

Pharmaceutics-VIII (Pharmaceutical Technology-II)(C702)

- Acquire knowledge on capsules.
- Understand the basic concept of microencapsulation techniques in pharmacy
- Acquire knowledge on tablets granulation, formulations and coating process
- Categorize different parentral products and their Preformulation techniques, formulations procedures.
- Explain novel drug delivery systems and discuss importance of packaging of pharmaceutical products.

Pharmacology-III (C703)

- Classify the drugs and summarize the mechanism of action, ADR and therapeutic uses of various drugs on gastrointestinal tract.
- Apply the pharmacology of endocrine system in various hormonal imbalance disorders.
- Categorize the various chemotherapy agents based on structure, mechanism and list the chemotherapy drugs contraindicated in pregnancy and lactation women's.
- Explain the importance of drugs used in treatment of Cancer, tuberculosis, leprosy, fungal Diseases, viral diseases, UTI, STD & immunosuppressive agents.
- Elaborate the symptoms and treatment of various drug poisoning and heavy metal poisoning.

Pharmaceutical Biotechnology (C704)

- Illustrate the immune system, Classify the immunity, immunological tolerance, explain the different types of antigen-antibody reactions and their applications. Outline the Hypersensitivity types, Active and passive immunization, vaccines and sera, their preparations standardization and storage.
- Apply the genetic engineering principles Transformation, conjugation, transduction, protoplast fusion and gene cloning and their applications. Develop the hybridoma for monoclonal antibodies Production. Utilize the genetic enginnering for the production of biotechnology products such as activase, Humulin, Humatrope, Hepatitis B.

- Discover of antibiotic from different micro-organisms and analyze the potential of antibiotic screening. Design of the Fermenter and its parameters. Examine the mutation. Classify the factors influencing rate of mutation. Production of fermentation products pencillins, streptomycins tetracyclines and vitamin B12.
- Explain the types of reactions mediate by microorganisms, interpret the biotransformation processes, and determine the selection of organisms to involve in biotransformation process and with special reference to steroids.
- Develop the different Techniques in immobilization of enzymes, discuss the factors affecting enzyme kinetics. Elaborate the study of enzymes such as hyaluronidase, pencillinase, streptokinase and streptodornase, amylases and proteases etc. Discuss the immobilization of bacteria and plant cells.

Pharmacology – IV (Clinical Pharmacy & Pharmacotherapeutics) (C705)

- Explain the principles of clinical toxicology
- Identify the cardiovascular, CNS, respiratory disorders and their managements
- Distinguish the differences between acute and chronic renal disease
- Explain the urinary tract infection and upper respiratory infections
- Elaborate the neoplastic diseases.

Pharmacognosy V [Chemistry of Natural Products](C706)

- Experiment with the isolation of caffeine, starch and casein from crude drugs and identify using suitable chemical test.
- Experiment with the isolation of pectin, calcium citrate and lawsone from crude drugs and identify using suitable chemical test.
- Analyze the glycosides and alkaloids in crude drugs using Thin layer chromatography.
- Analyze the various amino acids using paper chromatography
- Determine the iodine value, saponification value, peroxide value and acid value in fats and oils as per standard procedure.

Pharmaceutics-VIII (Pharmaceutical Technology-II) (C707)

- Understand the different formulation and evaluation of solid dosage forms.
- Acquire knowledge on parentral and different techniques for preparation and evaluations.
- Categorize in process quality control test for solid dosage forms

- Examine in process quality control test for packaging testing, leak test and LAL test
- Determine in process quality control test for parentral

Pharmacology-III (C708)

- Summarize the equipment's, animals and drugs used in experimental pharmacology and Physiological salt solution used in *in vitro* pharmacology.
- Compare the agonist and antagonist action of muscarinic and histaminic agents acting on isolated chicken ileum preparation.
- Estimate the concentration of unknown sample of acetylcholine and histamine using matching and bracketing bioassay using isolated chicken ileum preparation.
- Estimate the concentration of unknown sample of drugs using multiple point bioassay (3 point and 4 point) using isolated chicken ileum preparation.
- Test the anti-secretary and antiulcer activity of drugs using pylorus ligated rats with the help of standard scores of the ulcer.

Pharmacology – IV (C709)

- Explain the hypertension and congestive cardiac failure.
- Identify the Ischemic heart diseases and their managements.
- Distinguish the differences between TB and Respiratory infections.
- Explain the medical terminologies related to case presentations.
- Examine the biochemical investigations.

VIII SEMESTER

Pharmaceutical Analysis III (C 801T)

- Outline of the Quality Assurance, TQM, GLP, Regulatory control and Organization and personnel responsibilities.
- Explain the Validation of Analytical Procedure and Instrument like UV-Visible Spectrophotometer, IR Spectrophotometer, Spectrofluorimeter, HPLC, HPTLC and GC
- Explain the Principle, Instrumentation and working procedure of Absorption spectroscopy like NMR, Mass Spectroscopy and Atomic absorption spectroscopy.
- Discuss the Principle, Instrumentation and working procedure of Atomic emission spectroscopy like Flame photometry.

- Study the theoretical and Practical aspects of X-ray Diffraction and Radio immuno assay technique.

Pharmacognosy VI (C802)

- Evaluate the global awakening interest towards safe, effective use of natural drugs and to motivate the policy makers, international and national regulatory bodies to streamline the availability.
- Explain the importance of national and international agencies actively involved in different parts of India to promote awareness, documentation, conservation strategies involved in promoting research and utilization of medicinal plants
- Analyse the symptoms of the causative agents for allergens, photosensitizing agents and to decide the medications. Defend the health benefits of health foods and herbal cosmetics.
- Create a technique for a better source of regular, uniform supply of raw materials regulated under reproducible condition for plant based industries to produce phyto pharmaceuticals and to develop new methods of isolation of phytochemicals.
- Discuss the lead of natural classification supplemented by phytochemical knowledge which acts as an excellent guide for chemical exploration of plants. Develop novel compounds from marine natural products for various biological activities

Pharmaceutics-IX (Dosage form Design) (C803)

- Outline the importance of Preformulation studies and prodrugs related to stability of pharmaceutical preparations.
- Develop and design the validation methods for preparation of pharmaceutical products.
- Analyse the stability of pharmaceutical products and test the stability using standard protocol.
- Explain and assess the concepts Good manufacturing practice and maintaining the manufacturing records.
- Design development production and evaluation of controlled release formulation.

Pharmaceutical Industrial Management (C804)

- Explain the concept of administrative management. Ilustrate the principles of management Show the communication skills and study motivation, decision making, leadership and innovation and creativity for pharmacists.
- Apply the principles of accountancy and economics and make use in preparation of ledgers, cheques, promissory notes, bills. Plan the procedure for exporting and importing goods. Utilize the principles of insurance and plan for different policies.
- Analyze the functions involved in buying, selling storage Categorize the channels of distribution and take part in training given to pharmacist
- Assess the different methods of recruitment and training given to personnel's. Evaluate the compensation given to pharmacist.
- Discuss about the procedure for purchase and elaborate the inventory control methods. Predict the performance evaluation technique and process flow methods.

Pharmaceutics –X (Hospital Pharmacy) (C8O5)

- Explain the structure of organization and role of hospital pharmacist in budget preparation, hospital formulary.
- Organize the drug store and inventory control of the store
- Distinguish the dispensing of drugs to outpatients and inpatients
- Develop the skills in sterilization of materials and collection, storage of human blood.
- Improve the knowledge in surgical products and processing of drug information queries**.**

Pharmaceutical Analysis III (C 806)

- Demonstrate the working procedure of UV -Visible Spectroscopy and explain the study of λmax.
- Experiment with UV -Visible Spectroscopy and determine the Percentage purity of Drugs and Formulation.
- Measure the amount and percentage purity of Drug and formulation by using Coloring agent.
- Utilize the Flame photometry equipment to determine the concentration of metals.
- Discuss the interpretation of Mass spectrum with the support of Mass spectrum

Pharmacognosy VI (C807)

- Develop the methods for isolation of active constituents from natural products.
- Estimate the amount of volatile oils obtained by extraction in laboratory scale.
- Test for separation of compounds where the substances are distributed between liquid phases.
- Analyze the separation of compounds from a mixture for purification and identification.
- Design of versatile tool for automated, sophisticated quantification of compounds.

Pharmaceutics-IX (Dosage form Design) (C808)

- Compare the Bioequivalence of some marketed products; Compare the different binding agent used in the preparation tablet. Demonstrate the Powder characteristics in pre-formulation.
- Identify the minimum concentration of preservatives in the preparation of eye drops, ear drops.
- Test for Accelerated stability studies and prediction of expiration dates shelf life for tablets, capsules and parentral. Analyze the Accelerated stability studies of some marketed preparations - tablets and suspensions.
- Importance of Preparation of master formula cards for tablet manufacturing and Maintenance of manufacturing records.
- Formulate Develop and evaluate the controlled release formulations.

2.1.1 State the delivery details of the contents beyond the Syllabus for the attainment of Pos(20)

- Though the syllabus of School of Pharmaceutical sciences, VISTAS is well designed and achieved the program outcomes, a few gaps are mentioned below given format. (**Table No. 2.2,2.3, 2.4 & 2.5)**

Table 2.2 CAY -2018-2019 Contents beyond the Syllabus

Sl. no	Subject name year/sem	Gap	Action taken	Date	Resource person	No of student present	Relevance to PO
1	Clinical Pharmacy IV/VIII	Pharmacovigilance ADR Monitoring & Reporting	Guest lecture arranged	18/07/2018	Dr.Stalin Department of Pharmacology Kilpauk medical college, Chennai	60	6
2	Hospital Pharmacy IV/VIII	Pharmacovigilance and Health Care: Role of Pharmacist	Guest lecture arranged	13/08/2018	Dr.A.KasturiAjith/K.Saroja ICON Clinical Research	54	6
4	IBM /IV/VIII	Enter preneurship Development	Guest lecture	19/09/2018	KVJ. Prof. Dr. R. Ganeshan, Chairman, National Foundation for Entrepreneurship Development Coimbatore, Tamil Nadu	53	9,11
5	Medicinal Chemistry /III/V	Research and evaluation of traditional medicine in-silico, *in-vitro* and *in – vivo* approach	Guest lecture	19/ /09/2018	Dr.Sreekanth SRM college of Pharmacy	52	5
6	Dosage Form Design/ IV/VIII	Nano for better Therapeutics: Turning challenges and weaknesses in to opportunities	Guest lecture	23/09/2018	Dr. ShobaNaryan Faculty of allied health sciences Chettinad health city	52	5

7	Dosage Form Design/ IV/VIII	Ocular drug delivery systems and its research implications	Guest lecture	26 /09/2018	Dr. Stephen Sudhakar Professor & HOD Dept of Ophthalmology Chettinad Health City.	52	12

Table 2.3CAY -2017-2018 Contents beyond the Syllabus

Sl.no	Subject name year/sem	Gap	Action taken	Date	Resource person	No of student present	Relevance to PO
1	Pharmaceutical Biotechnology IV/VII	Role of microbes in the Preparation of Riboflavin	Guest lecture arranged	23/03/2018	Dr.Vijayalakshmi Department of biotechnology VISTAS	59	1
2	Therapeutic Drug Monitoring III/VI	Role of Bio-pharmaceutics in Pharmacovigilance	Guest lecture	20 /03/2018	Mr.R.V Shiva subramani Accenture health care Chennai	53	6

Table 2.4 CAY -2016-2017 Contents beyond the Syllabus

S.No	Subject Name year/sem	Gap	Action taken	Date	Resource person	No of student present	Relevance to PO
1	Pharmacognosy IV/VIII	Theory and Applications of Flash Chromatography	Hands on training	6/04/2017	Mr. Arjun .G Vertex Enterprises Bonna Angela Technology Noida	54	8
2	Pharmacology IV/ IV/VIII	Cancer Awareness Programme	Guest lecture	17 /02/2017	Dr.Ranjan Kumar Mohapatra	57	6

3	Dosage Form Design/ IV/VIII	Modern approaches in drug discovery ,Nano formulations and pharmacokinetics	Conference organized	22-23/07/2016	Dr. K.Ramesh University Malaysia ,Pahang	56	4,7

Table 2.5 CAY -2015-2016 Contents beyond the Syllabus

Sl. no	Subject name year/sem	Gap	Action taken	Date	Resource person	No of student present	Relevance to PO
1	Pharmacology IV/ VIII	Systematic Review on Preclinical Studies	Workshop	28/01/2016	Dr.T.N.UmaMaheshwari Saveetha University	52	8
2	Bio - Pharmaceutics and Pharmacokinetics III/VI	Pharmacovigilance - Industry Overview	Guest lecture	18/02/2016	A.KumaraGuru, Drug Coordinator, ICON Clinical Research, Chennai.	57	6
3	Pharmacognosy V/ IV/VIII	Theory and Practice on Standardization of Phytochemicals by HPTLC	Hands on training	5/03/2016	Dr.K.Jayachandran Camag HPTLC consultant M/s Anchrom Enterprises	54	10
4	Pharmaceutical Analysis IV/VIII	Good manufacturing Practice	Guest lecture	12/08/2015	Dr.Jayakumar Apex laboratories	57	8, 11
5	Project Work/ Dissertation/ IV/VIII	Elsevier - Taking research to next level	Guest lecture	6/07/2015	Mr. M M. Manishuniyal Solution Consultant South Asia	56	12
6	Pharmacognosy V/ IV/VIII	Scientific interpretation ofIndian Traditional Medicine	Seminar	25/08/2015	Dr.Velayaudam Siddha Medical College Tambaram	55	6

2.1.3. Adherence to Academic Calendar (10)

(Demonstrate notified academic calendar & its adherence)
Academic Calendar:

- Since its inception in 2008, VISTAS is regularly providing the annual calendar covering commencement of academic session, continuous assessment examination, curricular and co-curricular activities, last dates for paying tuition fees and examination fees, examination schedule and publication of results. The planned dates are subject to change as per the University circular related to examinationsAcademic calendar also gives information on working days, hours of instructions, methods of assessment and weight age, vision and mission statement of the university, extracts of regulations, library rules, information on anti-ragging cell and grievance cell.

- The teaching plan is prepared adhering to the academic calendar and given to the students in the beginning of the semester. Other activities including various cultural events, extra and co-curricular events, health campaigns and sports events are also planned inadvance. The calendar of events is made available to all the stakeholders before the commencement of classesThe College closely adheres the dates prescribed by VISTAS Academic calendar. We have demonstrated two academic calendar year (**2017-2018, 2016-2017**) and the calendar copies attached as **Annexure II . Table (2.6, 2.7**)

Table 2.6 Academic Calendar: **Almanac and Exams 2017-2018**

Year/Semester	Date of commencement		I Sessional Exam date		II Sessional Date		Model Exams		University Exams	
	almanac	actual	almanac	actual	almanac	actual	almanac	actual	almanac	actual
I/I	4.8.17	4.8.17	28/8/17	28/8/17	25/9/17	25/9/17	1/11/17	1/11/17	15/11/17	15/11/17
I/II	3/1/2018	3/1/2018	7/2/18	7/2/18	5/3/18	5/3/18	16/4/18	16/4/18	7/5/18	7/5/18
II/I	1/7/2017	1/7/2017	9/8/17	7/8/17	11/9/17	11/9/17	1/11/17	1/11/17	15/11/17	15/11/17

II/II	3/1/2018	3/1/2018	7/2/18	7/2/18	5/3/18	5/3/18	16/4/18	16/4/18	7/5/18	7/5/18
III/I	1/7/2017	1/7/2017	9/8/17	9/8/17	11/9/17	11/9/17	1/11/17	1/11/17	15/11/17	15/11/17
III/II	3/1/2018	3/1/2018	7/2/18	7/2/18	5/3/18	5/3/18	16/4/18	16/4/18	7/5/18	7/5/18
IV/I	1/7/2017	1/7/2017	9/8/17	7/8/17	11/9/17	11/9/17	1/11/17	1/11/17	15/11/17	15/11/17
IV/II	3/1/2018	3/1/2018	7/2/18	7/2/18	5/3/18	5/3/18	16/4/18	16/4/18	7/5/18	7/5/18

Table 2.7 Academic Calendar:**Almanac and Exams 2016-2017**

Year/Semester	Date of commencement		I Sessional Exam date		II Sessional Date		Model Exams		University Exams	
	ALMANAC	ACTUAL	ALMANAC	ACTUAL	ALMANAC	ACTUAL	ALMANAC	ACTUAL	ALMANAC	ACTUAL
I/I	2/8/16	2/8/16	29/8/2016	29/8/2016	21/9/2016	21/9/2016	7/11/2016	7/11/2016	23/11/2016	23/11/2016
I/II	2/01/2017	2/01/17	6/2/2017	6/2/2017	2/3/2017	2/3/2017	19/4/2017	17/4/2017	4/5/2017	4/5/2017
II/I	11/07/2016	11/07/2016	8/8/2016	8/8/2016	8/9/2016	8/9/2016	7/11/2016	7/11/2016	17/11/2016	17/11/2016
II/II	2/01/2017	2/01/2017	6/2/17	22/2/17	2/3/2017	9/3/2017	19/4/2017	17/4/2017	4/5/2017	4/5/2017
III/I	11/07/2016	11/07/2016	8/8/2016	8/8/2016	8/9/2016	8/9/2016	7/11/2016	7/11/2016	17/11/2016	17/11/2016
III/II	2/01/2017	2/01/2017	6/2/2017	22/2/2017	2/3/2017	9/3/2017	19/4/2017	17/4/2017	4/5/2017	4/5/2017
IV/I	11/07/2016	11/07/2016	8/8/2016	8/8/2016	8/9/206	8/9/206	7/11/2016	7/11/2016	17/11/2016	17/11/2016
IV/II	2/01/2017	2/01/2017	6/2/2017	22/2/2017	2/3/2017	9/3/2017	19/4/2017	19/4/2017	4/5/2017	4/5/2017

2.2.1 Initiatives in teaching and learning process (25)

In Vistas the teaching and learning process begins with an orientation program. Or induction programs for fresh students every year at the beginning of academic sectionsenior faculties' administrators and student mentors are involved in conducting the program me and the following instructions are provided

- Student code of conduct
- Disciplinary behavior expected from students

- Examination pattern for different courses
- Mentor ship program of university
- Library facilities available
- Hostel facilities and its regulation
- Placement cell and its activities
- Anti-ragging committee in the campus
- Girls students were made to aware women grievance cell numbers
- Availability of other academic program in the university

The university constantly facilitates innovative strategies of teaching and learning and assessment using recent technology in order to meet global standards of education and keeping in mind its outcomes Teaching and learning process is learner centric s which enables the student to become lifelong independent learners The teaching process has a blend of concepts, applications and problem-based teaching.

List of initiatives to focus on student –centric learning

1.Design thinking to optimize student learning

Students of Pre-final tear and final year are assigned to design a project and its plan of work under the guidance of the faculty so that they can focus on developing creativity and build up confidence through hands-on projects. Student has engaged in collection and compilation of literature from authentic sources and was directed to communicate in journal of national and international repute

2.Focused group study

Students are divided into specific groups and are assigned specific topics related to curricular learning. These groups study the topics in detail through library books, internet, and library journals. Thereafter, the topics are discussed by individual groups in the class and the teacher further guides them about the specific topic

3.Interactive classrooms

Interactive class rooms are the effective ways of achieving the program outcomes (POs) and course outcomes (COs). The course outcomes could not be better achieved without these. Lectures are the best ways to get facts, make students to think and understand the concepts.

The teacher is readily available to clear the doubts instantaneously. Thus these make a platform to cover and improve the ability to design, formulate and solve problems. Mode of delivery of lectures is power point presentations.

4.Simulation classes and labs

Topics are explained to students in class rooms with e-content in the form of animation and working pictures from YouTube to make them understand more clearly about the concepts and mechanisms and their application in real life. Subjects like pharmacology where performing animal experiments are restricted to undergraduate programs are benefitted by simulation models

5.ICT usage

Students are provided with knowledge and proficiency in the usage of simulation software like Chemdraw, Chemsketch, and SPSS. These software are available online and students use it for various analysis purpose. Special training is offered to the students in the lab on regular basis.

6.Flipped classroom

The teachers put the material on a specific topic online on study groups for students to go through the material in advance, bring questions and queries about the topic and build additional knowledge on the subject during the class. This provides the opportunity for learning beyond syllabus also.

7.Web based learning:

The internet is an open information system from where the students can obtain various kinds of information, media and materials as texts, images, video sequences which can help them in a diverse way for generating self-learning environments. Due to its interactivity, learners can gather information which is important in learning and helpful in accomplishing their learning objectives. Hence, the potential of the internet self-learning mode is considered to be very high. Therefore, the Institute provides internet facility in both the academic and hostel campuses for 24 hr. The availability of internet facility allows them to learn and to gather the information from worldwide network without any interruptions.

8.Presentations:

Every course allows students to prepare and present any topic from the curriculum this type of delivery mode motivates students and enhances the their self-learning and skills

9.Bridge Class

Students securing poor marks in class test and first internal exam were identified and given extra coaching classes to improve their results

10.Remedial Class

Students with backlog are given extra coaching and trained to perform better in their supplementary exams

11.Academic clubs

In academic clubs that group like-minded students meet together. While students do much of the planning, organizing and activities, an **academic** adviser usually a professor will be the mentor, allows students to prepare and present any topic from the curriculum and also on any non-technical topics. School of pharmaceutical sciences arranges club activities which include guest lectures, quiz programs, seminars and even Entertainment programs.

To name few clubs

- Pharmacology club
- Atom club
- Women in Chemical sciences
- Medicinal garden Allianz
- Food club
- Quiz club

12. Journal Clubs

This helps the student to know the current research prospects in their field

13. Workshops:

These serve as a platform for sharing knowledge/expertise in advanced areas, which results in collaboration and attempt for enhancement of the skills, techniques and modern tools necessary for the practice of pharmacy profession.

14. Guest Lectures

The institute invites guest faculties/resource persons on regular intervals. Expert talks by the eminent persons working in pharmaceutical industries/research organizations/ practicing pharmacists help the students and the faculty to understand current trends in various spheres, whichleadstotheattainmentofPO‟s.Externalresourcepersonsalsoaddvaluetotheprogram and

help students to realize the link between education and real world in the profession. These talks become a bridge to fill the gaps and also develop a rapport for meeting the future need of the industries / research organization / universities. These promote the sense of lifelong learning.

15. Laboratory Component:

Laboratory is an important component that allows the students to acquire psychomotor (practical) skills. In addition, students are trained to collect the data, transformation of data as per the scientific principles, analysis, and interpretation and drawing conclusions. These skills also allow the students to appreciate the theoretical principles. It is a place where in several PO's can be attained, because of high contact time and 1 to 1basis.

16. Training Programs:

Our college will provide special training programs to the students for their career development and to excel in competitive exams like: GPAT **coaching classes:** GPAT is the key competitive exam for their higher studies; we invite resource persons from various places. /trained faculty to give the guidance

17. Scientific Publications:

Faculty encourages and guides the students to publish their research work in reputed journals.. Number of Publications for the period 2015- 2019 is tabulated in Table No. 2.8

Table 2.8: Student's Publications

S.No.	Academic Year	No. of Publications
1.	2018-2019	**14**
2.	2017-2018	**13**
3.	2016-2017	**23**
4.	2015-2016	**5**

Table 2.9 List of Publications2018-2019

S.No	AUTHOR	TITLE	JOURNALS	YEAR
1	A. Vijayalakshmi, Sangeetha S, Ranjith N	Chondromalacia Patellae: A Review	Research Journal of Pharmacy and Technology. 2019; 12(1): 412-418. (SCOPUS).	2018-2019
2	Malarkodivelraj and Prakash Chand	Molecular Docking approach of potent natural inhibitors against 3d4Z, 4TRO and 5ACS receptors for antitubercular activity	International Journal of research in Pharmaceutical Sciences. 10(1): 303-312. (SCOPUS).	2018-2019
3	NithyaSermugapandian, A. Deepika, N. Abdul Rahman, G. Abineshwar	A role of statin and pharmacotherapy involved in ischemic heart diseases	Drug Invention Today. 11 (2) 2019, 409-412. (SCOPUS).	2018-2019
4	S. Nithya, A. Deepika, Abdul Rehman, G. Abineeshwar	Potential metabolic effects with use of high-fructose corn syrup in foodstuffs: A review	Drug Invention Today 11(1) 2019, 156-159. (SCOPUS).	2018-2019
5	AfrozPatan, Alekhya K, VijeyAanandhi M, Tharagesh K, Anish A.	ValerianaJatamansi An Ethnobotanical Review	Asian J Pharm Clin Res. 11 ;(4)2018 38-40. (SCOPUS).	2018-2019
6	Alekhya K, Srinivasan Ms, Subramani S, Surya R, VijeyAanandhi M	Simultaneous evaluation of Abacavir sulfate as well as lamivudine in medical formulations by gradient reversed-phase high-performance liquid chromatography technique	Asian J Pharm Clin Res. 11 ;(4) 2018 110-3. (SCOPUS).	2018-2019
7	M. SumithraAmbika,AkbarBasha	Noval Anticoagulants Beyond Heparin And Warfarin	Asian J Pharm Clin Res .11(4); 2018 15-18(SCOPUS).	2018-2019
8	S. Ramachandran s. Shanmughapriya ,Vigneswara Tamil selvan, Sursha	Novel Drug Delivery System Through Nasal (Non-Invasive)	Asian J Pharm Clin Res. 11(4); 2018 33-7.(SCOPUS).	2018 - 2019
9	S. Jaya Kumari, N.Anandhi, B. Mounisha, M.H. Mohamed Sameer	Coumarin [aesculetin] - an anti rheumatoidarthriticcompound - an update	Asian Journal of Clinical and Pharmaceutical Research. 11(4): 114-117.	2018-2019
10	A. Vijayalakshmi, S. Sangeetha and N. Ranjith	Formulation and evaluation of herbal shampoo	Asian Journal of Clinical and	2018-2019

			Pharmaceutical Research. 11(4): 121-124.	
11	S. Jayakumari, M. Sangeetha, Sajjad Ali	Formulation and evaluation of herbal gel from tannin-enriched fraction of psidiumguajavalinn. leaves for diabetic wound healing	International Journal of green Pharmacy. 12(3): S 490-496. (Scopus)	2018-2019
12	Lavanya B, Jayashree V	Emerging Biosimilars In Oncology: A Review	Asian J Pharm Clin Res, Vol 11,(4), 2018, 48-50	2018-2019
13	Lavanya B, Jayashree V, Jeevaraj	A Review on Potential Uses Of Culinary Vegetables Used In Routine Life As An Anticancer Agent	Asian Journal of Pharmaceutical and Clinical Research. 2018;8(11):1-4.	2018-2019
14	NithyaSermugapandian, Rubini R1, Martina V	Anti-Inflammatory effect of Ellettaria cardamom oil on Carrageenan-Induced Paw Edema using rats based on Tumor Necrosis Factor A, Interleukin 6, Interleukin 1levels in serum	Asian J Pharm Clin Res, Vol 11, Issue 2, 2018, 207-209.	2018 2019

Table 2.10List of Publications 2017-2018 PUBLICATIONS

S.No	AUTHOR	TITLE	JOURNALS	YEAR
1.	Sarmila.A, Swetha.S, Meera.V, C N Hemalatha, M. SekarBabu, M. VijeyAanandhi	Docking Study Targeting 3cyy Protein Using Alzheimer Drugs	Drug Invention Today. 10(7); 1281-84(SCOPUS).	2017-2018
2.	BasiruAhamedZago, Praveen.D , RanadheerChowdary.P, M.VijeyAanandhi	A Review On Anticancer Drugs Induced Hepatitis	Drug Invention Today. 10(7); 1285-91. (SCOPUS).	2017-2018
3.	C.N. Hemalatha, K. Elancheziyan, D.Pavithra, M. VijeyAanandhi	Insilico Approach Of Compounds In CissusQuadrangularis Targeting Multi-Proteins As Anti-Cancer Agents	Drug Invention Today. 10(5); 764-68. (SCOPUS).	2017-2018
4.	C.N. Hemalatha, D. Pavithra, S.Mahalakshmi, D.Karthikeyan, M. SekarBabu, M. VijeyAanandhi	Docking studies for anticancer activity using anthraquinone derivatives	Drug Invention Today. 10(2); 2902-2908. (SCOPUS).	2017-2018

5.	Nivethitha.S, Rashmi.S, C N Hemalatha, M. VijeyAanandhi	Insilico Studies Of Thymoquinone In Nigella Sativa As Potential Anti Tumor Agent	Biomedicine. 38 (1); 081-084. (SCOPUS).	2017-2018
6	S. Jayakumari, R. Thiyagarajan, A. Saranyadevi, S. Loganayaki, A. K. Abinaya	Review on a herbal anticoagulant- Indian Musa species	Drug Invention Today. 10(3): 395-399. (SCOPUS)	2017-2018
7	Malarkodivelraj and Lavaniya. N	Alzheimer's Disease and a potential Role of Herbs- A review	Research Journal of Pharmacy and Technology. 11(6): 2695-2700. (SCOPUS)	2017-2018
8	Vijayalakshmi A, Ravichandiran V, Anbarasi G, Kinnera, Vishnu Prakash M, Priyanka M, Priyadharshini K, Sathish Kumar N	Antimycobacterial activity of methanol extract from the stem bark of *Alangiumsalvifolium* against multi-drug resistant mycobacterium tuberculosis	International Journal of Research in Pharmaceutical Sciences; 9(2): 338-341. (SCOPUS)	2017-2018
9	MalarkodiVelraj and Prakash chand	A review on the in-silico investigation of natural phytoconstituents on anti- tubercular plants	Drug Invention Today, 10(2): 165-168. (SCOPUS)	2017-2018
10	MalarakodiVelraj, Shruthi .V, Murugavel.S, Shanmugam.R	Evaluation of quercetin loaded PLGA silver nano particles from the ethanolic extract of *Mallotusphillippensis* fruits	Drug Invention Today, 10(2): 253-256. (SCOPUS)***ISSN***-0975-7619	2017-2018
11	Vijayalakshmi. A, Selvakannan A. Ajith SP	Phytochemical and Physiochemical Standardization of a siddha formulation Seenthilchooranam	Research Journal of Pharmacy and Technology. 11(1): 23-26. (SCOPUS)	2017-2018
12	D. Richard Daniel, K. Manjuladevi, V. Jayashree, V. Deepak, Azzeezah Begum Habeb	Free radical scavenging of 4-benzylpiperidine by in vitro method	Drug Invention Today, ISSN: 0975-7619, Vol: 10, Issue: 2, 2018, 179-184. SCOPUS	2017-2018
13	Kailash Kumar N, Greeshma John S, S. Sathesh Kumar.	Application of phytochemicals for the treatment of neurodegenerative diseases.	Drug Invention Today, 10(3): 367-372. (SCOPUS)	2017-2018

Table 2.11 List of Publications 2016 -2017 PUBLICATIONS

S.No	AUTHOR	TITLE	JOURNALS	YEAR
1	A.S.K.Sankar, B.Datchayani, N.Balakumaran, M.Rilwan, R.Subaranjani	Development of a validated reverse phase liquid chromatographic assay-method for determination of tofacitinib in pure form and in physical admixtures	Research Journal of Pharmacy and Technology. 10(1): 223-226. (SCOPUS).	2016 -2017
2	A.S.K.Sankar**,** P.Shanmugasundaram, B. Datchayani, N. Balakumaran, M. Rilwan, R. Subaranjani, M. Sumithra	Stress degradation studies and development of validated spectrometric- assay-method for determination of tofacitinib in pure and physical admixtures	Research Journal of Pharmacy and Technology. 10(1): 117-120. (SCOPUS).	2016 -2017
	M.Sumithra, A. Prabhabanik	A prospective study of drug utilization and evaluation of gastro intestinal agents. Research Journal of Pharmacy and Technology	Research Journal of Pharmacy and Technology. 2017: 10(1): 166-170. IF: 0.14**:** (SCOPUS).	2016 -2017
4	S. Dhanalakshmi, Abinaya, Karthiga Devi, Lakshmi	In Vitro Anti- Oxidant Study of Herbal Extract Mixture by Nitric oxide and DPPH Method	Research Journal of Pharmacy and Technology. 10(1): 277-280. (SCOPUS)	2016-2017
5	A. Vijayalakshmi, M. Suganya M, Pankaj Kumar Giri, S. Jayakumari, P Shanmugasundaram	Bronchodilator and Mast Cell Stabilizer Effect of Siddha Formulation SeenthilChooranam.	Research Journal of Pharmacy and Technology. 10(1): 252-256. (SCOPUS)	2016-2017
6	MalarkodiVelraj, P. Jasmine Shiney, B. Paul, R.S. Nivethitha	Biosynthesis of silver nano particles from the ethanolic extract fruits of *Mallotusphillipensis*	Research Journal of Pharmacy and Technology. 10(1): 21-25. (SCOPUS)	2016-2017

7	Jayashree V, Priyanka S, Reshma A	A Review on Screening Methods of Breast Cancer, Cancer Biomarkers and Phytoconstituents against Breast Cancer	Asian J Pharm Clin Res, 2017; 10(12):17-21.	2016-2017
8	B. Swapnaa, V. Santhosh Kumar	Personalized medicine - A novel approach in cancer therapy	Research Journal of Pharmacy and Technology. 10(1): 341-345.(SCOPUS)	2016-2017
9	V.Jayashree, L.Karthick,N.Thenmozhi, Sangeetha	Evaluation of anti-inflammatory effect of 4-Benzyl piperidine using membrane stabilization method – an invitro study	Research Journal of Pharmacy and Technology. 10(1): 174-176. (SCOPUS)	2016-2017
10	A. Saranya, S. Nithya	Assessment of heavy metal induced organ toxicity in marketed ayurvedhic formulation and report its LD50 value with brine shrimp lethality assay	Research Journal of Pharmacy and Technology. 10(1): 263-268. (SCOPUS).	2016-2017
11	D. Kumaresan, S. Nithya, S. Hemashree, K.R. Rubini	Chemicals as additives in food processing - A review Chemicals as additives in food processing - A review	International Journal of Pharma and Biosciences. 8(1): 276-282. (Google Scholar)	2016-2017
12	Jayashree V, Reshma A, and Priyanka S	The Effect of Estrogen and Various Signalling Pathways in Breast Cancer Cells	Research Journal of Pharmaceutical, Biological and Chemical Sciences. 8(3):832-840. (Google Scholar)	2016-2017
13	M.Sumithra**,** P. Yuvanesh, Anamika Mistry	Analytical method development and validation of	Research Journal of	2016-2017

		ambroxol hydrochloride by UV spectroscopy and forced degradation study and detection of stability	Pharmacy and Technology. 9(8): 794-800. (SCOPUS).	
14	S. Jaya Kumari, M. Sangeetha, R. Pavithra	A retrospective review on Indian traditional herbs and its biocompounds in diabetes	International Journal of Pharm Tech Research. 9(5): 444-460. (SCOPUS))	2016-2017
15	S. Dhanalakshmi, S. Jayakumari. S. Abinaya, K. Srudhi	Standardisation of Herbal Extract Mixture by HPTLC Method	International Journal of Pharmaceutical Science Review and Research. 40(1): 158-163 (SCOPUS)	2016-2017
16	Vijayalakshmi, V. Ravichandiran, S. Jayakumari, Selvakannan and G. Sangeetha	Molecular Docking Studies of Tubulosine against Multidrug-Resistant Tuberculosis	Der PharmaChemica. 8(19):249-256. (SCOPUS)	2016-2017
17	S. Dhanalakshmi, G. Sangeetha, M. Lakshmi, K. Elancheziyan, R. Thiyagarajan	A review on pharmacology of marine algae	International Journal of Pharmacy and Technology. 8(4): 5278-5290. (SCOPUS)	2016 2017
18	S. Dhanalakshmi, G. Sangeetha, K. Lokesh, U. Aleema Sahada, Deng Arokdeng	Review on Cancer Cell Line Studies	International Journal of Pharmaceutical Science Review and Research.41 (2): 220-224. (SCOPUS)	2016-2017
19	S. Jayakumari, Malarkodivelraj, A. Vijayalakshmi, S. Dhanalakshmi, Nivethitha	Phytochemical Evaluation of an AyurvedicDrug*Dichrostachys cinerea*(L.) Wight &Arn	International Journal of Phytotherapy Research. 6(2): 7-17.	2016-2017
20	MalarkodiVelraj, DhulipallaSowmya, Sindhukavi	Antibacterial and Antifungal Activity of Herbal gel from the Ethanolic extract of the	International Journal of Pharmaceutic	2016-2017

		Stem bark of *Bauhinia variegata Linn*	al Science Review and Research.41(2): 53-56. (SCOPUS)	
21	Malarkodivelraj, Dhulipalia Sowmya	A Revew on Cancer Screening.	International Journal of Pharmtech Research. 9(3): 224-233. (SCOPUS)	2016 2-017
22	V. Jayashree and N.Thenmozhi	Orexin – A Potential Neurotransmitter: A Review	International Journal of ChemTech Research. 9(6): 161-164. (SCOPUS)	2016-2017
23	V. Jayashree, S.Bagyalakshmi, K.Manjula Devi, D. Richard Daniel	In Vitro Anti-Inflammatory Activity of 4-Benzylpiperidine	Asian Journal of Pharmaceutical and Clinical Research. 2016; 9: 108-110. (SCOPUS)	2016-2017

Table 2.12 List of Publications 2015 -2016 PUBLICATIONS

S.No	AUTHOR	TITLE	JOURNALS	YEAR
1	M.Duraisankar, M.Devi, P.Shanmugasundaram	Hepatoprotective activity of alcoholic extract of *Chonemorphafragrans* root in against paracetamol and Isoniazid-induced liver damage in rats	International Journal of PharmTech Research. 87: 232-242.**:**(SCOPUS).	2015-2016
2	P.Sasi, V.Ravichandiran, M.Sumithra	Study of cancer causing food product material analysis by using UV spectroscopy	International Journal of PharmTech Research. 84: 514-520. IF 0.30**:** (SCOPUS).	2015-2016
3	V. Jayashree, R. Prakash	Protective effectof COX inhibitors on lipopolysaccharide induced sickness behaviour or neuroinflammationandoxidative stress on male wistar rats	International Journal of Pharmacy and Pharmaceutical Sciences. 7(6): 240-245.(SCOPUS)	2015-2016

4	V. Jayashree, K.C. Anju, M.P. Ragavendran, V.Ravichandiran	In vitro antimicrobial activity using ethanolic extract of flower and stem extract of *Cassia auriculata*linn	Research Journal of Pharmacy and Technology. 8(7): 901-905. (SCOPUS)	**2015-2016**
5	Manjuladevi. M. Dhanalakshmi, S. Thenmozhi, S.Sarumathy. V. Ravichandran	Antioxidant activity and cytotoxic potential of hydroalcoholic extract of *Salaciafruticosa* (root)-in vitro	International Journal of Pharmacy and Pharmaceutical Sciences. 7(7): 91-96.(SCOPUS)	**2015-2016**

18. Paper Presentations in Conferences

School of Pharmaceutical sciences. Vistas encourage the students to present their research work in National/ International conferences. List of conferences presented by students mentioned in **Table No. 2.13**

Table 2.13 List of Papers presented by students in Conference 2015-2019

S.no	Name of the student / course	Title of the paper	Name of the conference with place & date
1.	R.Ashwin Kaarthik B.Pharm IVYear	Colon target drug delivery system	Drug Development On Newer Technologies, SRM university, 7&8Feb 2019
2.	T.Geethanjali B.Pharm IVYear	Design and characterization of non-effervescent floating tablets of Linagliptin by using low density carriers	Drug Development On Newer Technologies, SRM university, 7 &8 Feb 2019
3.	R.Ilakkiya Azhagi B.Pharm IVYear	Formulation and evaluation of chitosan nanoparticles for improved efficacy of Itraconazole antifungal drug	Drug Development On Newer Technologies, SRM university, 7 &8 Feb 2019
4.	K.Meenakshi B.Pharm IVYear	Topical gel	Drug Development On Newer Technologies, SRM university, 7 &8 Feb 2019
5.	E.Padhmapriya B.Pharm IVYear	Topical gel	Drug Development On Newer Technologies, SRM university, 7 &8 Feb 2019
6.	R.Monica B.Pharm IVYear	Assessment of polyherpal formulation for obesity	Drug Development On Newer Technologies, SRM university, 7 &8 Feb 2019
7.	V.Sursha \B.Pharm IVYear	Novel drug delivery to brain through novel (noninvasive)	Drug Development On Newer Technologies, SRM university, 7 &8 Feb 2019
8.	M.Tamil Selvan B.Pharm IVYear	Role of ivabradine in hemorrhage and hypovolemic conditions	Drug Development On Newer Technologies, SRM university, 7 &8 Feb 2019
9.	Arun Kumar.V – B.Pharmacy IV year	Antioxidant potential of hesperidin on methotrexate induced bone damage in rat	Drug Development On Newer Technologies, SRM university, 7 &8 Feb 2019
10.	N.Maymun Sahana B.Pharm IV Year	Traditional siddha formulation in prevention of breast cancer –a review	CCRS council, Amma Arangam, Shenoy Nagar, 28 & 29 sep 2018
11.	M.Aruna B.Pharm IVYear	Siddha formulations in cervical cancer	CCRS council, Amma Arangam,Shenoy Nagar, 28 & 29 sep 2018
12.	P.Dinesh Kumar B.Pharm IVth Year	An overview of medicinal plants in prevention of colon cancer	CCRS council Amma Arangam,shenoy nagar : 28 & 29 sep 2018
13.	Anandhi.N – B.Pharmacy IVthYear Section	A review on *psidium guajava* in siddha formulation-an update	CCRS council Amma Arangam,shenoy nagar : 28 & 29 sep 2018

14.	Mounisha.B – B.Pharmacy IV thYear	The perspective review on the use of *psidium guajava* in siddha	CCRS council Amma Arangam,shenoy nagar : 28 & 29 sep 2018
15.	Abdul Rahman B.Pharm IVYear	Pharmacotherapy of statin in isd	7th APP Annual Convention & Indo - Us Conference, 27th July 2018, VISTAS,Chennai
16.	S.Akbar Basha B.Pharm IVYear	Extraction of arecoline from areca catechu and evaluation of anthelmintic activity	7th APP Annual Convention & Indo - Us Conference, 27th July 2018, VISTAS,Chennai
17.	Ambika B.Pharm IVthYear	Review to focus on the medicinal uses of withania somnifera	7th APP Annual Convention & Indo - Us Conference, 27th July 2018, VISTAS,Chennai
18.	N.Deepika B.Pharm IVth Year	Pharmacotherapy involved in cervical cancer	7th APP Annual Convention & Indo - Us Conference, 27th July 2018, VISTAS,Chennai
19.	C.Shailesh Joshi B.Pharm IV thYear	Review of eupatorium triplinerve	7th APP Annual Convention & Indo - Us Conference, 27th July 2018, VISTAS,Chennai
20.	S.Tamil Selvan B.Pharm IVth Year	Nano particles targeting brain	7th APP Annual Convention & Indo - Us Conference, 27th July 2018, VISTAS,Chennai
21.	Vibin Bose B.Pharm IV thYear	Elements deficiency that causes brain diseases Levofloxacin oral dispersable tablet	7th APP Annual Convention & Indo - Us Conference, 27th July 2018, VISTAS,Chennai
22.	N.Maymun Sahana B.Pharm IV thYear	Potential role of flavonoids in prevention of mammary carcinogenesis-a review	7th APP Annual Convention & Indo - Us Conference, 27th July 2018, VISTAS,Chennai
23.	M.Aruna B.Pharm IV th Year	Phyto chemical approaches for anticancer prevention –a review	7th APP Annual Convention & Indo - Us Conference, 27th July 2018, VISTAS,Chennai
24.	T,Manimaran B.Pharm IVth year	Role of phytochemicals in prevention of cancer	7th APP Annual Convention & Indo - Us Conference, 27th July 2018, VISTAS,Chennai
25.	T. Oviya, B.Pharm, III rdYear,	Exploring the pharmacological potential of *solanum nigrum linn.*	7th APP Annual Convention & Indo - Us Conference, 27th July 2018, VISTAS,Chennai
26.	David Benefit Chiduito IV th year	Antioxidant activity of *nyctanthes arbotristis*	7th APP Annual Convention & Indo - Us Conference, 27th July 2018, VISTAS,Chennai
27.	Richardson Raja, IV thYear	Immuno modulatory potential of *nyctanthes arbor-tristis*	7th APP Annual Convention & Indo - Us Conference, 27th July 2018, VISTAS,Chennai

28.	S. Harinya,IV thYear	Pharmacological effects of *nyctanthes arbotristis* linn.	7th APP Annual Convention & Indo - Us Conference, 27th July 2018, VISTAS,Chennai
29.	Surendar.M – B.Pharmacy IV thYear	Novel drug delivery system (ndds)	7th APP Annual Convention & Indo - Us Conference, 27th July 2018, VISTAS,Chennai
30.	Meneka – B.Pharmacy IV thYear	Drug utilization evaluation of gentamycin as a narrow therapeutic indexed drug	7th APP Annual Convention & Indo - Us Conference, 27th July 2018, VISTAS,Chennai
31.	M. Parveen Banu – B.Pharmacy IV thYear	Janashudi : an underutilized health resource	7th APP Annual Convention & Indo - Us Conference, 27th July 2018, VISTAS,Chennai
32.	Thenmozhi.V – B.Pharmacy IVYear	Nano drug delivery system of nanoparticles.	7th APP Annual Convention & Indo - Us Conference, 27th July 2018, VISTAS,Chennai
33.	Vignesh.T.I – B.Pharmacy IVthYear	Modern method of treatment for insomnia	7th APP Annual Convention & Indo - Us Conference, 27th July 2018, VISTAS,Chennai
34.	Sowmiya.R – Pharmacy IVthYear	Gastro retensive drug delivery system and role of natural polymers in GRDDS-a review	7th APP Annual Convention & Indo - Us Conference, 27th July 2018, VISTAS, Chennai
35.	Keerthana – B.Pharmacy IVthYear	Herbal drugs used for liver cancer	7th APP Annual Convention & Indo - Us Conference, 27th July 2018, VISTAS,Chennai
36.	Akila.M – B.Pharmacy Ist Year	Seven behavior's that prove elephants are incredibly smart	Elephant Conference -II" VISTAS 11th April 2018.
37.	Manisha - B.Pharmacy Ist Year	Seven behavior's that prove elephants are incredibly smart	"Elephant Conference -II" VISTAS 11th April 2018.
38.	Komal Rani – B.Pharmacy IV thYear	Nano-drug delivery	"Challenges And Opportunities In Green Nanotechnology" 25th Jan 2018
39.	Keerthana – B.Pharmacy IV thYear	Elephant formulary	Elephant Conference -II" VISTAS 11th April 2018.
40.	Harshini – B.Pharmacy IVthYear	Elephant formulary	Elephant Conference -II" VISTAS 11th April 2018.
41.	Parveen Banu – B.Pharmacy IVthYear	Elephant electrocution	Elephant Conference -II" VISTAS 11th April 2018.

42.	Mounisha.B – B.Pharmacy IVthYear	Elephant electrocution	Elephant Conference -II" VISTAS 11th April 2018.
43.	Harini.D – B.Pharmacy IVthYear	Preserving asian elephants for future generation	Elephant Conference -II" VISTAS 11th April 2018.
44.	Thenmozhi.V – B.Pharmacy IVthYear	Preserving asian elephants for future generation	Elephant Conference -II" VISTAS 11th April 2018.
45.	Ajith Kumar S P B.PharmIIIrd Year	Pharmacological properties of herbal extract mixture of solanum xanthocarpum and terminalia belvica	National conference on emerging trends in Target based drug discovery .29-aug-16. Mother TheresaUniversity Pondicherry
46.	Selvakannan A B.PharmIIIrd Year	Molecular docking studies of tubulosine with multi resistant tuberculosis	National conference on emerging trends in target based drug discovery29-aug-16 Mother Theresa University Pondicherry
47.	Kalaiarasan A B.PharmIIIrd Year	Pharmacognosy of GyottiaRotterefella	National conference on emerging trends in target based drug discovery29-aug-16 Mother Theresa University Pondicherry
48.	S P Ajith Kumar B.PharmIIIrd Year	Evaluation of the anti-inflammatory activity of the plant pisonia	Health care in 21st Century Perspectives Of Ethanopharmacology and Medicinal Plant Research 24-feb-2017 UKATARSADIA University Surat
49.	S Akshya B.PharmIIIrd Year	A perspective review on anti-inflammatory ayurvedic herbs	Health care in 21st Century Perspectives Of Ethanopharmacology and Medicinal Plant Research 24-feb-2017 UKATARSADIA University Surat
50.	Aleema Shahada B.PharmIIIrd Year	Anti-diabetic activity of a herbal extract mixture	Health care in 21st Century Perspectives Of Ethanopharmacology and Medicinal Plant Research 24-feb-2017 UKATARSADIA University Surat
51.	D Deepak Sen B.PharmIIIrd Year	Phytochemical and pharmacological screening of nelumbo nucifera on streptozotocin induced diabetic micro vascular complication	Health care in 21st Century Perspectives Of Ethanopharmacology and Medicinal Plant Research 24-feb-2017 UKATARSADIA University Surat
52.	Gouri S B.PharmIIIrd Year	Role of traditional medicine in primary health care	Health care in 21st Century Perspectives Of Ethanopharmacology and Medicinal Plant Research 24-feb-2017 UKATARSADIA University Surat

53.	Harini S B.PharmIII[rd] Year	Plant breeding genetics and biotechnology	Health care in 21st Century Perspectives Of Ethanopharmacology and Medicinal Plant Research 24-feb-2017 UKATARSADIA University Surat
54.	Ahamed Irshath U B.PharmIII[rd] Year	Quality control and efficacy of herbal medicine	Health care in 21st Century Perspectives Of Ethanopharmacology and Medicinal Plant Research 24-feb-2017 UKATARSADIA University Surat
55.	N Lavaniya B.PharmIII[rd] Year	A review on the potential role of the plants in alzheimer	Health care in 21st Century Perspectives Of Ethanopharmacology and Medicinal Plant Research 24-feb-2017 UKATARSADIA University Surat
56.	B S Maageswari B.PharmIII[rd] Year	Inhibitory effects of anti-psoriatic plants on the production of pro inflammatory cytokines in lps stiulated whole blood	Health care in 21st Century Perspectives Of Ethanopharmacology and Medicinal Plant Research 24-feb-2017 UKATARSADIA University Surat
57.	Manju Shree B.PharmIII[rd] Year	A review on the role of herbs on cervical cancer reducing side effects of chemotheraphy	Health care in 21st Century Perspectives Of Ethanopharmacology and Medicinal Plant Research 24-feb-2017 UKATARSADIA University Surat
58.	Sabin Lohala B.Pharm III[rd] Year	Shilajit “destroyer of weakness” in madhumeha	Health care in 21st Century Perspectives Of Ethanopharmacology and Medicinal Plant Research 24-feb-2017 UKATARSADIA University Surat
59.	S.Renuga Devi B.PharmIII[rd] Year	Herbal formulation to reduce the ill effects of diabetes and its secondary complication	National seminar on scientific interpretation of indian traditional medicine organised by school of pharmaceutical sciences, vels university, chennai on 25[th] august, 2015.
60.	Kalaivani.V B.PharmIV[th] Year	A Retrospective Survey On Marine Drugs And Marine Organisms	National seminar on MarineBiotechnology” held on 28[th] february 2015, organised by the Department of Bio-technology, school of life sciences, Vels University Pallavaram Chennai.
61.	Sangeetha.M B.Pharm IV[th] Year	TLC And HPTLC Finger Print Analysis Of Sargassum Iliciform	National seminar on Marine Biotechnology” held on 28[th] february 2015, organised by the Department of Bio-technology, school of life sciences, Vels University Pallavaram Chennai
62.	Dhulipalla Sowmya B.Pharm IV[th] Year	TLC and HPTLC finger print analysis of Sargassum Iliciform	National seminar on Marine Biotechnology” held on 28[th]February 2015, organised by the Department of Bio-technology, school of life sciences, Vels University Pallavaram Chennai

*** TOTAL NO CONFERENCE PAPERS FROM 2015-2019 = 62**

List of initiatives in improving instruction methods

a.Faculty Development Programs

Beginning of every academic year the faculty is given exposure to faculty development program. The faculties are trained for improving the teaching method, research orientation and develop new methodologies in teaching technical subjects. Faculties are oriented towards outcome based Education to cater the learning needs of students by innovative way. Thefaculties train the students to improve their communication skills, vocabulary, body language, interview skills etc. By undergoing this training the faculty can provide a learner active learning components like definition based learning, solution based, enquiry based, project based, problem based and case basedlearning. Table 2.14 shows the list of faculty orientation program conducted every academic year

*Copy of FDP certificates **ANNEXURE -III**

Table 2.14: List of faculty Development Programs

Sl.NO	Topic of the FDP	Date
1	Students Centric pedagogy	2nd , 4th &5 July 2016
2	Pedagogy and Research Methodology	30th Jun & 1st July 2017
3	Creative pedagogy	29th & 30th June 2018

b. Student feedback of teaching learning process and actions taken:

Student feedback is the used as a source of information to evaluate and improve teachingeffectiveness. The university has a credible evaluation system of teachers to foster the teaching qualityand promote professional development. The university obtains feedback from the student about the performance of a teacher in class rooms, their regularity of attendance, behavior towards the studentsthey are also asked to give feedback on completion of syllabus, pace of completion, promptness, and impartial evaluation of answer scripts

Analysis & Action taken:

Feedback received is analyzed by IQAC and the outcome is communicated to the teachers through HODs/Directors

Counseling is done by the respective HOD for those faculty members who have secured low scores and negative comments, Lecture classes of faculty who has secured low marks will be monitored by senior Professors and the Head of the Departments. They give constructive comments to improve the quality of teaching and the teaching- learning process. This motivates them to improve their skills and abilities. If required training / orientation programs are conducted by professional experts to master the skills of the faculty members in the nuances of teaching, thus improving the efficiency of teaching-learning process.

19. Conduct of Experiments:

All laboratories are well equipped with sufficient glassware and chemicals. The students are given instructions about the handling of hazardous chemicals, sophisticated equipment's and first aid for various accidents prone to happen while doing experiments. As per requirements of labs students are insisted to wear apron, nose mask, head mask and gloves. The observations are verified by faculty and record books are maintained systematically. Continuous assessment system is also implemented for assessment of laboratory work. The assessment is done on the basis of submission of laboratory records, understanding of the experiment through oral viva voce questions and participation in performing the experiment. Neatness of the laboratory record book is also given weight age in the assessment.

Methodologies to encourage bright students:

Students with good academic records, Co- curricular and extracurricular achievements are identified at the time of admission itself all departments conduct internal assessment which surely identifies advanced learners. Advanced learners are advised to pursue other courses to earn additional credit points and also encourage them to undergo industrial training during summer vacations

Advanced learners are encouraged to expose their skills and knowledge on various stages such as quiz programs, debatesetc.Bright students are encouraged to do research in their

field of interest irrespective of the year of study. The students are encouraged to participate in various conferences and publish their work

Every year the school appreciates the best academic performer with awards, certificates and cash prizes on the convocation or department day

Methodologies to support weak students:

1. The faculty identifies weak students in their class basing on their internal marks, attendance, laboratory skills and co-curricular activities.

2. Students who scored less than 50% marks in their internals are provided with remedial classes and their doubts are clarified by the subject experts.

Impact:

All the efforts gave fruitful results as our students excelled in the

National level competitive examinations GPAT. Ms Elavarasi Reg no 15150104, Ms.Anjitha Reg.no: 14150104,Ms:Anju Reg.no13150101

Several of our students got admissions in postgraduate courses in reputed colleges

Several of our students got admissions in the foreign universities - University of Mississippi, USA – Swapna Balaji.

Some Students are placed in reputed pharmaceutical industries like Pfizer, Dr Reddy‟s laboratories, Cipla, Abbottetc.

Student's achieved poster award in various National and International Conferences.

Few of our students published papers in reputed journals.

2.2.2 Quality of internal semester question papers, assignments and evaluation (10)

As per the UGC direction, VISTAS has introduced Choice Based Credit System (CBCS) from the academic year 2015-16. The undergraduate courses are for 8 semesters every semester will have 90 working days or 540 contact hours. Each subject is assigned a specific number of credits and the number of credits to be assigned to the subject is determined by the concerned Board of Studies.

Studies have to earn minimum credits assigned by the Boards of Studies of become eligible for the award of the degree. Students of Undergraduate courses are to undergo a course in

Basic computer applications and B-Pharm students shall undergo 4 to 6 weeks internship during the summer vacation to earn 2 credits.

The statement of Marks for UG, PG and Professional Courses will be issued to the student on par with the International Standard incorporating Weighted Average Marks (WAM) AND Grade Point Average (GPA) and Cumulative Grade Point Average (CGPA).

As per VISTAS regulations the performance of a student in a year will be evaluated subject-wise for a maximum of 100 marks for a theory and 100 marks for a practical subject. The distribution of marks is given in **Table No. 2.15**

Table No 2.15 Distribution of Theory and Practical Marks

Examination	**Theory**	**Practical**
External	60	60
Internal	40	40

Table No 2.16 Split up of Continuous Assessment Marks

S.no	**Internal Test Component**	**PG**	**UG**
1.	C.A. Class Tests	2 x 5 = 10	3 x 5 = 15
2.	Field Visit/ Internship	1 x 5 = 05	-
3.	Class Seminar/ Assignment	1x 5 = 05	1 x 5 = 05
4.	Model Examination	1 x 5 = 05	1 x 5 = 05
5.	Attendance	1 x 5 = 05	1 x 5 = 05
6.	Aptitude of the Student	1 x 5 = 05	1 x 5 = 05
7.	Faculty Assessment (by Teacher)	1 x 5 = 05	1 x 5 = 05

Table 2.17 Internal Marks Distribution for Attendance

Percentage of attendance	Marks
91% to 100%	05
75% to 90%	04
65% to 74%	03
Less than 65%	00

Preparation of question paper for internal examination

Question papers are prepared by the respective subject incharge. The head of the department scrutinizes and approves the question paper and hand it overto the internal examination committee in sealed cover. Prepartion of Questions follows Blooms Taxonomy.A sample question paper is also attatched

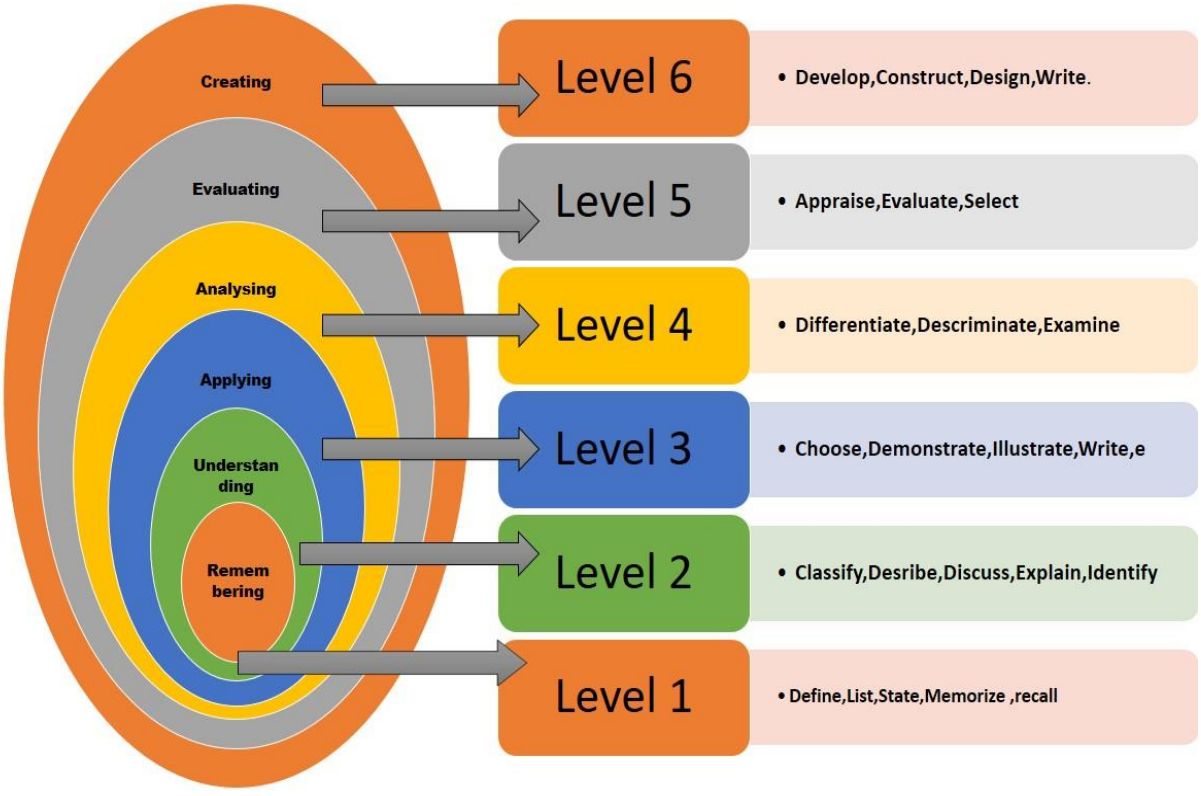
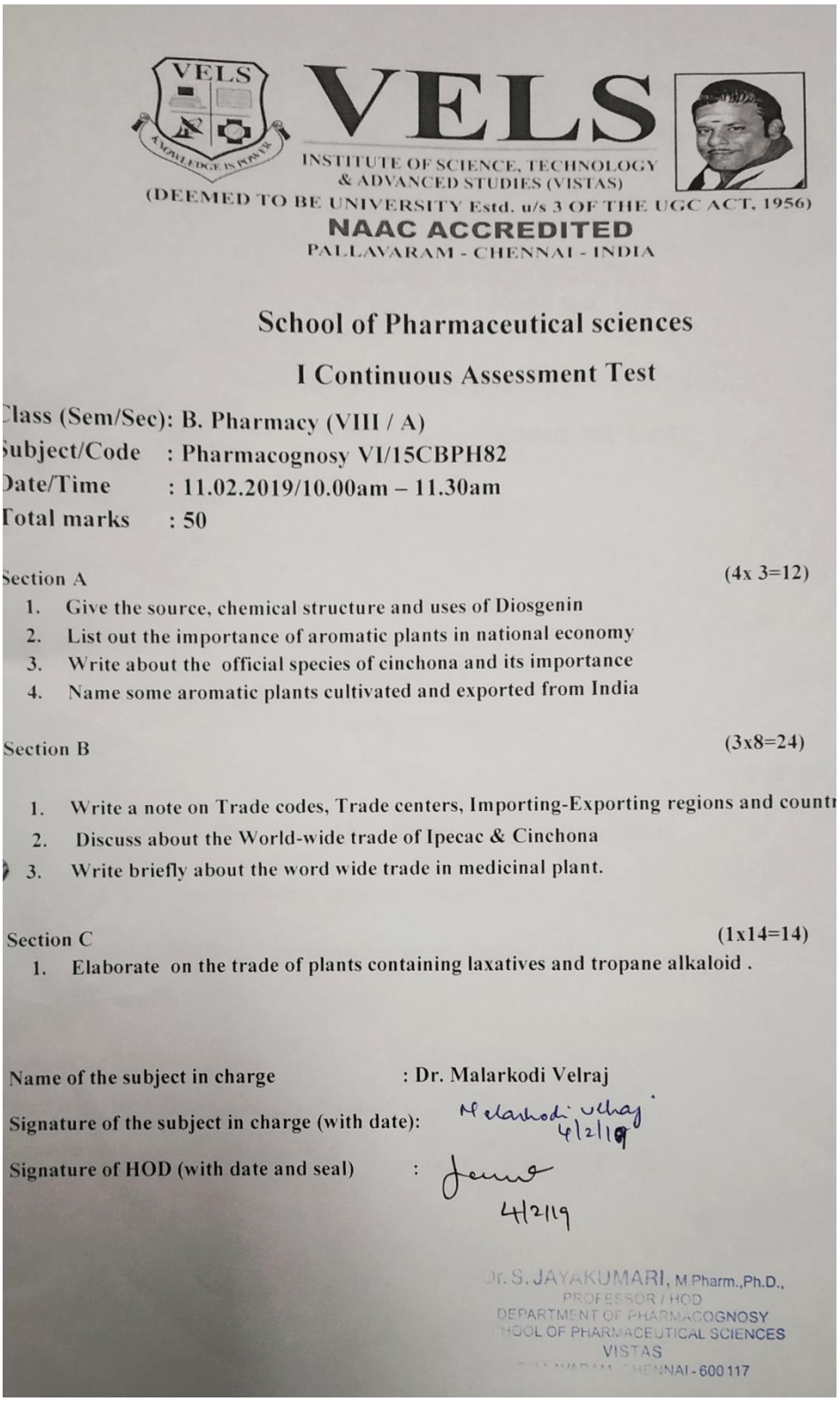


Figure 2.3 (a) Preparation of Question paper for internal examination based on Blooms taxonomy



VELS

INSTITUTE OF SCIENCE, TECHNOLOGY & ADVANCED STUDIES (VISTAS)

(DEEMED TO BE UNIVERSITY Estd. u/s 3 OF THE UGC ACT, 1956)

NAAC ACCREDITED

PALLAVARAM - CHENNAI - INDIA

School of Pharmaceutical sciences

I Continuous Assessment Test

Class (Sem/Sec): B. Pharmacy (VIII / A)
Subject/Code : Pharmacognosy VI/15CBPH82
Date/Time : 11.02.2019/10.00am – 11.30am
Total marks : 50

Section A (4x 3=12)

1. Give the source, chemical structure and uses of Diosgenin
2. List out the importance of aromatic plants in national economy
3. Write about the official species of cinchona and its importance
4. Name some aromatic plants cultivated and exported from India

Section B (3x8=24)

1. Write a note on Trade codes, Trade centers, Importing-Exporting regions and countr
2. Discuss about the World-wide trade of Ipecac & Cinchona
3. Write briefly about the word wide trade in medicinal plant.

Section C (1x14=14)

1. Elaborate on the trade of plants containing laxatives and tropane alkaloid .

Name of the subject in charge : Dr. Malarkodi Velraj

Signature of the subject in charge (with date): Malarkodi Velraj 4/2/19

Signature of HOD (with date and seal) : 4/2/19

Dr. S. JAYAKUMARI, M.Pharm.,Ph.D.,
PROFESSOR / HOD
DEPARTMENT OF PHARMACOGNOSY
SCHOOL OF PHARMACEUTICAL SCIENCES
VISTAS
CHENNAI - 600 117

Figure 2.3 (b) Copy of continuous assessment Test Question paper

Assignments:

According to the Curriculum ,assignment are given to students which they have to submit the assignment before continuous assessment examination and marks (Max:5) alloted for student submission of assignment.

Implementation and Impact:

- The subject incharge is solely responsible for evaluation
- Evaluated papers of Continous asssesment exams are returned to students for their verification
- The recollected Evaluated papers are submitted to HOD for further scrutiny.
- The verified papers are submitted to Department internal examination committee.
- The Mark statements are entered in the ERP system after the approval of Director.
- By giving assignments students are gets opportunity to refer Journal, Books, Internet and also.
- The continuous Evaluation process helps the student for management of time in facing end semester examination

2.2.3. Quality of Students Projects (15)

As a part of VISTAS curriculum the students need to submit a project in their final year. Apart from this we also encourage our students to do mini projects in third year. The projects are categorized into Basic research, applied research, Case study and Reviews

Project identification and allocation: The student's projects are selected in line with department vision and Program outcomes.

1. The students are asked to come with their interest in any one field and submit the topic to Head of the department of respective specializations The Head of the department will scrutinize the about the topic and allot the student to the subject of expertise in relation to the topic submitted .

2. Students who are not able to choose the topic, guides were allotted based on paper lot system each faculty and will be allotted a minimum of 4 students before commencement of their final year class work.

Continuous monitoring system: The students interact with teachers and begin the process. Throughout the period, the teacher facilitates the student to know in depth of the project topic.

Some of the project require ethics clearances from institutional ethics committee are earlier sought and due clearances are obtained from them. The Guide also verifies the authenticity of the materials, helps in preparing the written document. In addition, the students also asked to prepare oral presentations, which will be moderated by the teacher for approval to oral presentation.

Evaluation: The written document (project assignment) will be evaluated by two teachers' internal faculty and external faculty. Students are asked to present the project orally the time duration of the presentation scheduled is 30 minutes (20 minutes for presentation and 10 minutes for open discussion) for each student and the project is awarded with marks. The list of student project from 2015-2018 is mentioned in **(Table 2.17, 2.18 &2.19)**

Table 2.17 List of Project 2017-2018

SL. No	Register Number	Name of students undertaking field projects / internships	Name of the guide	Title of the project	Research/ Review
1.	14150148	A.Selvakannan	Dr.P. Shanmugasundaram	Hepatoprotective activity of Aqueous Extract Androgrraphicpaniculata against carbon tetra chloride induced hepatotoxicity	Research 1,3 8
2.	14150208	A.Farheen			
3.	14150214	B.ChitraMalini			
4.	14150504	H.IffathFathima			
5.	14150127	Basiru Ahmad Zago	Dr.M.VijeyAanandhi	Anticancer Drugs induced Hepatotoxicity	Review 6,10
6.	14150131	S.Nivethitha	Dr.M.VijeyAanandhi	Molecular Docking Studies of a Natural Anticancer agent to control celltion of cell senescence in colorectal cancer	Research 1,5.11
7.	14150226	S.Rashmi			
8.	14150501	R. MelkyRajan	Dr.M.VijeyAanandhi	Insilico Approach for the plant Compounds CissusQuadrangularis targeting multi-G-Quadruplex target for Anti-Cancer Agents.	Research 1,5,11
9.	14150120	K.Elancheziyan	Dr.M.VijeyAanandhi		
10.	14150244	K. Shalini	Dr. V. Sowmya Lakshmi	Exploring a 'Green' Oxidizing Agent for the Synthesis of Pharmaceutically Important Compounds	Research 1.3,11
11.	14150105	J. Sundari			
12.	14150243	S. Anwardeen	Dr. V. SowmyaLakshmi	Studies on the Antimicrobial properties of Acalyphaindica	Research1, 3
13.	14150211	V. Subash			
14.	14150216	Dineshnath G	Dr. M. Sumithra	Phytochemical Screening, Anthelmintic Activity of the Crude Extract of Areca Catechu Linn Seed	Research 1,3
15.	14150108	Ishwarya .N			
16.	14150115	Attah Samuel	Dr. M Sumithra	Determination of Chromatographic Assay and Validation of Ofloxacin In Bulk and Pharmaceutical Dosage form	Research 1,4
17.	14150112	A. GnanaSowndariya			
18.	14150219	T.Devisri	Dr. Binoy Varghese Cheriyan	Evaluation of antihelmintic activity of stigmasterol by invitro and insilico methods	Research1, 3
19.	14150240	R.Karthika Devi			

20.	14150140	Sharmila.A	Prof.M.SekarBabu	Docking Study Targetting 3CYY Protein using Alzhemier Drugs	Research 1,2,5
21.	14150249	Swetha S			
22.	14150240	Meera.V			
23.	14150140	P.Sankari	Dr.E.ShanmugaPriya	Phytochemical screening and invitro antibacterial activity of the crude extract of strychnospotatorum seed	Research1, 3
24.	14150249	P.K. Padmapriya			
25.	14150135	N.Shanmugapriya			
26.	14150230	Juma John			
27.	14150239	Anas Atta Abdel Rahman Abdalla			
28.	14150502	R. Thiyagarajan	Dr. S. Jayakumari	Anti-arthritic activity of Aesculetin in CFA induced animal model	Research1, 8,3,11
29.	14150503	R. Saranyadevi			
30.	14150223	S. Loganayaki			
31.	14150202	A.K.Abinaya			
32.	14150122	N.Lavaniya	Dr. Malarkodivelraj	A Molecular Docking Approach- Identification of Potential Phytoconstituent Inhibitors Against Acetylcholinesterase and Butylcholinesterase Associated with Alzheimer's Disease.	Research
33.	14150124	M. Manju Shree	Dr. Malarkodivelraj	Synthesis, Characterization and In-Vitro Anticancer Studies on HELA Cell Line of Silver Nanoparticles From Stem Bark of Mallotusphilippenis	Research
34.	14150233	T.Prakashchand	Dr. Malarkodivelraj	Molecular Docking Approach of Potential Phytoconstituent Inhibitors Against 3D4Z, 4TRO and 5ACS Receptors for Anti-tubercular Activity.	Research 1,5,11
35.	14150129	M. Priyanka	Dr. A. Vijayalakshmi	Formulation and evaluation of herbal ointment containing flower extract of *Cassia auriculata*in the management of psoriasis	Research 1,3,10
36.	14150138	N. Sathish Kumar			
37.	14150128	Priyadharshini	Dr. A. Vijayalakshmi	Antipsoriatic activity of herbal cream containing root extract of Plectranthusamboinicus	Research1, 3,10

38.	14150231	Paul JoplangNongmin	Dr. E. Susithra	Investigation on lesser known seed oils: Studies on Cucurbita plants	Research 1,3,10
39.	14150245	Swathi. P			
40.	14150224	Magibalan. J			
41.	14150146	Balaji. V			
42.	14150102	S. Akshaya	Dr. I. Somasundaram	Protective Effects of Hesperidin on Methotrexate Induced Nephrotoxicity	Research 1,3 10
43.	14150116	J. Janaki			
44.	14150232	K. Pavithra	Dr. S. Jeganath	Design Development & characterization of Topical Gel containing Itraconazole - Antifungal agent.	Research 1,3 7
45.	14150248	Azeen Iqbal - S.A			
46.	14150212	Greeshma John	Dr. S.SatheshKumar	Formulation and evaluation of gel containing lycopene loaded chitosan Nanoparticle	Research 1,4 ,11
47.	14150218	Kailash Kumar. N			
48.	14150240	M. Sharmila	Dr. R. Ananth Kumar	Design and invitro evaluation of GastroretentiveMucoadhesive drug delivery system of itropride using natural and synthetic polymer	Research 1,4,11
49.	14150246	P. Vidya			
50.	14150242	M. Srudhi	Dr. I. Somasundaram	Biomedical potential of Hesperidin against methotrexate induce hepatotoxicity	Research 1,4&7
51.	14150235	M. Rekha			
52.	14150229	Mohammed Akham. K			
53.	14150203	P. Ajith	Keerthi G. S. Nair	Sustained - release study on mefenamic acid and mosapride loaded solid - lipid nanoparticles : Invitro characterization	Research 1,4&7
54.	14150207	K. Balaji			
55.	14150213	R. Gunalakshmi			
56.	14150221	Lakshmi M			
57.	14150119	Karthikayini			
58.	14150134	G. Sangeetha	Dr. P.G. Mahesh	Formulation and evaluation of fast dissolving tablet of Ketorolac Tromethamine	Research1, 4&7

59.	14150125	M. Mohamed Amean			
60.	14150111	V. A. Chandini			
61.	14150147	K. Logesh			
62.	14150204	P.Aravind	Dr. .S.Shanmugarajan	Protective Role of Hinokitiol against Azothioprine induced oxidative stress	Research1, 3,4&7
63.	14150205	S.Aswini			
64.	14150117	V.Jayvignesh			
65.	14150123	B.S.Mageswaree			
66.	14150103	Ambika	Dr. S.SatheshKumar	Formulation and evaluation of β-carotene loaded chitosan nanoparticle	Research1, 4&7
67.	13150116	KavyaGaadi	Mr. M. Ashok Kumar	Pattern On Dispensing Of OTC Drugs in Urban And Suburban Retail Pharmacy in and Around Chennai	Case study1,4&7 11

Table 2.18 List of Project 2016-2017

SI.No	Register Number	Name of students undertaking field projects / internships	Name of the guide	Title of the project	Research /Review
1.	13150150	Hal Boaz Malong Deng	Dr.P. Shanmugasundaram		Research 1, 4 & 7
2.	13150235	Santhini J			
3.	13150243	Venkateswaran			
4.	13150213	Harine A.G			
5.	13150126	Marina Juliet A	Dr. M. VijeyAanandhi	Computational Studies of Purine derivative using MTH1 as target for Anti-cancer Activity	Research 1, 4 & 5
6.	13150143	P.Sripal			
7.	13150241	S.Subbulakshmi			
8.	13150221	K.Mohammed Imran			
9.	13150123	Mahalakshmi	Prof.M.SekarBabu	Docking studies for anticancer activity using Anthraquinone derivatives	Research 1, 4 & 5
10.	13150124	Manimaran M			
11.	13150119	Karthikeyan			
12.	13150203	Bharanidharan M			
13.	13150206	Devendhiran P			
14.	13150129	K.Nachammai	Dr. V. Sowmya Lakshmi	Exploring Lagenariasiceraria as a Novel Biocatalyst for the Preparation of Pharmaceutically Important Chiral Precursors	Research 1, 4 & 5
15.	13150141	S.Sivaranjani			
16.	13150110	Hemaamirtha	Dr.M.Sumithra	Method Development And Validation of Rabeprazole And Domiperdone By RP-HPLC	Research 1, 4 & 5
17.	13150207	Dinesh			
18.	13150248	Yuvaraj			
19.	13150237	Seethalakshmi .S	Dr. Binoy Varghese Cheriyan	Study of the ameliorative effects of 7-methoxycoumarin in treatment of vincristine induced peripheral neuropathy	Research 1, 4 & 8
20.	13150220	LithenMuhuri			
21.	13150146	Swapna .B			
22.	13150120	N.Kavitha	Dr. S. Jayakumari	Study of Bioactive marker	Research

23.	13150115	R.Jayasurya		[Aesculetin]Targeting Proinflammatory Cytokines TNF-α, IL-1, IL-6 for Arthritic Perturbations	1, 4 & 5
24.	13150219	G.Prabhakaran			
25.	13150226	V.P.Laavanya			
26.	13150126	Manjula begum	Dr. Malarkodivelraj	Molecular docking of Selected Medicinal Plants in Retero Viral Disease (AIDS)	Research 1, 4 & 5
27.	13150139	V.Shruthi		Biosynthesis of silver nano particles and its In-vitro Anti-cancer evaluation of *Mallotusphilippensis.*	
28.	13150223	S.Murugavel	Dr. Malarkodivelraj		Research 1, 4 & 5
29.	13150103	G.Anbarasi		Anti-Rheumatic activity of *Givotiarottleriformis* Bark	
30.	13150218	T.Kinnera			
31.	13150247	A.Vishnuprakash	Dr. A. Vijayalakshmi		Research 1, 4 & 8
32.	13150216	Kalesha.Y		Evaluation of Antimicrobial Activity of various extracts of Nerium oleander L.; syn. N. indicumMill., N.odorumSoland	
33.	13150224	Niranjanbalaji.R			
34.	13150244	Vignesh.E	Dr. E. Susithra		Research 1, 2& 5
35.	13150102	U.Aleemashahada	Mrs.S.Dhanalakshmi	Antimalarial activity of Fucoxanthin From Brown sea weed	Research 1, 2 & 7
36.	13150222	Muralikrishnan. V		Preparation of aciclovir orally disintegrating tablets by different methods and its evaluation	
37.	13150233	SaiSrinivas . D			
38.	13150249	Mohammed Ahmed Ibrahim Adam	Ms. Sumathy. P		Research 1, 2 & 4
39.	13150130	Malni		Formulation & Evaluation of Baclofen loaded chitosan nanosuspension for the treatments of Amyotrophic Lateral Sclerosis	
40.	13150105	Aravind			
41.	13150225	MishmaJaasu			
42.	13150231	Vijay Kumar	Dr. S.SatheshKumar		Research 1, 4 & 5
43.	13150217	N. Keerthika		Hepato protective and free radical Scavenging activity of Hesperidin on Azathioprine induced Hepatic damage	Research 1, 4 & 8
44.	13150227	S. Prasanna Kumar		Quercetin encapsulation in chitosan nanoparticles : Potential use against IDPN induced oxidative stress in Neurodegeneration	Research 1, 4 & 8
45.	13150230	R. Rubini	Dr. I. Somasundaram		
46.	13150131	J. Nandha Kumar	Dr. I.	Quercetin encapsulation in	Research

47.	13150135	T. Sangavi	Somasundaram	chitosan nanoparticles : Potential use against IDPN induced oxidative stress in Neurodegeneration	1, 4 & 8
48.	13150136	D. S. Santhiya			
49.	13150148	Abubakar			
50.	13150106	S. Bharath	Dr. T. S.Shanmugarajan	Hydrogel Scaffolds for Tissue Engineering	Research 1, 2 & 4
51.	13150127	P. Mohamed Haniffa			
52.	13150133	K. Rohin Kumar			
53.	13150240	K. SowmyaSree			
54.	13150109	A. L. Guru Prasad	Dr. D. Jose Prakash	Formulation Development and Optimization of Rivastigmine loaded PLGA nanoparticles	Research 1, 4 & 7
55.	13150121	A. Kirthiga			
56.	13150242	D. R. Surendar			
57.	13150503	Mohammed Abaker Ismail			
58.	13150108	S. Geetha	Dr. K.K. Pillai	Formulation & evaluation of drug loaded PLGA Phytoconstituents derived from cnidoscoluschayamansamcvaugh (Euphorbiaceae)	Research 1, 4 & 7
59.	13150140	C. Tinhayani			
60.	13150201	Ajak			
61.	13150245	P. Vignesh			
62.	13150107	Bhuvaneshwaran	Ms. P. Saranya	A prospective observational study on the prescribing pattern of antibiotics in dental practice: A clinical pharmacist perspective	Research 1, 4 & 7
63.	13150145	S. Surekha			
64.	13150215	B. Jayalakshmi			
65.	13150142	S. Janani	Ms. P. Geetha	Drug utilization study of PIV in out-patient department of tertiary care teaching hospital	Research 1, 4 & 7
66.	13150117	N. Kalaiselvan	Ms. P. Geetha	Dispensing pattern of over the counter drugs in community pharmacies in Tamil Nadu	Research 1, 4 & 7
67.	13150208	DhivyaBharathi	Ms. P. Maheshwari	Drug utilization and evaluation of gestational diabetes mellitus	Research 1, 4 & 11
68.	13150211	B. Guna			
69.	13150228	M. Ranjith Kumar			
70.	13150229	S. Renuga Devi			
71.	13150202	Ajith Kumar G	Dr.V. Santhosh Kumar	PharmaSea	Review 1, 2 & 4
72.	13150204	Bhavya Sri D			
73.	13150134	Rubini	Mrs.S.Nithya	Anti-inflammatory effect of	Research

74.	13150111	Hemashree		Elleteriacardamomum oil in rats	1, 2 & 8
75.	13150232	Sabin Lohala			
76.	13150147	Thenmozhi.N	Mrs.V.Jayashree	InvitroAntiproliferative assay and Cell Viability activity of Baicalein Using Breast Cancer Cell Line	Research 1, 2 & 4

Table 2.19 List of B. Pharm projects on 2015 – 2016

SI. No	Register Number	Name of students undertaking field projects / internships	Name of the guide	Title of the project	Research/ Review
1.	12150101	Anamikamistry	Dr. M.VijeyAanandhi	Antihypertensive activity and QSAR studies of Benzimidazole Derivatives	Research1, 2 & 5
2.	12150145	P.Yuvanesh			
3.			Dr.M.Sumithra	Estimation Of Ambroxol Hydrochloride By Uv And CefiximeTrihydrate By RP-HPLC	Research 1, 2
4.	12150136	M.Sangeetha	Dr. S.Jayakumari	Formulation and development of a gel and transdermal patch from tannin enriched fraction of *psidiumguajavalinn*leaf extract for diabetic wound healing	Research1, 2 & 7
5.	12150135	Sajjad Ali			
6.	12150112	Dhulipallasowmya	Dr. Malarkodivelraj	Herbal Gel Formulation and Evaluation of stem bark of Bauhinia variegata Linn.	Research 1, 2 & 7
7.	12150138	Sindhukavi.D			
8.	12150141	Suganya	Dr. A. Vijayalakshmi	Standardization and evaluation of anti-asthmatic activity of siddha formulation - SeenthilChooranam	Research 1 & 2
9.	12150102	AyshaBanu	Mr. S. Senthil Kumar	Formulation and Invitro Evaluation of Novel Site specific Periodontal Film containing Doxycycline Hyclate For Periodontitis	Research 1& 2
10.	12150123	K. M. Nihal			
11.	12150126	R. Pavithra			
12.	12150114	D. Jagadeeshwaran	Dr. Jose Prakash	Hepato protective effect of Curcumin Loaded PLGA Nano particles	Research1, 2 & 8
13.	12150117	E. Manopriya			

14.	12150134	SaburReeshman			
15.	13152111	DawaBhutia	Dr. S.SatheshKumar	Formulation And Physico-Chemical Evaluation of Ceftazidime Loaded PLGA Nanoparticles	Research1, 2 & 5
16.	13150131	Ramya			
17.	13150140	Sneha Ganesh			
18.	13150143	Supreeth			
19.	12150106	Bhuvaneshwari	Dr. I. Somasundaram	Formulation And Evaluation of Hesperidin Loaded Chitosan Nanosuspension for Parkinson's Disease	Research1, 2 & 4
20.	12150122	Mohammed Shafiq			
21.	12150142	Sumathi			
22.	13150132	RayapaneniCharitha	Dr. T. S.Shanmugarajan	Diabetic wound healing activity of Beta asarone in Streptozocin induced Rats	Research1, 2 & 8
23.	13150118	Mohammed Asik			
24.	13150502	Mohammed Abdullah Mohammed Bakri			
25.	12150137	A.Saranya	Mrs.S.Nithya	Assesment of heavy metal induced organ toxicity using brain shrimp lethality assay	Research1, 2 & 4
26.	12150103	Bhagyalakshmi.S	Mrs.V.Jayashree	InVitroanti inflammatory activity of 4-Benzylpiperidine	Research1, 2 & 4
27.	12150133	Richard Daniel.D	Mrs.V.Jayashree	Free radical scavenging of 4-Benzylpiperidine by InVitro method	Research1, 2 & 4

2.2.4 Initiatives related to Industry and/or Hospital interaction(20)

Initiatives: The School of Pharmaceutical Sciences VISTAS always strives to impart education of excellence as stated in the mission statement. In addition to the regular compliance to the approved VISTAS syllabus, several initiatives have been taken to nurture the growth of the students. As part of our program we seek the guidance of industry/hospital/research organizations/clinical research organizations to deliver guest lecturers of experts from their respective field to our students.

The college has taken steps to conduct industrial visits, which includes the research laboratories, pharmaceutical industries (allopathic and ayurvedic products).

Implementation details: All the students of pre final year and final year led byfaculty are encouraged to visit pharmaceutical industries in and around Chennai and expertise delivery is also updated for them a list of advanced topics covered under guest lecturers as well as industrial visits made for last three years is given below**(Table 2.20,2,21, 2.22, 2.23, 2,24&2.25)**

Table 2.20 List of Guest lecturers- 2017-2018

Sl no	GUEST LECTURE	Date	Resource person	No of student present
1	Overview of the Pharmaceutical Industry	2/4/18	Mr. J. Jayaseelan, M/s. Delvin Formulations	56
2	Requirements of Production and QC under Drugs & Cosmetics Act	2/4/18	Mrs. Shanthy Gunasekaran	56
3	Role of Govt. Drug Testing Laboratories	2/4/18	Mrs. Shanthy Gunasekaran	56
4	Quality Control and its Relationship, with Quality Assurance, Production, R&D and regulatory divisions of Pharma Industry	2/4/18	Mr.. P R. Abdul Hameed, Executive Director - Technical, M/s. Medopharm	56
5	how to use pharmacopoeia, monographs, their explanation &General Notices in pharmacopeia and Reference Standards	2/4/18	Director, CDTL, Chennai.	56
6	Plant Design & Site Master File cGMP's for manufacturing including entry & exit procedures.-	3/4/18	Mr. SanjayKumar Dasmohapatra, President Technical & Operations, Medopharm	55
7	ICH guidelines for production & Quality Control of Pharmaceuticals – Good Laboratory Practices - Schedule L1	3/4/18	Mr. SanjayKumar Dasmohapatra, President Technical & Operations, Medopharm	55
8	IQ, OQ, PQ and DQ of equipments of Production & QC, Validation, Qualification and 5calibration Change control, Deviation control and theirimportance	3/4/18	Sanjay Kumar Dasmohapatra, Medopharm	55
9	Market complaints, CAPA, OOS and OOT etc., What is containment? Essential steps to control contamination,handling of deviation,, Risk Assessment	4/4/18	Sanjay Kumar Dasmohapatra, Medopharm	58
10	Basic Calculations in Quality Control, Dilutions and Statistical Analysis, Qualitative Analysis, Quantitative	4/4/18	Mr. V. Arul Selvan - M/s. Apex Laboratories P Ltd .	58

	Analysis & Elemental Analysis -			
11	Introduction to Theory of Chromatography & Spectrophotometry–	5/4/18		57
12	Gas Chromatography (GC), High Performance Liquid Chromatography (HPLC) a brief introduction –	5/4/18	IICMS	57
13	Calibration of QC equipments, Reference Standards and Working Standards, Reference / retention samples storage	5/4/18	IICMS	57
14	Documentation and records in Production and QC Standard Operating Procedures Sampling of Raw Materials, Packing materials, In- process Materials and Finished products	5/4/18	K. Saravana Kumar, Fourrts (India).	57
15	Analytical method validation -	5/4/18	Mr. G.T. Arularasu, M/s. Fourrts (India) Labs Pvt. Ltd.	57
16	Stability Testing, Accelerated and Real Time Studies, Packaging Material Stability, Their Testing, Their Importance with Respect to the Product Stability	5/4/18	Mr. G.T. Arularasu, M/s. Fourrts (India) Labs Pvt. Ltd.	57
16	Selection of Packing Materials like Bottle packing, Strip Packing, Blister Packing etc and selection of different materials according to stability of products Viz: tablets & Capsules, Powders etc.	6/4/18	Dr. D. Natarajan, Pharma consultant	57
17	General requirements for Tablets, Capsule, Oral liquids & external preparations	6/4/18	S. Murali - M/s. Apex Laboratories P Ltd .	57
18	Ointments, Creams, Emulsions, Gargle solutions, Sanitizers, etc Different types of equipment used for their manufacture, Ingredients used and in-process tests to be carried during their production. Packing of the above products.-	6/4/18	Mr. D. Srinivasa Rao, Apex Labs Pvt Ltd.	57
19	Batch Manufacturing Records, Batch Packing Records and importance of online recording. Basics of production planning & Inventory Control –. Ltd.5	6/4/18	Mr. D. Satish Kumar – M/s. Fourrts (India) Labs Pvt	57

20	Capsule manufacturing IPQAC of capsules	6/4/18	Mr. M. Sridhar, M/s. Fourrts (India) Labs Pvt. Ltd.	57
21	Dry syrups Oral Rehydration Powders(ORS), Equipment used for their manufacture, WHO approved formula, Materials used for formulation of ORS, in process tests to be done and packing of ORS powders-	6/4/18	Mr. S. Ganesan, M/s. Tablets (India) Ltd.	57

Table 2.21 List of Guest Lectures 2016-2017

S. No	TOPIC OF GUEST LECTURER	DATE	RESOURCE PERSON	No. Of Students
1	Overview of the pharmaceutical industry and job opportunities for the pharmacy productions	23.01.2017	Mr. J. Jayaseelan Managing Director M/S, Delvin Formulations	57
2	What is Pharmacopoeia, various Pharmacopoeias used world over, how to use Pharmacopoeia, monographs, their explanation & General notices in Pharmacopoeia and Reference Standards	23.01.2017	Dr.N. Murugesan Director, CDTL, Chennai	57
3	Good Laboratory Practices – Schedule L1 & CDSCO and other Drugs Control Organization	24.01.2017	Dr. S. Manivannan Deputy Drugs Controller (I), CDSCO, Southzone, Chennai	58
4	Oral Rehydration Powders (ORS), Equipment used for their manufacture, WHO approved formula, Materials used for formulations of ORS, in Process tests to be done and packaging of ORS powders	24.01.2017	Mr. S. Ganesan M/S, Tablets (India) Ltd.	58
5	Process validation of Pharmaceuticals and its importance	25.01.2017	Dr. Venkidesh M/S, Saimirrah Innopharm Pvt.Ltd	57
6	Documentation and records in Production and QC	25.01.2017	Mr. K. Saravana Kumar M/S, Fourrts (India) Labs Pvt.Ltd	57

7	Microbiology – An introduction, microbiology for non-sterile preparations	27.01.2017	Mr. Mujibur Rahman M/S, Fourrts (India) Labs Pvt.Ltd	56
8	Air Systems, water systems, their sampling and testing	27.01.2017	Mr. S. Jaya Kumar M/S, Apex Lab Pvt.Ltd	56
9	General requirements for Tablets, Capsules, Oral liquids & External preparations	28.01.2017	Mr. S. Murali M/S, Apex Lab Pvt. Ltd.	55

INDUSTRIAL VISIT FORTHE ACADEMIC YEARS 2015 -2019

Table 2.22: Industrial Visit for the Academic Year 2015-2016

SL.No	FACULTY ACCOMPANIED	INDUSTRY NAME	DATE	YEAR OF STUDENTS
1	Dr.MalarkodiVelraj	Pharm Products	08-08-2015	Final year
2	Dr.A.S.k.Shankar	HBL	12-06-2015	Third year
3	Dr .Jose prakash	HBL	12-06-2015	Third year

Table 2.23: Industrial Visit for the Academic Year 2016-2017

Sl.No	FACULTY ACCOMPANIED	INDUSTRY NAME	DATE	YEAR OF STUDENTS
1	Dr.E.Susithra	VOPEC Pharmaceuticals	24-03-2017	Third year
2	Dr.S.Jeganathr	Archimedis Health Care Pvt Ltd	21-03-2017	Third year
3	Dr.E.Susithra	C.G.Bhakta Institute of Biotechnology (Emami Ltd)	26-02-2017	Final year
4	Dr.M.Vijeyanandhi	Pasteur Institute India	22-10-2016	Third year
5	Dr.Jayakumari ,Dr .Jose prakash	Bafna Pharmaceutics	01-10-2016	Final year
6	Dr.MalarkodiVelraj	Sai Mira Innopharm(p) Ltd	30-08-2016	Final year
7	Dr.E.Susithra	Sai Mira Innopharm(p) Ltd	29-08-2016	Final year

Table 2.24:Industrial Visit for the Academic Year 2017-2018

SLNo	FACULTY ACCOMPANIED	INDUSTRY NAME	DATE	YEAR OF STUDENTS
1	Dr.Jayakumari&B.Pharm	Kausikh Therapeutics Pvt Ltd	13-09-2017 & 14-09-2017	Third year
2	Dr.E.Susithra	VOPEC Pharmaceuticals	24-03-2017	Third year
3	Dr.S.Jeganath	Archimedis Health Care Pvt Ltd	21-03-2017	Third year

Table 2.25:Industrial Visit for the Academic Year 2018-2019

Sl.No	FACULTY ACCOMPANIED	INDUSTRY NAME	DATE	YEAR OF STUDENTS
1	Dr, S. Jayakumari.	IMCOPS	30.01.19 & 31.01.19	Third year
2	Dr.Jayakumari	Pharm Products	26-09-2018	Third year

2.2.5: Initiatives Related To Skill Development Programs/Industry Internship/Summer Training

Initiatives

The College of pharmaceutical sciences has made several efforts to improve the skills of the students. Students are sent to various pharmaceutical industries to observe and learn the unit operations in the production of oral, parental and topical formulations. They are also made to observe the functions of quality control as well as quality assurance, apart from this school of pharmaceutical science has made memorandum of understanding with the pharmacy chain stores (Muthu pharmacy) in Chennai to gain knowledge in dispensing pharmacy and retail pharmacy Soft skill development training was also done by RIPE institute to improve soft skillsThey were trained for

- Corporate personality Development
- LSRW -Listening Speaking Reading Writing
- Corporate communication skill
- Presentation skill
- Leadership skill
- Stress management skill
- Resume preparation tips
- Group discussion tips
- Interview handling skills

Implementation:

By the completion of third year the students are sent to various pharmaceutical industries or pharmacy chain stores for their summer industrial training program. A list of students that has undergone summer industrial training program is also included in **table 2.26.**

Table 2.26: Student Industrial Training and Skill Development Details

S.No	Name of Pharma Company	2017-2018	2016-2017	2015-2016
1	Apex Laboratories	16	15	6
2	Fourrt's Laboratories Pvt Ltd	17	12	7
3	Medopharm	17	13	5
4	Saimirra Innopharm Private Limited	15	14	6
5	Tablets (India) Ltd	14	20	6
6	Madras Pharmaceuticals, Chennai	12	21	5
7	Muthu Pharmacy	-	-	30
	Total	**91**	**95**	**65**

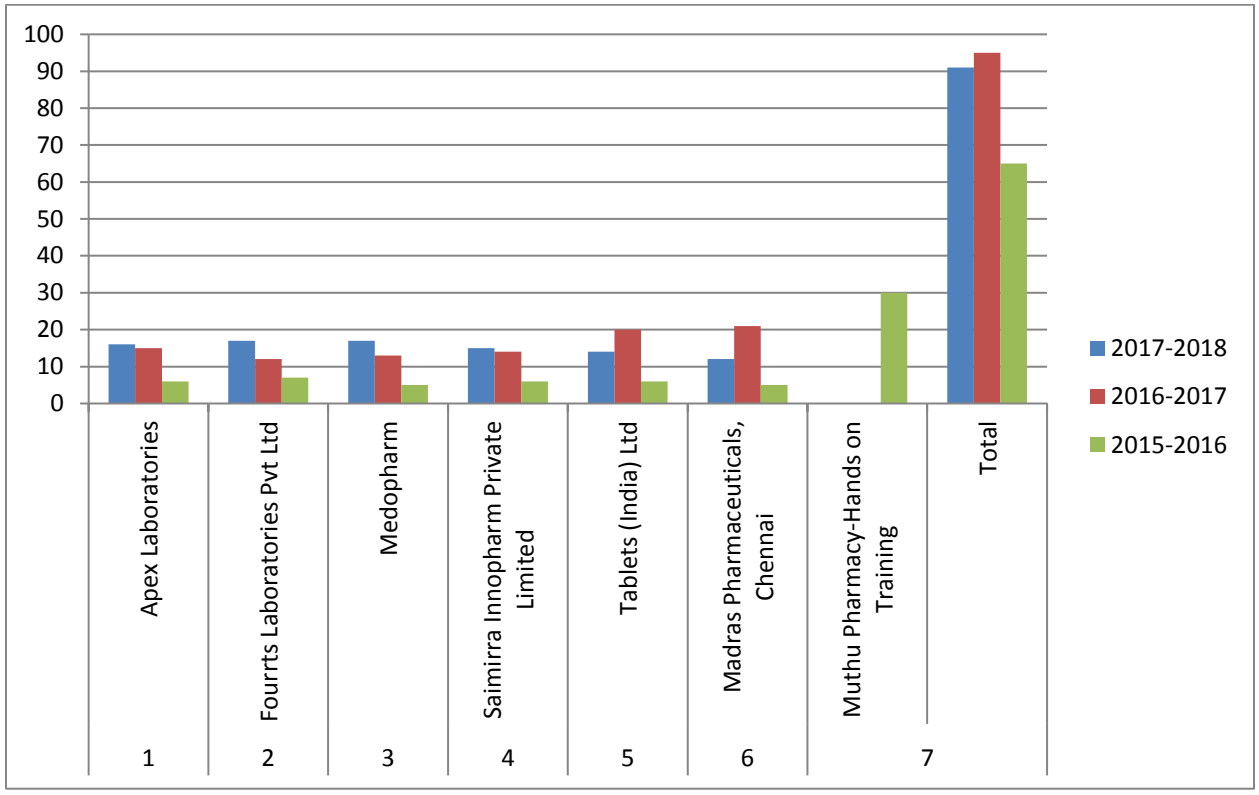


Figure: 2.4: Graphical representation of Industrial Training and Skill Development

Impact:

The student learned various methodologies and gained hands on experience in sophisticated analytical instruments from industry. They can learn from working professionals by assessing the real time issues in relation to their core subjects.

Students were asked to give feed backs and were also asked to give presentations about the training

2.2.6. Continuous Evaluation Process (20)

Theory evaluation:

In a semester period (90 days of instruction), three Continuous assessment Internal examinations and one Semester end examination are conducted these are conducted as per the academic calendar of the VISTAS. The writing of these examinations is compulsory for

computing the average. One Theory exam is conducted per day and this helps the student to prepare well. In VISTAS, theory examinations are written with time duration of 1 hour 30 minutes, which gives greater opportunity to express. The pattern is Ultra short notes (3 marks), short essay type (8 mark) and long essay type (15 Mark). Each student is given feedback on the performance. Apart from this, assignments are given to students, which are corrected and feedback is given and marks are assigned for it. Further, attendance of regularity, active interaction in the classroom are given due credit in the evaluation. Therefore, the student is continuously engaged in the academic activity throughout the semester.

Practical Evaluation:

In the laboratory setup, the experiments are conducted as per the list mentioned in the syllabus of VISTAS. Students spent a lot of time for acquiring practical skills. Two continuous assessment test were conducted per semester the continuous evaluation provides the opportunity to practice the skill. Practical experiment involves feedback and corrective action, completing the given task in a given time. Record, submission and evaluation are done regularly. Viva-voce is conducted at the end of each experiment(everyday)is another important feature of evaluation. Attendance is also given due to weight age. The above process demonstrated that the evaluation is a continuous process in place in VISTAS.

2.2.7. Quality of Experiments:

The syllabus of B. Pharmacy has specified the list of experiments after due consideration of their applications in the practice of the profession. These includes using sophisticated instrumental analytical experiments, synthesis of medicinal compounds, simulated models and formulation experiments A few highlights are enumerated below.

- The laboratories are spacious and equipped with the necessary infrastructure that facilitate for the smooth conduct of experiments.
- The institution has the necessary equipment, instruments and apparatus as prescribed by the Pharmacy Council of India.
- The teachers are meritorious, well qualified and experienced for handling the Theory and Practicals.
- The teachers are continuously striving and actively involved in research work,

which is translated into the practicals.

- The simulation experiments for the pharmacology are conducted regularly using licensed software.
- The language laboratory imparts specific skill. A multimedia aided language lab gives stress on experiments: grammatical exercises, phonetics pronunciation, oral presentations, vocabulary building, writing skills and interview skills.
- Each student is given opportunity to conduct the experiments independently. For this reason, the practical batch size limited to 20 to 25students.
- Sufficient number of systems is maintained in the computer lab to enable that each student can get one terminal, so as to work independently in a lab.
- The sophisticated equipment procured for PG programs are also extended to facilitate the learning by UG students.
- The staff has been involved in developing laboratory manuals. However, the students are expected to consult them, but they have to write the own laboratory manuals or records
- For each equipment we have a log book in which the students will enter the purpose of experiment.

Table 2.27 VISTAS SPS LAB

List of Sophisticated Instrument Details

S.No	Name of the Instrument
1.	Elico SL 150 UV Spectrophotometer
2.	Elico SL 151 UV Spectrophotometer
3.	Shimadzu UV 1700 Spectrophotometer
4.	LC 20 AT Shimadzu HPLC With PDA Detector
5.	LC 10 ATVP Shimadzu HPLC With UV-Visible Detector

6.	High Speed Centrifuge-REMI R24
7.	GC 2014 AF Shimadzu Gas Chromatography (GC) and its Accessories
8.	DSC 60 Shimadzu Differential Scanning Calorimeter
9.	Bruker ALPHA-T FT-IR spectrophotometer
10.	Shimadzu AX200 Analytical balance
11.	5KVA online ups system with 10 Batteries
12.	Shimadzu LC-2010 C Automated HPLC
13.	CO2 Incubator(Esquire Biotech)
14.	Deep freezer(Remi)
15.	GEL DOC SCANNER- l302 imaging system- 302 nm GDS-l208 UV transmitting tray for gel handling GDS-l20l9 uv to white light Conversion screen for visible dyes(Labnet)
16.	Fume hood working dimension(Clean air System)
17.	Dissolution Apparatus Lab India D5 8000
18.	Friability test Apparatus
19.	Orbital Shaker- Ashok United Company
20.	Probe Sonicator
21.	Bulk Density Apparatus

22.	Biosafety Cabinet – Bioclean Air services
23.	Freeze Drier- Esquire Biotech

A part from these labs we have a VISTAS SPS Lab and Formulation Development Lab which gives an additional exposure to the students on handling of sophisticated experiments.

Specialty areas:

Spectroscopical studies:

Analysis of samples for various spectroscopical studies like:

- UV-visible spectrophotometer
- FTIR

Chromatographic and electrophoretic studies:

The state-of-art technological excellence had been implicated in the lab with sophisticated instruments such as:

- HPLC
- DSC
- Fully automated HPLC
- HPTLC
- Gel electrophoresis
- Gel Doc Scanner

PHARMACEUTICAL SCIENCES- FORMULATUION DEVELOPMENT LAB

The machine lab of pharmaceutics department is catering the needs of pharmacy students by provide the hand on experience of industrial prototypes of the machineries used for the development of formulations like tablets capsules ointments creams lotions and parenteral. The equipment's in this lab will facilitate the practical approach of the students to empower their skill to apply the industrial technologies and help them to efficiently handle the industrial operations. The facility available for formulating the tablets like weighing grinding mixing granulation drying sieving punching of tablets and coating of tablets.

Facility for filling of powders / granules in hard gelatin capsule shell. The machine room has the facility to wash ampoules filling the injections, heat sealing of the ampoules.Extensive facilities are available to carry out the preparation of semisolids like ointments creams and pastes and metered filling in collapsible tubes. Apart from this basing operations like milling grinding mixing, heating, weighing, sieving, drying etc. are available.

The quality control of the formulations is an important aspect and the machine room is provided with the stability chamber which can be used for the accelerated testing of the pharmaceutical dosage forms.

3. Course Outcomes (COs) and Program Outcomes (POs) (100)

3.1. Establish the correlation between the courses and the Program Outcomes (20)(NBA defined Program Outcomes as mentioned in (Annexure -IV)

3.1.1. Course Outcomes (SAR should include course outcomes of one course from each semester of study, however, should be prepared for all Courses) (05)

Course Name: Pharmaceutical Analysis I (Theory)
Course Code: C101
At the end of the course, the student will be able to

CO #	Course Outcomes
C101.1	Outline the importance of quality control in Drug and Pharmaceutical Formulations
C101.2	Apply the acid base titrations for analysis of drugs and Pharmaceuticals
C101.3	Compare and contrast different oxidation and reduction reactions using various reducing/oxidizing agents
C101.4	Explain the concepts of precipitation titrations and the importance of various precipitation methods
C101.5	Discuss about the various gravimetric techniques and application involved in analysis

Course name: Pharmacognosy – I (Theory)
Course code: C102
At the end of the course, the student will be able to

CO #	Course Outcomes.
C102.1	Relate the scope of Pharmacognosy with various pharmaceutical fields. And summarize the knowledge about the various sources of crude drugs.
C102.2	Classify crude drugs as per alphabetical, morphological, taxonomical, chemical, pharmacological, chemo taxonomical and serotaxonomical method. And medicinally important plants using taxonomical characters
C102.3	Discuss various factors influencing cultivation of medicinal plants. Analyze adulteration of crude drugs and evaluate using organoleptic, microscopical, physico chemical method and biological method
C102.4	Develop knowledge on chemistry of active constituents – alkaloids, glycosides, tannins, flavonoids, volatile oil and resins.
C102.5	Discuss the Pharmacognosy of carbohydrate containing and lipid containing crude drugs and identify by chemical test.

Course name: Pharmaceutics – I (physical Pharmacy – I) (Theory)
Course code: C103
At the end of the course, the student will be able to

CO #	Course Outcomes
C103.1	Explain states of matter and classify properties of matter.
C103.2	Make use of HLB scale in solubilztion and explain surface and interfacial tensions.
C103.3	Classify types of colloids and explain its properties and apply in pharmacy.
C103.4	Determine the importance in rheological properties of suspensions and emulsion.
C103.5	Classify complexation and evaluate protein binding.

Course Name: Remedial Biology (Theory)
Course Code: C106
At the end of the course, the student will be able to

CO #	Course Outcomes.
C106.1	Recall the classification and salient features of classification of plants
C106.2	Understand the basic structure and cell inclusion of plant cell and plant tissue. Outline the process of the types of cell division.
C106.3	Identify the morphology and histology of root, stem, bark, wood, leaf and flower. Classify the different types of modification of roots and stem.
C106.4	Know and explain the survey of animal kingdoms and its structure and life history.
C106.5	Identify and summarize the general structure and life history of insects such as mosquito, housefly, mites and silkworm.

Course Name: Environmental Sciences (Theory)

Course Code: C107

At the end of the course, the student will be able to

CO #	Course Outcomes.
C107.1	Define the scope and importance of multidisciplinary nature of environmental studies
C107.2	Classify and summaries the types of natural resources and the management of natural resources and its effect
C107.3	Apply the concept of ecosystem structure and its function and its characteristic features with the use of food chain/food web and pyramid in ecosystem
C107.4	Analyze the causes, effect and control measures of different types of pollution and the waste from industry and its control measures on health care by conserving the natural resources
C107.5	Discuss the natural disasters for conservation through the environmental science and Create a public awareness on population, family welfare program, human health and rights, HIV/AIDS, Child welfare and women welfare and the Importance of environmental protection Act.

Course Name: Pharmaceutical Analysis I (Practical)

Course Code: C108

At the end of the course, the student will be able to

CO #	Course Outcomes
CO108.1	Outline the importance of quality control in Drug and Pharmaceutical Formulations
CO108.2	Apply the acid base titrations for analysis of drugs and Pharmaceuticals
CO108.3	Compare and contrast different oxidation and reduction reactions using various reducing/oxidizing agents
CO108.4	Explain the concepts of precipitation titrations and the importance of various precipitation methods
CO108.5	Discuss about the various gravimetric techniques and application involved in analysis

Course name: Pharmacognosy – I (Practical)
Course code: C109
At the end of the course, the student will be able to

CO #	Course Outcomes.
C109.1	Identify the morphological characters of different plant families of medicinally important crude drugs.
C109.2	Determine the dimensions of cell and cell content – Phloem fibers, starch grains, calcium oxalate crystals by microscopical method.
C109.3	Evaluate the leaf constant – stomatal number, stomatal, index, palaisade ratio, vein islet number, vein termination number using quantitative microscopy.
C109.4	Test the presence of carbohydrates and lipids in powdered sample of crude drugs using chemical test.
C109.5	Create and compile the information of medicinal plants in a herbarium sheet.

Course name: Pharmaceutics – I (physical Pharmacy – I)
Course code: C110
At the end of the course, the student will be able to

CO #	Course Outcomes
C110.1	Find bulk density, true density and porosity of polymorphs.
C110.2	Determine critical micelle concentration and HLB value of surfactant.
C110.3	Demonstrate different types of colloids and their properties.
C110.4	Examine sedimentation volume of suspension with effect of different suspending agents.
C110.5	Measure protein binding of sulphamethoxazole.

Course Name: Basic Electronics and Computer Applications (Practical)
Course Code: C111
At the end of the course, the student will be able to

CO #	Course Outcomes
C111. 1	Define the scope and importance of Computers in Pharmacy
C111. 2	Classify and summaries Chromatographic dada analysis(CDS), Laboratory Information management System (LIMS) and Text Information Management System(TIMS)

C111 .3	Apply the Drug information storage and retrieval, Pharmacokinetics, Mathematical model in Drug design, Hospital and Clinical Pharmacy, Electronic Prescribing and discharge (EP) systems, barcode medicine identification and automated dispensing of drugs, mobile technology and adherence monitoring Diagnostic System, Lab-diagnostic System, Patient Monitoring System, Pharma Information System
C111. 4	Analyze the Binary number system, Decimal number system, Octal number system, Hexadecimal number systems, conversion decimal to binary, binary to decimal, octal to binary etc, binary addition, binary subtraction – One's complement ,Two's complement method, binary multiplication, binary division
C111. 5	Discuss the Information gathering, requirement and feasibility analysis, data flow diagrams, process specifications, input/output design, process life cycle, planning and managing the project

Course Name: Remedial Biology(Practical)

Course Code: C112

At the end of the course, the student will be able to

CO #	Course Outcomes
C112.1	Identify the morphological characters of plants parts.
C112.2	Outline the care, use and types of microscopes
C112.3	Examine the gross identification of slides of structure and life cycle of lower plant/animals in theory.
C112.4	Dissect and observe the microscopic examination of stem, root and leaf of monocot and dicotyledonous leaves.
C112.5	Elaborate the structure of human parasites and insects mentioned in the theory.

Course name: Pharmaceutics – II (physical Pharmacy – II) (Theory)

Course code: C201

At the end of the course, the student will be able to

CO #	Course Outcomes.
C201.1	Analyze particle size and distribution of powder by different methods.
C201.2	Apply Newtonian and Non-Newtonian systems for course dispersions.
C201.3	Determine half-life and Test for stability of Pharmaceutical dosage forms.
C201.4	Importance of diffusion in biologic systems.
C201.5	Explain dissolution rate and factors affecting rate of dissolution.

Course Name: Pharmaceutical Chemistry-I (Inorganic Chemistry) (Theory)

Course Code: C202

At the end of the course, the student will be able to

CO#	Course Outcomes
C202.1	Explain properties of acids and bases. Outline the concepts of acid base theories. Classify, illustrate antacids and gastrointestinal agents.
C202.2	Physiological and pharmaceutical Importance of Major intra, extracellular electrolytes and trace elements. Study of Iron and haematinics, mineral supplements, Cationic and anionic components of inorganic drugs useful for systemic effects.
C202.3	Elaborate study of Protective, Astringents, anti-invectives, Sclerosing agents, expectorants, emetics, poisons and antidotes, sedatives etc. Method of preparation, Assay of Pharmaceutical aids of some inorganic compounds (IP).
C202.4	Elaborate study of Dentifrices and anti-caries agents. Ideal characteristic of dentifrices. Abrasives and surfactants used. Oxygen, Anesthetics and respiratory stimulants.
C202.5	Discuss Complexing and chelating agents used in therapy. Elaborate the concepts of Nuclear radio pharmaceuticals clinical applications and dosage, hazards and precautions.

Course Name: Anatomy Physiology & Health Education-I (Theory)

Course Code: C203

At the end of the course, the student will be able to

CO #	Course Outcomes
C203.1	Develop a vocabulary of appropriate terminology to effectively communicate information related to anatomy and physiology. Identify the various tissues and organs of different systems of human body.
C203.2	Outline the composition and functions of bone, Classify the joints, types of movements at joints and disorders of joints.
C203.3	Explain the gross morphology, structure and functions of Skeletal Muscle.
C203.4	List out the major components of the blood and lymph, Compare and contrast the blood and its components, Lymphatic vessels & lymph nodes structurally and functionally.
C203.5	Identify the types of circulation and major anatomical areas of the heart. Explain the Electrocardiogram, Blood pressure and cardiovascular disorders.

Course Name: Pharmaceutical Analysis (Theory)

Course Code: C204

At the end of the course, the student will be able to

CO#	Course Outcomes
C204.1	Classify different types of Non Aqueous and Complexometric titrations. Outline the principles involved in the titrations. Types of Solvents and interpret the indicators involved in the titrations.
C204.2	Make use of different miscellaneous method of analysis and its working procedure for the following techniques- Diazotization titrations, Kjeldahl method of nitrogen estimation, Karl Fisher titration, Oxygen flask combustion, gasometry.
C204.3	Discuss Principle, Procedure and application involved in following extraction procedures- Infusion, decoction, and digestion, maceration and percolation method.
C204.4	Elaborate the theoretical aspect as well as working procedure involved in chromatographic methods like TLC, HPLC, GLC, HPTLC, Paper Chromatography and Column Chromatography.
C204.5	Discuss Different types of electrode used in electrometry. Elaborate the Principles and working procedure of following electrometric methods- Potentionmetry, Conductometry, Polarography, and Amperometry.

Course Name: Mathematics & Statistics (Theory)

Course Code: C205

At the end of the course, the student will be able to

CO #	Course Outcomes
C205.1	Define the scope and importance of types of data distribution.
C205.2	Classify and summaries the types of graphs, histograms, pie charts, scatter plots and semilogarthimic plots.
C205.3	Apply the concept of central tendency distribution – average, median, and mode.
C205.4	Analyze the level of significance (Non parametric data) – sign test, Wilcoxon's sign rank test, Wilcoxon rank sum test, Kruskal – wall is test (one way ANOVA)
C205.5	Discuss the linear regression and correlation – introduction, person's and spearman's correlation and correlation co-efficient. Introduction to statistical software: SPSS, Epi info, SAS.

Course name: Pharmaceutics – II (physical Pharmacy – II) (Practical)
Course code: C206
At the end of the course, the student will be able to

CO #	Course Outcomes.
C206.1	Find particle size and surface area using sieve method.
C206.2	Determine particle size, distribution using sieving method and microscopic method.
C206.3	Determine rheological properties of various types of systems using different viscometers.
C206.4	Rate the reaction rate constant for first order and second order reactions.
C206.5	Determine compressibility index.

Course Name: Pharmaceutical Chemistry-I (Inorganic Chemistry) (Practical)
Course Code: C207
At the end of the course, the student will be able to

CO#	Course Outcomes
C207.1	Test for purity and identify limit tests for iron, arsenic, lead, heavy metals, chloride, sulphate.
C207.2	Prepare and Estimate test for purity of Boric acid and Potash Alum.
C207.3	Prepare and Estimate test for purity of Magnesium sulphate and Sodium citrate.
C207.4	Evaluate the Test for purity for Bentonite and aluminium hydroxide gel.
C207.5	Evaluate the Test for purity for kaolin and potash alum.

Course Name: Anatomy Physiology & Health Education-I (Practical)
Course Code: C208
At the end of the course, the student will be able to

CO#	Course Outcomes
C208.1	Utilize the knowledge of Various Physiological instruments used for qualitative and quantitative estimations. Identify the various tissues of different systems of human body.
C208.2	Determine the hematological tests like bleeding time, clotting time and blood grouping.
C208.3	Estimate the blood cell counts (RBC, WBC) and hemoglobin content.
C208.4	Measure the Body temperature, Pulse rate, Blood pressure at sitting and standing posture
C208.5	Develop coordinated working pattern of different organs of systems like Circulatory system, Cardiovascular system and Lymphatic system.

Course Name: Pharmaceutical Analysis (Practical)

Course Code: C209

At the end of the course, the student will be able to

CO#	Course Outcomes
C209.1	Determine the volume of EDTA and perchloric acid by standardization.
C209.2	Estimate calcium gluconate by complexometry and Phenobarbitone sodium by non-aqueous titration methods.
C209.3	Identify the drugs/amino acids by Circular Chromatography and Paper Chromatography Ascending Technique.
C209.4	Determine the pH by using Manual and instrumental method and determine molarity of alkali by Potentionmetry.
C209.5	Experiment with HPLC technique and Gas chromatography techniques.

Course Name: - Pharmaceutical Organic Chemistry-II Organic Chemistry-I (Theory)

Course Code: C301

At the end of the course, the student will be able to

CO#	Course Outcomes
C301.1	Apply and solve the problems of various areas of organic chemistry, including stereochemistry, Optical Isomerism, Chirality of the compounds. Construct the stereo models and study of allenes, biphenyls. Detail study of absolute configuration, racemic modification and resolution, asymmetric synthesis.
C301.2	Outline the Fundamental concepts of nomenclature, formulae, preparation and properties of organic compounds. Explain theoretical aspects and mechanism of Alkanes, alkenes, alkynes; cycloalkanes and dienes.
C301.3	Discuss the structure, nomenclature, and preparation and reaction mechanism of alkyl halides, alcohols, ethers, amines, aldehydes, ketones, carboxylic acids and functional derivatives of carboxylic acids.
C301.4	Elaborate the Aromatic, Poly aromatic compounds and Mechanism of electrophilic and nucleophilic aromatic substitution, theory of effect of substituent on reactivity and orientation.
C301.5	Importance of reactive intermediates in organic mechanisms and their applications. Preparation, test for purity and medicinal uses of important organic compounds.

Course Name: Pharmaceutics - III (Unit Operations - I)
Course code: C302
At the end of the course, the student will be able to

CO #	Course Outcomes.
C302.1	Illustrate the basic laws, Types of flow, Reynolds number, Viscosity, Concept of boundary layer, basic equations of fluid flow, valves, flow meters, manometers and measurement of flow and pressure Different types of pumps Various types of fans, blowers and compressors Bins, Bunkers, Conveyers, Air transport.
C302.2	Identify the term Filtration and Centrifugation Theory of filtration, filter aids, filter media, industrial filters including filter press rotary filter, edge filter, etc. Factors affecting filtration, mathematical problems on filtration, optimum-cleaning cycle in batch filters. Principles of centrifugation, industrial centrifugal filters. Principles of centrifugation, industrial centrifugal filters, and centrifugal sedimenters. Characteristics of crystals like; purity, size, shape, geometry, habit, forms size and factors affecting them, Solubility curves and calculation of and heat balances around Swenson Walker Crystallizer, Super saturation theory and its limitations, Nucleation mechanisms, crystal growth. Study of various types of Crystallizer, tanks, agitated batch, Swenson Walker, Single vacuum, circulating magma and crystal Crystallizer, Caking of crystals and its prevention. Numerical problems on yields.
C302.3	Classify the Basic concepts and definition, wet bulb and adiabatic saturation temperatures, Psychometric chart and measurement of humidity, application of humidity measurement in pharmacy, equipment's for dehumidification operations. Principles and applications of refrigeration and air conditioning
C302.4	Explain the General study of composition, corrosion, resistance, properties and applications of the materials of construction with special reference to stainless steel and glass Mechanical, Chemical, Electrical, fire and dust hazards, Industrial dermatitis, Accident records etc.

Course Name: Pharmacognosy - II (Theory)
Course Code: C303
At the end of the course, the student will be able to

CO #	Course Outcomes
C303.1	Explain the Pharmacognosy of resin and resin containing crude drugs under various pharmacognostic items.
C303.2	Explain the Pharmacognosy of tannin and tannin containing crude drugs under various pharmacognostic items.
C303.3	Explain the Pharmacognosy of volatile oil containing crude drugs under various pharmacognostic items and study the different isolation methods for extraction of the phytoconstituents.
C303.4	Develop various crude extracts and identify the various primary and secondary metabolites by preliminary qualitative chemical tests.
C303.5	Illustrate the various plant fibers and pharmaceutical aids of pharmacognostic importance.

Course Name: Anatomy, Physiology & Health Education-II (Theory)
Course Code: C304
At the end of the course, the student will be able to

CO #	Course Outcomes
C304.1	Explain the anatomy and physiology of the respiratory and digestive system
C304.2	Compare the Central nervous system and Autonomous nervous system
C304.3	Outline the various parts of the urinary system and reproductive system
C304.4	Examine the functions of the sense organs by knowing the basic anatomy and physiology
C304.5	Importance of the Health education like first aid and some other diseases.

Course Name: Pharmaceutics IV (Dispensing and Community Pharmacy) (Theory)
COURSE CODE: 305
At the end of the course, the student will be able to

CO #	Course Outcomes
C305.1	Outline the Prescription: handling of prescription, source of errors in prescription, care required in dispensing procedures including labeling of dispensed products.
C305.2	Apply the Posology, calculation of doses for infants, adults and elderly patients, Enlarging and reducing recipes percentage solutions, alligation, alcohol dilution, proof spirit, isotonic solutions, mill equivalents, osmolal, displacement value
C305.3	Analyse the Typical prescriptions like mixtures, solutions, emulsions, creams, ointments, powders, capsules, pastes, jellies, suppositories, ophthalmic solutions, drops, ear drops, pastilles, lozenges, pills, lotions, liniments, inhalations, paints, sprays tablet triturates
C305.4	Explain the Physical, chemical and therapeutic incompatibilities, correction of incompatibilities.
C305.5	Discuss Organization and structure of retail and whole sale drug store types of drug store and design, legal requirements for establishment, maintenance of drug store - dispensing of proprietary .

Course Name: Pharmaceutical Organic Chemistry-II Organic Chemistry-I (Practical)
Course Code: C306

At the end of the course, the student will be able to

CO #	Course Outcomes
C306.1	Prepare and Estimate percentage yield of Benzoic acid, Acetyl salicylic acid and salicylic acid.
C306.2	Prepare and Estimate percentage yield of Acetanilide, Parabromo acetanilide and para nitro acetanilide.
C306.3	Construct the stereo models of Alkanes, Alkenes, and Optical Isomers: Lactic acid.
C306.4	Identify the organic compounds by systematic qualitative analysis for the following - Carbohydrate, Alcohols, Phenols, Aldehydes and ketones.
C306.5	Identify the organic compounds by systematic qualitative analysis for the following- Amine, Amides, Aromatic acids and esters.

Course Name: Pharmaceutics - III (Unit Operations - I) (Practical)
Course Code: C307

At the end of the course, the student will be able to

CO #	Course Outcomes.
C307.1	Determination of particle size distribution of using sieve method Determination of humidity of air by dew point method.
C307.2	Determination of grinding efficiency Determination of Solubility curve determination.
C307.3	Determination the Effect of viscosity on rate of filtration Determination the Effect of filter aids in filtration process
C307.4	Determination the Effect of filter aids in filtration process Determination the Factors affecting the filtration rate.
C307.5	Determination the Effect of surface area on filter thickness on filtration Determination of equilibrium moisture content of sample.

Course Name: Pharmacognosy - II (Practical)

Course Code: C308

At the end of the course, the student will be able to

CO #	Course Outcomes
C308.1	Identify the morphological characters of various medicinally important crude drugs containing resins.
C308.2	Identify the morphological characters of various medicinally important crude drugs containing tannins.
C308.3	Identify the morphological, microscopical and powder characters of various medicinally important crude drugs containing volatile oils such as Clove, Cinnamon, Coriander, Fennel etc.
C308.4	Test the presence of few secondary metabolites such as glycosides, alkaloids, tannins, flavonoids in powdered sample of crude drugs using chemical test.
C308.5	Identify a few plant fibers and pharmaceutical aids by various chemical tests.

Course Name: Anatomy, Physiology & Health Education-II (Practical)

Course Code: C309

At the end of the course, the student will be able to

CO #	Course Outcomes
C309.1	Define all the Anatomical terminology and relate the specimens
C309.2	Distinguish the various slides of the given organs and glands
C309.3	Demonstrate the digestive and respiratory system.
C309.4	Demonstrate the nervous, urinary and reproductive system.
C309.5	Demonstrate the endocrine and sensory system.

Course Name: Pharmaceutics IV (Dispensing and Community Pharmacy) (Praticals)

COURSE CODE: 310

At the end of the course, the student will be able to

CO #	Course Outcomes
C310.1	Outline the Liquid paraffin oral emulsion, Preparation of Castor oil emulsion, White liniment , turpentine liniment Whitfield's ointment Compound zinc oxide paste.
C310.2	Apply Zinc oxide and salicylic acid paste, Percentage solution
C310.3	Analyse the mouth washes and gargles, Effervescent mixture
C310.4	Explain the Kaolin mixture, vanishing cream
C310.5	Discuss THE cold cream sodium salicylate mixture.

Course Name: Pharmaceutical Chemistry-III (Organic Chemistry-II) (Theory)

Course Code: C401

At the end of the course, the student will be able to

CO #	Course Outcome
C401.1	Understand the concept of Stereochemistry, Illustrate the concepts of geometrical isomerism, explain the mechanisms involved in SNI and SN2 reactions, El and E2 elimination, Diels - Alder reaction, neighboring group participation. Frontier orbital and orbital symmetry cycloaddition (Diels Alder Reaction) ,Sigma tropic reactions eg. Cope rearrangement, Electrolytic reactions
C401.2	Define heterocyclic compounds, Classify them and explain the nomenclature , outline the synthesis and study of reactions ,uses of Pyrrole, Furan, Thiophene, Pyridine, Piperidine, QuinolineIsoquinoline
C401.3	Explain the synthesis and study of reactions ,uses of Pyrazole, Imidazole, Oxazole, IsoxazolePyrimidinePyrazine, PyridazineAzepines, Phenothiazines
C401.4	Illustrate the structure and lists the medicinal uses of heterocyclic derivsatives of Nicotonic acid, INH, MepyraminePhenazone, Phenylbutazone, chloroquine, Histamine, carbimazole, Piperazine, DEC, sulphadiazine, Metronidazole, Chlorpromazine, Imipramine, Diazepam

Course Name: Pharmaceutics - V (Unit Operations - II) (Theory)

Course code: 402

At the end of the course, the student will be able to

CO #	Course Outcomes.
C402.1	Explain the Unit processes of material and energy balances, molecular units, mole fraction, (tie substances), gas laws, mole volume, primary and secondary quantities, equilibrium state, rate process, steady and unsteady states, dimensionless equations, dimensionless formulae, dimensionless groups, different types of graphical representation, mathematical problems. Source of heat, heat transfer, steam and electricity as heating media. Determination of requirement of amount of steam/electrical energy, steam pressure, Boiler capacity, Mathematical problems on heat transfer.
C402.2	Identify the Basic concept of phase equilibria, factors affecting evaporation, evaporators, film evaporators, single effect and multiple effect evaporators, problems on evaporation. Raoult's law, phase diagrams, volatility: simple steam and flash distillations, principles of rectification, McCabe Thiele method for calculations of number of theoretical plates, Azeotropic and extractive distillation, Mathematical problems on distillation.

C402.3	Examine the Moisture content and mechanism of drying, Explain the rate of drying and time of drying calculations: classification and types of dryers, dryers used in pharmaceutical industries and special drying methods. Explain the Mathematical problems on drying. Explain the Theory of mixing, solid - solid, solid -liquid and liquid -liquid mixing equipments.
C402.4	Explain the Definition, objectives of size reduction, factors affecting size reduction, laws governing energy and power requirements of a mill, types of mills including ball mill, hammer mill, fluid energy mill etc.
C402.5	Discuss the Process variables, temperature, pressure, flow, level and vacuum and their measurements. Elements of automatic process control and introduction to automatic process control systems. Elements of computer aided manufacturing (CAM).Reactors and fundamentals of reactors design for chemical reactions.

Course Name: Pharmaceutical Microbiology
Course Code: C403
At the end of the course, the student will be able to

CO #	Course Outcomes.
C403.1	Outline the Prokaryotes and Eukaryotes, microbes and their taxonomy of bacteria, ricketssiae, spirochetes and viruses.
C403.2	Choose the bacterial cell, nutrition, cultivation, isolation of bacteria, actinomycetes, fungi, viruses, Stains and types of staining techniques, electron microscopy
C403.3	Classify disinfectants and Factors influencing disinfection, Sterilization, different methods, validation of sterilization methods & equipments. Sterility testing of all Pharmaceutical products, Microbial genetics and variation
C403.4	Explain the Immunity, Primary and secondary defensive mechanism of body, microbial resistance, interferon
C403.5	Discuss about the Microbial assays of antibiotics, vitamins & amino acids.

Course Name: Pathophysiology of common diseases
Course Code: C405

At the end of the course, the student will be able to

CO#	Course Outcomes
C405.1	Explain the Morphology of Reversible cell injury
C405.2	Organise the process of repair
C405.3	Compare and classify the difference between acute and chronic renal failure
C405.4	Explain tuberculosis and justify its pathophysiological management
C405.5	Elaborate the Pathogenesis of Cancer

Course Name: Pharmaceutical Chemistry-III (Organic Chemistry-II) (Practical)

Course Code: C406

At the end of the course, the student will be able to

CO#	Course Outcomes
C406.1	Outline the Synthetic tract and method of laboratory preparation techniques for heterocyclic compounds of *5,5* - diphenylhydantion, 2 - methyl - 4 benzylidene - 5 oxazolone ,.
C406.2	Lists the Synthetic tract and method of laboratory preparation techniques for heterocyclic compounds Of 2 - phenyl 4 - benzylidene - 5 oxazolone . 2,3 - diphenylquinoxaline
C406.3	Outline the Synthetic tract and method of laboratory preparation techniques for heterocyclic compounds Of benzimidazole, benztriazole, 2-methyl benzimidazole.

Course Name: Pharmaceutics - V (Unit Operations - II) (Practical)

Course code: 407

At the end of the course, the student will be able to

CO #	Course Outcomes.
C407.1	Determination of Particle size separation and analysis by Sieve Method. Determination of Grinding Efficiency
C407.2	Determination of Size reduction of chalk powder using Ball Mill. Determination of Effect of mixers on globule size of castor oil emulsion.
C407.3	Determination of Mixing index of solids in liquids. Determination of Experiment to illustrate solid - solid mixing.
C407.4	Determination of rate of evaporation. Determination of influence of various factors over evaporation.
C407.5	Determination of Particle size distribution using sedimentation method.

Course Name: Pharmaceutical Microbiology (Practical)

Course Code: C408

At the end of the course, the student will be able to

CO #	Course Outcomes.
C408.1	Outline the sterilization of nutrient agar simple staining method, Gram's staining method, Acid fast staining method.
C408.2	Experiment with the Isolation of pure culture of micro-organisms
C408.3	Analyze the of actinomycetes from soil and motility by hanging drop technique
C408.4	Explain the concepts of Microbiological assay of antibiotics by cup plate method and other method.
C408.5	Discuss about the Sterility testing of pharmaceuticals and disinfectant by rideal walker co-efficient method.

Course Name: Pharmacognosy - III (Practical)

Course Code: C409

At the end of the course, the student will be able to

CO #	Course Outcomes
C409.1	Identify the morphological characters of various medicinally important glycoside containing drugs.
C409.2	Identify the microscopical characters of few medicinally important glycoside containing drugs
C409.3	Analyze the powder characters of few medicinally significant glycosidic drugs.
C409.4	Standardize/Evaluate the various ayurvedic liquid dosage formulations such as asavas, arishtas by standard protocols (WHO guidelines/Ayurvedic Formulary).
C409.5	Standardize/Evaluate the various ayurvedic solid and semi-solid dosage formulations such as churna, lehya, tailaetc by standard protocols (WHO guidelines/Ayurvedic Formulary).

Course Name: Pharmaceutical Chemistry -IV (Biochemistry) (Theory)

Course Code: C501

At the end of the course, the student will be able to:

CO #	Course Outcomes
C501.1	Illustrate the role of different cell organelles and demonstrate the biomedical importance of different biomolecules like carbohydrates, proteins, haemoglobin, enzymes and nucleic acids,
CO501.2	Compare and contrast the different metabolic pathways of carbohydrates and explain the role of enzymes and cofactors the metabolism of carbohydrates
C501.3	Interpret the metabolic pathways of lipids and justify their role in various disease conditions like hyperlipidemia, atheroscelorsis and other lipid storage diseases
C501.4	Compare the different pathways in protein and amino acid metabolism, nucleic acid biosynthesis and their degradation and categorize their role in various diseases like jaundice, gout and porphyria
C501.5	Explain about importance of genetic engineering, replication of DNA, DNA repair, mutation and its role in carcinogenesis;

Course Name: Pharmaceutics – VI (Pharmaceutical Technology -I) -Theory

Course Code: C502

At the end of the course, the student will be able to

CO #	Course Outcomes
C502.1	Classify different types of additives used in liquid dosage form and explain each type with examples. Demonstrate the manufacturing packaging materials and for official tests in Pharmacopoeial preparation of suspensions and emulsions.
C502.2	Make use of studying in variety of semisolid dosage forms and ophthalmic preparation, their formulation, various parameters, packaging requirements and identify factors influencing penetration in selection of semisolid bases.
C502.3	Classify types of extraction methods for different galenicals. List out the general formulation procedures for propellants with their manufacturing, packaging methods and applications.
C502.4	Determine and evaluate formulation and packaging preparation of cosmetic products. Explain the fundamentals in cosmetic science and examine the structures and function of skin and hair.
C502.5	Discuss about the production of Radioactive Pharmaceuticals, radioactive dosimetry and isotopic tagging methods. Elaborate about the radiation hazards, specifications and prevention methods which should be followed in radioactive laboratory.

Course Name: Pharmacology-I (Theory)

Course Code: C503

At the end of the course, the student will be able to

CO #	Course Outcomes
C503.1	Explain in detail about the general pharmacology.
C503.2	Outline the Neurohumoral transmission of the central nervous system and peripheral nervous system
C503.3	Classify the receptors in to types and explain about the stimulants.
C503.4	Distinguish the difference between the neuromuscular blocking agents.
C503.5	Identify the central nervous system drugs for a experimental animals

Course Name: Pharmacognosy IV (Theory)

Course Code: C504

At the end of the course, the student will be able to

CO #	Course Outcomes.
C504.1	Develop knowledge on source, cultivation and collection, chemical constituents, diagnostic macroscopic, microscopic features, adulterants, substitutes, specific chemical test and uses of alkaloid containing crude drugs.
C504.2	Understand the source, chemistry, isolation, therapeutic uses, commercial products, mechanism of action of plant products and pharmacognostical study of plant bitters and plant sweeteners.
C504.3	Explain the biological sources, preparation, identification tests and uses of the following enzymes: Diastase, Papain, Pepsin, Trypsin, Pancreatin.
C504.4	Understand general techniques of biosynthetic studies and basic metabolic pathways and biogenesis of secondary metabolites of pharmaceutical important such as flavonoids, glycosides, and alkaloids.
C505.5	Analyze herbal drugs using different chromatographic techniques such as TLC, PC, HPLC, HPTLC, GC etc.

Course Name: Pharmaceutical Chemistry -V (Medicinal chemistry-1) (Theory)

Course Code: C505

At the end of the course, the student will be able to:

CO #	Course out comes
C5O5.1	Define physiochemical properties and its biological activity of drugs, classify drug receptors, and explain the drug receptor interaction including transduction mechanisms. Illustrate the different drug metabolism pathways and explain prodrugs with its concepts.
C5O5.2	Explain the concepts of QSAR and illustrate the various parameters involved in the designing of drugs. Explain about Computer aided drug designing and molecular modeling
C505.3	Classify the medicinal compounds and outline the synthetic route for important medicinal compounds acting on CNS along with the mechanism of action and Explain the neurotransmitters and receptors involved in CNS
C505.4	Discuss the concept of drugs acting on autonomic nervous system, explain the receptors involved in it Outline the synthesis of some of important medicinal compounds and structure activity relationship of respective classes
C5O5.5	Define and classify local anesthetics discuss narcotic and non narcotic drugs compare and contrast them explain its SAR

Course Name: Pharmaceutical Chemistry -IV (Biochemistry) (Practicals)

Course Code: C506

At the end of the course, the student will be able to:

CO #	Course Outcomes
CO506.1	Outline the reactions of carbohydrates, Colour reaction of proteins. Identify the normal and abnormal constituents of Urine
CO506.2	Experiment with the analysis of milk and estimate the glucose and urea in blood
CO506.3	Experiment with the identification of amino acids by using paper chromatography
CO506.4	Estimate the amount of creatinine, bilirubin and calcium in srum
CO506.5	Estimate the titrable acidity and ammonia in urine

Course Name: Pharmaceutics – VI (Pharmaceutical Technology -I) - Practical

Course Code: C507

At the end of the course, the student will be able to

CO #	Course Outcomes
C507.1	Demonstrate the formulation of suspension and emulsion and perform the experiment with their stability parameters.
C507.2	Develop the eye drops, eye ointment formulation and perform the sterility test.
C507.3	Develop cold cream, vanishing cream, shaving cream formulation. Develop and evaluate the ointment and creams.
C507.4	Formulate the preparation of tooth powder and face powder.
C507.5	Formulate the sunscreen lotion, tooth paste and nail colour.

Course Name: Pharmacognosy IV (Practical)

Course Code: C508

At the end of the course, the student will be able to

CO #	Course Outcomes.
C508.1	Identify the morphological characters of crude drugs containing alkaloids such as tropane, indole, quinoline, purine steroidal and alkaloidal amine.
C508.2	Evaluate the crude drugs containing alkaloids by diagnostic microscopical characters - Transverse section.
C508.3	Analyze the crude drugs containing alkaloids by diagnostic powder microscopical characters.
C508.4	Test the presence of alkaloids, flavonoids and enzymes in the powdered sample of crude drugs using identifying chemical test.
C508.5	Analyze and interpret the tropane, quinoline and purine alkaloids present in the crude drugs applying Thin Layer Chromatography (TLC).

Course Name: Pharmaceutical Chemistry -V (Medicinal chemistry-1) (Practical)

Course Code: C509

At the end of the course, the student will be able to

CO #	Course out comes
C5O9.1	Plan the synthetic procedures of some important medicinal compounds
C5O9.2	Explain the principle , procedure to estimate the actual amount of drug present in given powder/ Formulation
C509.3	Interpret the impurity profile of official listed drugs by performing Monograph Analysis
C509.4	Define partition coefficient and illustrate the determination of partition coefficient using different solvent system

Course Name: Pharmaceutical Chemistry -VI (Medicinal Chemistry -II) (Theory)

Course Code: C601

At the end of the course, the student will be able to:

CO #	Course Outcomes
C601.1	Illustrate about different eicosanoids, their biochemical functions and the synthesis, mode of action of the antagonists
C601.2	Outline about different Cardiovascular diseases and explain about different classes of drugs acting on cardiovascular system, their mechanism of action, Structure activity relationship, synthesis and their uses
C601.3	Explain about the hemopoietic system, endocrine disorders and classify on various drugs acting on hemopoietic system, thyroid dysfunctions and diabetes mellitus
C601.4	Compare and contrast the different classes of Anti-microbial drugs, Antineoplastic agents & Immunosuppressive agents and demonstrate their role in treating various infectious and non-infectious diseases
C601.5	Categorize on the Drugs acting on uterine motility and discuss about the role of different diagnostic agents

Course Name : Bio pharmaceutics & Pharmacokinetics (Theory)

Course Code : C602

At the end of the course, the student will be able to

CO #	Course outcomes
C602.1	Define Bio pharmaceutics and Pharmacokinetics and their role in formulation development and clinical setting
C602.2	Outline the mechanisms of Passage of drugs across biological barrier
C602.3	Interpret plasma drug concentration measurement by the application of compartment model.
C602.4	Analyse Drug administration by intra-vascular and extra vascular route by Curve fitting regression procedures.
C602.5	Predict the clinical significance of drug bioavailability and bioequivalence as related to drug product safety

Course Name: Pharmacology-II (Theory)

Course Code: C603

At the end of the course, the student will be able to

CO#	Course Outcomes
C603.1	Compare & study about the definition, Classification, Mechanism of Action & Pharmacokinetics Adverse effects, Uses, Dose and route of administration, Precautions contraindications and drug interactions of Pharmacology of drugs acting on Cardiovascular System
C603.2	Classify and distinguish the definition, Mechanism of Action & Pharmacokinetics Adverse effects, Uses, Dose and route of administration, Precautions contraindications and drug interactions of Pharmacology of various drugs acting on Haemopoietic System
C603.3	Illustrate & Summarize the Definition, Classification, Mechanism of Action & Pharmacokinetics Adverse effects, Uses, Dose and route of administration, Precautions contraindications and drug interactions of Pharmacology of drugs acting in Urinary System
C603.4	Define and list the Classification, Mechanism of Action, Pharmacokinetics, Adverse effects & Uses of Autocoids
C603.5	Apply & make use of definition, Classification, Mechanism of Action & Pharmacokinetics Adverse effects, Uses, Dose, Route of administration, Precautions contraindications and drug interactions of Pharmacology of drugs acting on Respiratory System

Course Name: Pharmaceutical Jurisprudence & Ethics

Course Code: C604

At the end of the course, the student will be able to

CO #	Course Outcomes.
C604.1	Outline and summarize the salient features of Pharmaceutical legislations, Drugs and Pharmaceutical industry and Pharmaceutical education.
C604.2	Explain Drug and Cosmetics act and Rules 1945.
C604.3	Make use of objectives, essential features, offences and penalties in detail study of Medicinal and Toilet preparations act, Narcotic Drugs control order. Apply the professional ethics in hospital and clinical pharmacy. Make use of education regulation followed in Pharmacy act and Plan the registration of pharmacist in respective state Pharmacy council.
C604.4	Explain the main provisions of Provisions act, Medicinal Termination of Pregnancy act, States and shops and establishments Act and rules, Insecticides act and rules, AICTE act, patents act and Minimum wages act Support the prevention of cruelty to animals act
CO604.5	Elaborate the various prescription/non prescription products, medical appliances, surgical accessories, diagnostic appliances available in market

Course Name: Therapeutic Drug Monitoring and Bioavailability

Course Code: C605

At the end of the course, the student will be able to

CO #	Course Outcomes.
C605.1	Determine the primary pharmacokinetic parameters for the pharmacokinetic models.
C605.2	Discuss the pharmacokinetic variability of digoxin/aminoglycosides/antiepileptics across different age groups.
C605.3	Estimate creatinine clearance of renal impaired patients with given serum creatinine and discuss the pharmacokinetic variability of drugs for the given patient data.
C605.4	Explain the pharmacokinetic drug interactions with suitable examples.
C605.5	Elaborate on the role of pharmacist in the individualization and optimization of aminoglycosides/ antiepileptics/cardiovascular drug dosage regimen.

Course Name: Pharmaceutical Chemistry -VI (Medicinal Chemistry -II) (Practicals)
Course Code: C606
At the end of the course, the student will be able to:

CO #	Course Outcomes
C606.1	Identify and develop synthetic schemes for some important structural moieties like coumarins
C606.2	Make use of the synthetic schemes that are available for the preparation of various sulpha drugs
C606.3	Select and utilize the synthetic protocols available for the preparation of important diagnostic agents like fluorescein
C606.4	Determine the percentage purity of the important drugs using acid-base, oxidation-reduction, diazotisation and non-aqueous titrimetric methods
C606.5	Interpret the structure of important drugs using IR spectrometry

Course Name : Bio pharmaceutics & Pharmacokinetics (Practical)
Course Code :C607
At the end of the course Students will be able to

CO #	Course outcomes
C607.1	Interpret the plasma concentrations of different formulations
C607.2	Assessment of AUC by trapezoidal rule and determine the plasma concentration time profile on ordinary and semilog graph paper
C607.3	Analyse the dissolution rate studies of marketed paracetamol preparations.
C607.4	Explain the test for different formulations and determine the Pharmacokinetic parameters following Oral and Iv administration.
C607.5	Estimate the absorption rate constant by Method of residuals.

Course Name: Pharmacology-II (Practical)
Course Code: C608
At the end of the course, the student will be able to

CO #	Course Outcomes
C608.1	What is experimental Pharmacology and Name the laboratory animals in experimental pharmacology
C608.2	Demonstrate Techniques involved blood collection, Euthanasia, Different routes of administration of drugs
C608.3	Experiment with chicken ileum preparation and develop Concentration response curve of Acetyl Choline, Histamine & 5 HT
C608.4	Examine the effect of drug Neostigmine & Atropine on concentration response curve of Acetyl Choline & Histamine
C608.5	Analyse the ionotropic and chronotropic effect of drugs of isolated heart and Examine the Drug Tachyphylaxis, Tolerance, Resistance& Addiction with Standard graphs.

Course Name: Therapeutic Drug Monitoring and Bioavailability (Practical)
Course Code: C609
At the end of the course, the student will be able to

CO #	Course Outcomes.
C609.1	Determine AUC (area under the curve) for the given plasma concentration – time data.
C609.2	Estimate the glomerular filtration rate for the given patient data.
C609.3	Design the drug dosage regimen of gentamicin for an anephric patient weighing 74 Kg and 55 year old female patient.
C609.4	Modify phenytoin dosage regimen for a patient who has been recently started on antitubercular drug therapy.
C609.5	Estimate the renal clearance of digoxin for the given patient data.

Course Name: Pharmacognosy V [Chemistry of Natural Products] (Theory)
Course Code: C701
At the end of the course, the student will be able to

CO #	Course Outcomes.
C701.1	Analyze simple molecules of natural origin by chemical and spectral approaches to understand the concept of stereo isomerism taking example of natural products.
C701.2	Develop knowledge on chemistry, biogenesis and pharmacological activity of bioactive secondary metabolites viz. alkaloids (quinine, reserpine, morphine, ephedrine, ergot, vinca and xanthine) and glycosides (digitoxin, sennosides, diosgenin and sarsasapogemin).
C701.3	Explain the chemistry of vitamins, proteins, carbohydrates, hormones, oils, fats and waxes.
C701.4	Outline the chemistry, biogenesis and pharmacological activity of medicinally important monoterpenses, sesquiterpenes, diterpenes, terpenoids , medicinally important lignans and quassianoids.
C701.5	Elaborate the steroidal nomenclature and stereochemistry of androgens and anabolic agents, estrogens, progestational agents, adrenocorticoids, cholesterol, ergosterol, bile acids

Course Name: Pharmaceutics-VIII (Pharmaceutical Technology-II)(Theory)
Course Code: C702
At the end of the course, the student will be able to

CO #	Course Outcomes.
C702.1	Acquire knowledge on capsules.
C702.2	Understand the basic concept of microencapsulation techniques in pharmacy.
C702.3	Acquire knowledge on tablets granulation, formulations and coating process.
C702.4	Categorize different parenteral products and their Preformulation techniques, formulations procedures.
C702.5	Explain novel drug delivery systems and discuss importance of packaging of pharmaceutical products.

Course Name: Pharmacology-III (Theory)
Course Code: C703
At the end of the course, the student will be able to

CO #	Course Outcomes
C703.1	Classify the drugs and summarize the mechanism of action, ADR and therapeutic uses of various drugs on gastrointestinal tract
C703.2	Apply the pharmacology of endocrine system in various hormonal imbalance disorders
C703.3	Categorize the various chemotherapy agents based on structure, mechanism and list the chemotherapy drugs contraindicated in pregnancy and lactation women's
C703.4	Explain the importance of drugs used in treatment of Cancer, tuberculosis, leprosy, fungal Diseases, viral diseases, UTI, STD & immunosuppressive agents
C703.5	Elaborate the symptoms and treatment of various drug poisoning and heavy metal poisoning

Course Name: Pharmaceutical Biotechnology (Theory)

Course Code: C704

At the end of the course, the student will be able to

CO #	Course Outcomes
C704.1	Illustrate the immune system, Classify the immunity, immunological tolerance; Explain the different types of antigen-antibody reactions and their applications. Outline the Hypersensitivity types , Active and passive immunization, vaccines and sera, their preparations standardization and storage.
C704.2	Apply the genetic engineering principles Transformation, conjugation, transduction, protoplast fusion and gene cloning and their applications. Develop the hybridoma for monoclonal antibodies Production . utilize the genetic enginnering for the production of biotechnology products such as activase, Humulin, Humatrope, Hepatitis B
C704.3	Discover of antibiotic from different micro-organisms and Analyze the potential of antibiotic screening. Design of the Fermenter and its parameters. Examine the mutation .classify the factors influencing rate of mutation. Production of fermentation products pencillins, streptomycinstetracyclines and vitamin B12
C704.4	Explain the types of reactions mediate by microorganisms, interpret the biotransformation processes, Determine the selection of organisms to involve in biotransformation process and with special reference to steroids.
C704.5	Develop the different Techniques in immobilization of enzymes; Discuss the factors affecting enzyme kinetics. Elaborate the study of enzymes such as hyaluronidase, pencillinase, streptokinase and streptodornase, amylases and proteases etc. Discuss the immobilization of bacteria and plant cells.

Course Name: Pharmacology – IV(Clinical Pharmacy &Pharmacotherapeutics) (Theory)

Course Code: C705

At the end of the course, the student will be able to

CO #	Course Outcomes
C705.1	Explain the principles of clinical toxicology
C705.2	Identify thecardiovascular, CNS ,respiratorydisordersand their managements
C705.3	Distinguish the differences between acute and chronic renal disease
C705.4	Explain the urinary tract infection and upper respiratory infections
C705.5	Elaborate theneoplastic diseases

Course Name: Pharmacognosy V [Chemistry of Natural Products] (Practical)
Course Code: C706
At the end of the course, the student will be able to

CO #	Course Outcomes.
C706.1	Experiment with the isolation of caffeine, starch and casein from crude drugs and identify using suitable chemical test.
C706.2	Experiment with the isolation of pectin, calcium citrate and lawsone from crude drugs and identify using suitable chemical test.
C706.3	Analyze the glycosides and alkaloids in crude drugs using Thin layer chromatography.
C706.4	Analyze the various amino acids using paper chromatography.
C706.5	Determine the iodine value, saponification value, peroxide value and acid value in fats and oils as per standard procedure.

Course Name: Pharmaceutics-VIII (Pharmaceutical Technology-II)(Practicals)
Course Code: C707
At the end of the course, the student will be able to

CO #	Course Outcomes.
C707.1	Understand the different formulation and evaluation of solid dosage forms.
C707.2	Acquire knowledge on parenterals and different techniques for preparation and evaluations.
C707.3	Categorize in process quality control test for solid dosage forms.
C707.4	Examine in process quality control test for packaging testing, leak test and LAL test.
C707.5	Determine in process quality control test for parenterals.

Course Name: Pharmacology-III (Practical)
Course Code: C708
At the end of the course, the student will be able to

CO #	Course Outcomes
C708.1	Summarize the equipment's, animals and drugs used in experimental pharmacology and Physiological salt solution used in *in vitro* pharmacology.
C708.2	Compare the agonist and antagonist action of muscarinic and histaminic agents acting on isolated chicken ileum preparation
C708.3	Estimate the concentration of unknown sample of acetylcholine and histamine using matching and bracketing bioassay using isolated chicken ileum preparation
C708.4	Estimate the concentration of unknown sample of drugs using multiple point bioassay (3 point and 4 point) using isolated chicken ileum preparation
C708.5	Test the antisecretory and antiulcer activity of drugs using pylorus ligated rats with the help of standard scores of the ulcer

Course Name: Pharmacology – IV(Clinical Pharmacy &Pharmacotherapeutics) (Practical)
Course Code: C709

At the end of the course, the student will be able to

CO #	Course Outcomes
C709.1	Explain the hypertension and congestive cardiac failure
C709.2	Identify the Ischemic heart diseases and their managements
C709.3	Distinguish the differences between TB and Respiratory infections
C709.4	Explain the medical terminologies related to case presentations
C709.5	Examine the biochemical investigations

Course Name: Pharmaceutical Analysis III
Course Code: 801

At the end of the course, the student will be able to

CO #	Course Outcomes
C 801.1	Outline of the Quality Assurance, TQM,GLP, Regulatory control and Organization and personnel responsibilities.
C 801.2	Explain the Validation of Analytical Procedure and Instrument like UV-Visible Spectrophotometer, IR Spectrophotometer, Spectrofluorimeter, HPLC, HPTLC and GC
C 801.3	Explain the Principle, Instrumentation and working procedure of Absorption spectroscopy like NMR, Mass Spectroscopy and Atomic absorption spectroscopy.
C801.4	Discuss the Principle, Instrumentation and working procedure of Atomic emission spectroscopy like Flame photometry.
C801.5	Study the theoretical and Practical aspects of X-ray Diffraction and Radio immuno assay technique.

Course Name: Pharmaceutics-IX (Dosage form Design) (Theory)
Course Code: C803

At the end of the course, the student will be able to

CO #	Course Outcomes
C803.1	Outline the importance of Preformulation studies and prodrugs related to stability of pharmaceutical preparations
C803.2	Develop and design the validation methods for preparation of pharmaceutical products.
C803.3	Analyse the stability of pharmaceutical products and test the stability using standard protocol
C803.4	Explain and assess the concepts Good manufacturing practice and maintaining the manufacturing records
C803.5	Design development production and evaluation of controlled release formulation

Course Name: Pharmaceutical Industrial Management
Course Code: C804
At the end of the course, the student will be able to

CO #	Course Outcomes
C804.1	Explain the concept of administrati ve management Ilustrate the principles of management Show the communication skills and study motivation, decision making, leadership and innovation and creativity for pharmacists.
C804.2	Apply the principles of accountancy and economics and make use in preparation of ledgers, cheques, promissory notes, bills Plan the procedure for exporting and importing goods. Utilize the principles of insurance and plan for different policies.
C804.3	Analyze the functions involved in buying, selling storage Categorize the channels of distribution and take part in training given to pharmacist
C804.4	Assess the different methods of recruitment and training given to personnels. Evaluate the compensation given to pharmacist
C804.5	Discuss about the procedure for purchase and elaborate the inventory control methods. Predict the performance evaluation technique and process flow methods.

Course Name: Pharmaceutics –X(Hospital Pharmacy) Theory
Course Code: C8O5
At the end of the course, the students will able to

CO #	Course Outcomes
C805.1	Explain the structure of organization and role of hospital pharmacist in budget preparation, hospital formulary.
C805.2	Organize the drug store and inventory control of the store
C805.3	Distinguish the dispensing of drugs to outpatients and inpatients
C805.4	Develop the skills in sterilization of materials and collection, storage of human blood.
C805.5	Improve the knowledge in surgical products and processing of drug information queries.

Course Name: Pharmaceutical Analysis III
Course Code: C8O6
At the end of the course, the students will able to

CO #	Course Outcomes
C 801.1	Demonstrate the working procedure of UV -Visible Spectroscopy and explain the study of λmax
C 801.2	Experiment with UV -Visible Spectroscopy and determine the Percentage purity of Drugs and Formulation.
C 801.3	Measure the amount and percentage purity of Drug and formulation by using Coloring agent
C801.4	Utilize the Flame photometry equipment to determine the concentration of metals
C801.5	Discuss the interpretation of Mass spectrum with the support of Mass spectrum

Course Name: Pharmaceutics-IX (Dosage form Design) (Practical)
Course Code: C808
At the end of the course, the student will be able to

CO #	Course Outcomes
C808.1	Compare the bioequivalence of some marketed products, Compare the different binding agent used in the preparation tablet. Demonstrate the Powder characteristics in pre-formulation
C808.2	Identify the minimum concentration of preservatives in the preparation of eye drops, ear drops.
C808.3	Test for accelerated stability studies and prediction of expiration dates shelf life for tablets, capsules and parenteral. Analyse the accelerated stability studies of some marketed preparations - tablets and suspensions
C808.4	Importance of preparation of master formula cards for tablet manufacturing and Maintenance of manufacturing records.
C808.5	Formulate Develop and evaluate the controlled release formulations.

3.1.2. CO-PO matrices of courses selected in 3.1.1 (four matrices to be mentioned; one per semester from 1stto 8thsemester; atleast one per year) (05)

Table 3.1.2. CO-PO matrices of courses selected in 3.1.1.
Note: Correlation levels 1, 2 or 3 as defined below:
Course name: Pharmaceutical Analysis-I
Course code: C101

PO	PO 1 (K-3)	PO 2 (K-4)	PO 3 (K-3)	PO 4 (K-3)	PO 5 (K-3)	PO 6 (K-3)	PO 7 (K-2)	PO 8 (K-3)	PO 9 (K-4)	PO10 (K-6)	PO11 (K-2)	PO12 (K-3)
C101.1	2	2	1	2	2	2	3	2	1	0	3	3
C101.2	3	3	2	8	3	3	2	3	2	0	2	3
C101.3	1	1	2	1	1	1	1	1	2	2	0	1
C101.4	1	1	2	1	1	1	1	1	2	2	0	1
C101.5	0	0	1	0	0	0	0	0	1	3	0	0
Average	1.4	1.4	1.6	1.4	1.4	1.4	1.4	1.4	1.6	1.4	1	1.6

Course name: Pharmacognosy – I (Theory)
Course code: C102

PO	PO1 (K-3)	PO2 (K-3)	PO3 (K-4)	PO4 (K-3)	PO5 (K-3)	PO6 (K-3)	PO7 (K-2)	PO8 (K-3)	PO9 (K-4)	PO10 (K-6)	PO11 (K-2)	PO12 (K-3)
C102.1	2	2	1	2	2	2	3	2	1	0	3	2
C102.2	2	2	3	2	2	2	1	2	3	1	1	2
C102. 3	2	2	3	2	2	2	1	2	3	1	1	2
C102.4	0	0	1	0	0	0	0	0	1	3	0	0
C102.5	0	0	1	0	0	0	0	0	1	3	0	0
Average	1.2	1.2	1.8	1.2	1.2	1.2	1.0	1.2	1.8	1.6	1.0	1.2

Course name: Pharmaceutics – I (physical Pharmacy – I) (Theory)

Course code: C103

PO	PO 1 (K-3)	PO 2 (K-3)	PO 3 (K-4)	PO 4 (K-3)	PO 5 (K-3)	PO 6 (K-3)	PO 7 (K-2)	PO 8 (K-3)	PO 9 (K-4)	PO10 (K-6)	PO11 (K-2)	PO12 (K-3)
C103.1	2	2	1	2	2	2	3	2	1	0	3	2
C103.2	3	3	2	3	3	3	2	3	2	0	2	3
C103.3	2	2	3	2	2	2	1	2	3	1	1	2
C103.4	1	1	2	1	1	1	0	1	2	2	0	1
C103.5	2	2	3	2	2	2	1	2	3	1	1	2
Average	2.4	2.4	2.2	2.4	2.4	2.4	1.4	2.4	2.2	0.8	1.4	2.4

Course Name: Basic Electronics and Computer Applications

Course code: C104

PO	PO 1 (K-3)	PO 2 (K-3)	PO 3 (K-4)	PO 4 (K-3)	PO 5 (K-3)	PO 6 (K-3)	PO 7 (K-2)	PO 8 (K-3)	PO 9 (K-4)	PO10 (K-6)	PO11 (K-2)	PO12 (K-3)
C104.1	1	1	0	1	1	1	2	1	0	0	2	1
C104.2	2	2	1	2	0	2	3	2	1	0	3	2
C104.3	3	3	2	3	3	3	2	3	2	0	2	3
C104.4	2	2	3	2	2	2	1	2	3	1	1	2
C104.5	0	0	1	0	0	0	0	0	1	3	0	0
Average	1.6	1.6	1.4	1.6	1.2	1.6	1 .6	1.6	1.4	0.8	1.6	1.6

Course Name: Remedial Mathematics

Course Code: C105

PO	PO 1 (K-3)	PO 2 (K-3)	PO 3 (K-4)	PO 4 (K-3)	PO 5 (K-3)	PO 6 (K-3)	PO 7 (K-2)	PO 8 (K-3)	PO 9 (K-4)	PO10 (K-6)	PO11 (K-2)	PO12 (K-3)
C105.1	1	1	0	1	1	1	2	1	0	0	2	1
C105.2	2	2	1	2	2	2	3	2	1	0	3	2
C105.3	2	2	1	2	2	2	3	2	1	0	3	2
C105.4	2	2	1	2	2	2	3	2	1	0	3	2
C105.5	2	2	1	2	2	2	3	2	1	0	3	2
Average	1.8	1.8	0.8	1.8	1.8	1.8	2.8	1.8	0.8	0	2.8	1.8

Course Name: Remedial Biology

Course Code: C106

PO	PO 1 (K-3)	PO 2 (K-3)	PO 3 (K-4)	PO 4 (K-3)	PO 5 (K-3)	PO 6 (K-3)	PO 7 (K-2)	PO 8 (K-3)	PO 9 (K-4)	PO10 (K-6)	PO11 (K-2)	PO12 (K-3)
C106.1	1	1	0	1	1	1	3	1	0	0	2	1
C106.2	2	2	1	2	2	2	3	2	1	0	3	2
C106.3	3	3	2	3	3	3	0	3	2	0	2	3
C106.4	2	2	1	2	2	2	3	2	1	0	3	2
C106.5	3	3	2	3	3	3	0	3	2	0	2	3
Average	2.2	2.2	1.2	2.2	2.2	2.2	1.8	2.2	1.2	0	2.4	2.2

Course Name: Environmental Sciences (Theory)

Course Code: C107

PO	PO 1 (K-3)	PO 2 (K-3)	PO 3 (K-4)	PO 4 (K-3)	PO 5 (K-3)	PO 6 (K-3)	PO 7 (K-2)	PO 8 (K-3)	PO 9 (K-4)	PO10 (K-6)	PO11 (K-2)	PO12 (K-3)
C107.1	1	1	0	1	1	1	2	1	0	0	2	1
C107.2	2	2	1	2	0	2	3	2	1	0	3	2
C107.3	3	3	2	3	3	3	2	3	2	0	2	3
C107.4	2	2	3	2	2	2	1	2	3	1	1	2
C107.5	0	0	1	0	0	0	0	0	1	3	0	0
Average	1.6	1.6	1.4	1.6	1.2	1.6	1 .6	1.6	1.4	0.8	1.6	1.6

Course Name: Pharmaceutical Analysis

Course Code: C108

PO	PO 1 (K-3)	PO 2 (K-4)	PO 3 (K-3)	PO 4 (K-3)	PO 5 (K-3)	PO 6 (K-3)	PO 7 (K-2)	PO 8 (K-3)	PO 9 (K-4)	PO10 (K-6)	PO11 (K-2)	PO12 (K-3)
C108.1	2	2	1	2	2	2	3	2	1	0	3	2
C108.2	3	3	2	3	3	3	2	3	2	0	2	3
C108.3	0	0	1	0	0	0	0	0	1	3	0	0
C108.4	3	3	2	3	3	3	2	3	2	0	2	3
C108.5	1	1	2	1	1	1	0	1	2	2	0	1
Average	1.8	1.8	1.6	1.8	1.8	1.8	1.4	1.8	1.6	1	1.4	1.8

Course name: Pharmacognosy – I (Practical)
Course code: C109

PO	PO 1 (K-3)	PO 2 (K-3)	PO 3 (K-4)	PO 4 (K-3)	PO 5 (K-3)	PO 6 (K-3)	PO 7 (K-2)	PO 8 (K-3)	PO 9 (K-4)	PO10 (K-6)	PO11 (K-2)	PO12 (K-3)
C109.1	3	3	2	3	3	3	2	3	2	0	2	3
C109.2	2	2	3	2	2	2	1	2	3	1	1	2
C109.3	2	2	3	2	2	2	1	2	3	1	1	2
C109.4	0	0	1	0	0	0	0	0	1	3	0	0
C109.5	0	0	1	0	0	0	0	0	1	3	0	0
Average	1.4	1.4	2	1.4	1.4	1.4	0.8	1.4	2	1.6	0.8	1.4

Course name: Pharmaceutics – I (physical Pharmacy – I)

Course code: C110

PO	PO 1 (K-3)	PO 2 (K-3)	PO 3 (K-4)	PO 4 (K-3)	PO 5 (K-3)	PO 6 (K-3)	PO 7 (K-2)	PO 8 (K-3)	PO 9 (K-4)	PO10 (K-6)	PO11 (K-2)	PO12 (K-3)
C110.1	1	1	0	1	1	1	2	1	0	0	2	1
C110.2	1	1	2	1	1	1	0	1	2	2	0	1
C110.3	2	2	3	2	2	2	1	2	3	1	1	2
C110.4	2	2	3	2	2	2	1	2	3	1	1	2
C110.5	1	1	2	1	1	1	0	1	2	2	0	1
Average	1.4	1.4	2	1.4	1.4	1.4	0.8	1.4	2	1.2	0.8	1.4

Course name: Basic electronics and computer science
Course code: C111

PO	PO 1 (K-3)	PO 2 (K-3)	PO 3 (K-4)	PO 4 (K-3)	PO 5 (K-3)	PO 6 (K-3)	PO 7 (K-2)	PO 8 (K-3)	PO 9 (K-4)	PO10 (K-6)	PO11 (K-2)	PO12 (K-3)
C111.1	1	1	0	1	1	1	2	1	0	0	2	1
C111.2	2	2	1	2	0	2	3	2	1	0	3	2
C111.3	3	3	2	3	3	3	2	3	2	0	2	3
C111.4	2	2	3	2	2	2	1	2	3	1	1	2
C111.5	0	0	1	0	0	0	0	0	1	3	0	0
Average	1.6	1.6	1.4	1.6	1.2	1.6	1 .6	1.6	1.4	0.8	1.6	1.6

Course Name: Remedial Biology (Practical)

Course Code: C112

PO	PO 1 (K-3)	PO 2 (K-3)	PO 3 (K-4)	PO 4 (K-3)	PO 5 (K-3)	PO 6 (K-3)	PO 7 (K-2)	PO 8 (K-3)	PO 9 (K-4)	PO10 (K-6)	PO11 (K-2)	PO12 (K-3)
C112.1	3	3	2	3	3	3	0	3	2	0	2	3
C112.2	2	2	1	2	2	2	3	2	1	0	3	2
C112.3	0	0	3	0	0	0	0	0	3	1	0	0
C112.4	0	0	3	0	0	0	0	0	3	1	0	0
C112.5	0	0	0	0	0	0	0	0	3	3	0	0
Average	1.0	1.0	1.8	1.0	1.0	1.8	0.6	1.0	2.6	1.0	1.0	1.0

Course name: Pharmaceutics – II (Physical Pharmacy – II) (Theory)

Course code: C201

PO	PO 1 (K-3)	PO 2 (K-3)	PO 3 (K-4)	PO 4 (K-3)	PO 5 (K-3)	PO 6 (K-3)	PO 7 (K-2)	PO 8 (K-3)	PO 9 (K-4)	PO10 (K-6)	PO11 (K-2)	PO12 (K-3)
C201.1	2	2	3	2	2	2	1	2	3	1	1	2
C201.2	3	3	2	3	3	3	2	3	2	0	2	3
C201.3	1	1	2	1	1	1	0	1	2	2	0	1
C201.4	1	1	2	1	1	1	0	1	2	2	0	1
C201.5	1	1	2	1	1	1	0	1	2	3	0	1
Average	1.6	1.6	2.2	1.6	1.6	1.6	0.6	1.6	2.2	1.4	0.6	1.6

Course Name: Pharmaceutical Chemistry-I (Inorganic Chemistry) (Theory)

Course Code: C202

PO	PO 1 (K-3)	PO 2 (K-3)	PO 3 (K-4)	PO 4 (K-3)	PO 5 (K-3)	PO 6 (K-3)	PO 7 (K-2)	PO 8 (K-3)	PO 9 (K-4)	PO10 (K-6)	PO11 (K-2)	PO12 (K-3)
C202.1	2	2	1	2	2	2	3	2	1	0	3	2
C202.2	1	1	2	1	1	1	0	1	2	2	0	1
C202.3	0	0	1	0	0	0	0	0	1	3	0	0
C202.4	0	0	1	0	0	0	0	0	1	3	0	0
C202.5	0	0	1	0	0	0	0	0	1	3	0	0
Average	0.6	0.6	1.2	0.6	0.6	0.6	0.6	0.6	1.2	2.2	0.6	0.6

Course Name: Anatomy Physiology & Health Education-I (Theory)

Course Code: C203

PO	PO 1 (K-3)	PO 2 (K-4)	PO 3 (K-3)	PO 4 (K-3)	PO 5 (K-3)	PO 6 (K-3)	PO 7 (K-2)	PO 8 (K-3)	PO 9 (K-4)	PO10 (K-6)	PO11 (K-2)	PO12 (K-3)
C203.1	3	2	3	3	3	3	2	3	2	0	2	3
C203.2	2	1	2	2	2	2	3	2	1	0	3	2
C203.3	2	1	2	2	2	2	3	2	1	0	3	2
C203.4	2	3	2	2	2	2	1	2	3	1	1	1
C203.5	3	2	3	3	3	3	2	3	2	0	2	3
Average	2.4	1.8	2.4	2.4	2.4	2.4	2.2	2.4	1.8	0.2	2.2	2.2

Course Name: Pharmaceutical Analysis (Theory)

Course Code: C204

PO	PO 1 (K-3)	PO 2 (K-3)	PO 3 (K-4)	PO 4 (K-3)	PO 5 (K-3)	PO 6 (K-3)	PO 7 (K-2)	PO 8 (K-3)	PO 9 (K-4)	PO10 (K-6)	PO11 (K-2)	PO12 (K-3)
C204.1	2	2	1	2	2	2	3	2	1	0	3	2
C204.2	3	3	2	3	3	3	2	3	2	0	2	3
C204.3	0	0	1	0	0	0	0	0	1	3	0	0
C204.4	0	0	1	0	0	0	0	0	1	3	0	0
C204.5	0	0	1	0	0	0	0	0	1	3	0	0
Average	1	1	1.2	1	1	1	1	1	1.2	1.8	1	1

Course name: Mathematics and statistics

Course code: C205

PO	PO1(K-3)	PO2 (K-3)	PO3 (K-4)	PO4 (K-3)	PO5 (K-3)	PO6 (K-3)	PO7 (K-2)	PO8 (K-3)	PO9 (K-4)	PO10(K-6)	PO11(K-2)	PO12(K-3)
C205.1	1	1	0	1	1	1	2	1	0	0	2	1
C205.2	1	1	2	1	1	1	0	1	2	2	0	1
C205.3	1	1	2	1	1	1	0	1	2	2	0	1
C205.4	1	1	2	1	1	1	0	1	2	2	0	1
C205.5	1	1	2	1	1	1	0	1	2	2	0	1
Average	1	1	1.6	1	1	1	0.4	1	1.6	1.6	0.4	1

Course name: Pharmaceutics – II (physical Pharmacy – II) (Practical)

Course code: C206

PO	PO 1 (K-3)	PO 2 (K-3)	PO 3 (K-4)	PO 4 (K-3)	PO 5 (K-3)	PO 6 (K-3)	PO 7 (K-2)	PO 8 (K-3)	PO 9 (K-4)	PO1 0 (K-6)	PO1 1 (K-2)	PO1 2 (K-3)
C206.1	1	1	0	1	1	1	2	1	0	0	2	1
C206.2	1	1	2	1	1	1	0	1	2	2	0	1
C206.3	1	1	2	1	1	1	0	1	2	2	0	1
C206.4	1	1	2	1	1	1	0	1	2	2	0	1
C206.5	1	1	2	1	1	1	0	1	2	2	0	1
Average	1	1	1.6	1	1	1	0.4	1	1.6	1.6	0.4	1

Course Name: Pharmaceutical Chemistry-I (Inorganic Chemistry) (Practical)

Course Code: C207

PO	PO 1 (K-3)	PO 2 (K-3)	PO 3 (K-4)	PO 4 (K-3)	PO 5 (K-3)	PO 6 (K-3)	PO 7 (K-2)	PO 8 (K-3)	PO 9 (K-4)	PO10 (K-6)	PO11 (K-2)	PO12 (K-3)
C207.1	3	3	2	3	3	3	2	3	2	0	2	3
C207.2	0	0	1	0	0	0	0	0	1	3	0	0
C207.3	0	0	1	0	0	0	0	0	1	3	0	0
C207.4	1	1	2	1	1	1	0	1	2	2	0	1
C207.5	1	1	2	1	1	1	0	1	2	2	0	1
Average	1	1	1.6	1	1	1	0.4	1	1.6	2	0.4	1

Course Name: Anatomy Physiology & Health Education-I (Practical)

Course Code: C208

PO	PO 1 (K-3)	PO 2 (K-4)	PO 3 (K-3)	PO 4 (K-3)	PO 5 (K-3)	PO 6 (K-3)	PO 7 (K-2)	PO 8 (K-3)	PO 9 (K-4)	PO10 (K-6)	PO11 (K-2)	PO12 (K-3)
C208.1	3	2	3	3	3	3	2	3	2	0	2	3
C208.2	1	2	1	1	1	1	1	1	2	2	0	1
C208.3	1	2	1	1	1	1	1	1	2	2	0	1
C208.4	1	2	1	1	1	1	1	1	2	2	0	1
C208.5	3	2	3	3	3	3	2	3	2	0	2	3
Average	1.8	2	1.8	1.8	1.8	1.8	1.4	1.8	2	1.2	0.8	1.8

Course Name: Pharmaceutical Analysis (Practical)

Course Code: C209

PO	PO 1 (K-3)	PO 2 (K-3)	PO 3 (K-4)	PO 4 (K-3)	PO 5 (K-3)	PO 6 (K-3)	PO 7 (K-2)	PO 8 (K-3)	PO 9 (K-4)	PO10 (K-6)	PO11 (K-2)	PO12 (K-3)
C209.1	1	1	2	1	1	1	0	1	2	2	0	1
C209.2	1	1	2	1	1	1	0	1	2	2	0	1
C209.3	3	3	2	3	3	3	2	3	2	0	2	3
C209.4	1	1	2	1	1	1	0	1	2	2	0	1
C209.5	3	3	2	3	3	3	2	3	2	0	2	3
Average	1.8	1.8	2	1.8	1.8	1.8	0.8	1.8	2	1.2	0.8	1.8

Course Name: Pharmaceutical Chemistry II

Course Code: C 301

PO	PO 1 (K-3)	PO 2 (K-3)	PO 3 (K-4)	PO 4 (K-3)	PO 5 (K-3)	PO 6 (K-3)	PO 7 (K-2)	PO 8 (K-3)	PO 9 (K-4)	PO10 (K-6)	PO11 (K-2)	PO12 (K-3)
C301.1	3	3	2	3	3	3	2	3	2	0	2	3
C301.2	2	2	1	2	2	2	3	2	1	0	3	2
C301.3	0	0	1	0	0	0	0	0	1	3	0	0
C301.4	0	0	1	0	0	0	0	0	1	3	0	0
C301.5	1	1	2	1	1	1	0	1	2	2	0	1
Average	1.2	1.2	1.4	1.2	1.2	1.2	1	1.2	1.4	1.6	1	1.2

Course Name: Pharmaceutics-III Unit operation

Course Code: C 302

PO	PO1 (K-3)	PO2 (K-3)	PO3 (K-4)	PO4 (K-3)	PO5 (K-3)	PO6 (K-3)	PO7 (K-2)	PO8 (K-3)	PO9 (K-4)	PO10 (K-6)	PO11 (K-2)	PO12 (K-3)
C302.1	2	2	1	2	2	2	3	2	1	0	3	2
C302 .2	3	3	2	3	3	3	2	3	2	0	2	3
C302 .3	2	2	3	2	2	2	1	2	3	1	1	2
C302 .4	1	1	2	1	1	1	0	1	2	2	0	1
Average	2	2	2	2	2	2	1.5	2	2	0.75	1.5	2

Course Name: Pharmacognosy-II (Theory)

Course Code: C303

PO	PO 1 (K-3)	PO 2 (K-4)	PO 3 (K-3)	PO 4 (K-3)	PO 5 (K-3)	PO 6 (K-3)	PO 7 (K-2)	PO 8 (K-3)	PO 9 (K-4)	PO1 0 (K-6)	PO1 1 (K-2)	PO1 2 (K-3)
C303.1	2	1	2	2	2	2	3	2	1	0	3	2
C303.2	2	1	2	2	2	2	3	2	1	0	3	2
C303.3	2	1	2	2	2	2	3	2	1	0	3	2
C303.4	3	2	3	3	3	3	2	3	2	0	2	3
C303.5	3	2	3	3	3	3	2	3	2	0	2	3
Average	2.4	1.4	2.4	2.4	2.4	2.4	2.6	2.4	1.4	0	2.6	2.4

Course Name: Anatomy, Physiology & Health Education-II (Theory)

Course Code: C304

PO	PO 1 (K-3)	PO 2 (K-3)	PO 3 (K-4)	PO 4 (K-3)	PO 5 (K-3)	PO 6 (K-3)	PO 7 (K-2)	PO 8 (K-3)	PO 9 (K-4)	PO10 (K-6)	PO11 (K-2)	PO12 (K-3)
C304.1	2	2	1	2	2	2	3	2	1	0	3	2
C304.2	1	1	2	1	1	1	0	1	2	2	0	1
C304.3	2	2	1	2	2	2	3	2	1	0	3	2
C304.4	2	2	3	2	2	2	1	2	3	1	1	2
C304.5	1	1	2	1	1	1	0	1	2	2	0	1
Average	1.6	1.6	1.8	1.6	1.6	1.6	1.4	1.6	1.8	1	1.4	1.6

Course Name: Pharmaceutics IV- Dispensing and Community Pharmacy

Course Code: C305

PO	PO 1 (K-3)	PO 2 (K-3)	PO 3 (K-4)	PO 4 (K-3)	PO 5 (K-3)	PO 6 (K-3)	PO 7 (K-2)	PO 8 (K-3)	PO 9 (K-4)	PO10 (K-6)	PO11 (K-2)	PO12 (K-3)
C305.1	2	2	1	2	2	2	3	2	1	0	3	2
C305.2	3	3	2	3	3	3	2	3	2	0	2	3
C305.3	2	2	3	2	2	2	1	2	3	1	1	2
C305.4	1	1	2	1	1	1	0	1	2	2	0	1
C305.5	0	0	1	0	0	0	0	0	1	3	0	0
Average	1.6	1.6	1.8	1.6	1.6	1.6	1.2	1.6	1.8	1.2	1.2	1.6

Course Name: Pharmaceutical Organic Chemistry-II Organic Chemistry-I

Course Code: C306

PO	PO 1 (K-3)	PO 2 (K-3)	PO 3 (K-4)	PO 4 (K-3)	PO 5 (K-3)	PO 6 (K-3)	PO 7 (K-2)	PO 8 (K-3)	PO 9 (K-4)	PO10 (K-6)	PO11 (K-2)	PO12 (K-3)
C306.1	0	0	1	0	0	0	0	0	1	3	0	0
C306.2	0	0	1	0	0	0	0	0	1	3	0	0
C306.3	3	3	2	3	3	3	2	3	2	0	2	3
C306.4	3	3	2	3	3	3	2	3	2	0	2	3
C306.5	3	3	2	3	3	3	2	3	2	0	2	3
Average	1.8	1.8	1.6	1.8	1.8	1.8	1.2	1.8	1.6	1.2	1.2	1.8

Course Name: Pharmaceutics III Unit Operation

Course Code: C307

PO	PO 1 (K-3)	PO 2 (K-3)	PO 3 (K-4)	PO 4 (K-3)	PO 5 (K-3)	PO 6 (K-3)	PO 7 (K-2)	PO 8 (K-3)	PO 9 (K-6)	PO10 (K-4)	PO11 (K-2)	PO12 (K-3)
C307.1	2	2	1	2	2	2	3	2	1	0	3	2
C307.2	3	3	2	3	3	3	2	3	2	0	2	3
C307.3	2	2	3	2	2	2	1	2	3	1	1	2
307.4	1	1	2	1	1	1	0	1	2	2	0	1
Average	**2**	**2**	**2**	**2**	**2**	**2**	**1.5**	**2**	**2**	**0.75**	**1.5**	**2**

Course Name: Pharmacognosy-II (Practical)

Course Code: C308

PO	PO 1 (K-3)	PO 2 (K-4)	PO 3 (K-3)	PO 4 (K-3)	PO 5 (K-3)	PO 6 (K-3)	PO 7 (K-2)	PO 8 (K-3)	PO 9 (K-4)	PO10 (K-6)	PO11 (K-2)	PO12 (K-3)
C308.1	3	2	3	3	3	3	2	3	2	0	2	3
C308.2	3	2	3	3	3	3	2	3	2	0	2	3
C308.3	3	2	3	3	3	3	2	3	2	0	2	3
C308.4	2	3	2	2	2	2	1	2	3	1	1	2
C308.5	3	2	3	3	3	3	2	3	2	0	2	3
Average	2.8	2.2	2.8	2.8	2.8	2.8	1.8	2.8	2.2	0.2	1.8	2.8

Course Name: Anatomy, Physiology & Health Education-II (Practical)

Course Code: C309

PO	PO 1 (K-3)	PO 2 (K-3)	PO 3 (K-4)	PO 4 (K-3)	PO 5 (K-3)	PO 6 (K-3)	PO 7 (K-2)	PO 8 (K-3)	PO 9 (K-4)	PO10 (K-6)	PO11 (K-2)	PO12 (K-3)
C309.1	1	1	0	1	1	1	2	1	0	0	2	1
C309.2	2	2	3	2	2	2	1	2	3	1	1	2
C309.3	2	2	1	2	2	2	3	2	1	0	3	2
C309.4	2	2	1	2	2	2	3	2	1	0	3	2
C309.5	2	2	1	2	2	2	3	2	1	0	3	2
Average	1.8	1.8	1.2	1.8	1.8	1.8	2.4	1.8	1.2	0.2	2.4	1.8

Course Name: Pharmaceutics IV Dispensing and community pharmacy

Course Code: C310

PO	PO 1 (K-3)	PO 2 (K-3)	PO 3 (K-4)	PO 4 (K-3)	PO 5 (K-3)	PO 6 (K-3)	PO 7 (K-2)	PO 8 (K-3)	PO 9 (K-4)	PO10 (K-6)	PO11 (K-2)	PO12 (K-3)
C310.1	2	2	1	2	2	2	3	2	1	0	3	2
C310.2	3	3	2	3	3	3	2	3	2	0	2	3
C310.3	2	2	3	2	2	2	1	2	3	1	1	2
C310.4	1	1	2	1	1	1	0	1	2	2	0	1
C310.5	0	0	1	0	0	0	0	0	1	3	0	0
Average	1.6	1.6	1.8	1.6	1.6	1.6	1.2	1.6	1.8	1.2	1.2	1.6

Course Name: Pharmaceutical Chemistry-III (Organic Chemistry-II) (Theory)

Course Code: C401

PO	PO 1 (K-3)	PO 2 (K-3)	PO 3 (K-4)	PO 4 (K-3)	PO 5 (K-3)	PO 6 (K-3)	PO 7 (K-2)	PO 8 (K-3)	PO 9 (K-4)	PO10 (K-6)	PO11 (K-2)	PO12 (K-3)
C401.1	2	2	1	2	2	2	3	2	1	0	3	2
C401.2	2	2	1	2	2	2	3	2	1	0	3	2
C401.3	2	2	1	2	2	2	3	2	1	0	3	2
C401.4	2	2	3	2	2	2	1	2	3	1	1	2
Average	2	2	1.5	2	2	2	2.5	2	1.5	0.25	2.5	2

Course Name: Pharmaceutics V Unit operation II

Course Code: C402

PO	PO 1 (K-3)	PO 2 (K-3)	PO 3 (K-4)	PO 4 (K-3)	PO 5 (K-3)	PO 6 (K-3)	PO 7 (K-2)	PO 8 (K-3)	PO 9 (K-4)	PO10 (K-6)	PO11 (K-2)	PO12 (K-3)
C402.1	2	2	1	2	2	2	3	2	1	0	3	2
C402.2	3	3	2	3	3	3	2	3	2	0	2	3
C402.3	2	2	3	2	2	2	1	2	3	1	1	2
C402.4	1	1	2	1	1	1	0	1	2	2	0	1
C402.5	0	0	1	0	0	0	0	0	1	3	0	0
Average	1.6	1.6	1.8	1.6	1.6	1.6	1.2	1.6	1.8	1.2	1.2	1.6

Course Name: Pharmaceutical Microbiology

Course Code: C403

PO	PO1 (K-3)	PO2 (K-3)	PO3 (K-4)	PO4 (K-3)	PO5 (K-3)	PO6 (K-3)	PO7 (K-2)	PO8 (K-3)	PO9 (K-4)	PO10 (K-6)	PO11 (K-2)	PO12 (K-3)
C403.1	2	2	1	2	2	2	3	2	1	0	3	2
C403.2	3	3	2	3	3	3	2	3	2	0	2	3
C403.3	2	2	3	2	2	2	1	2	3	1	1	2
C403.4	1	1	2	1	1	1	0	1	2	2	0	1
C403.5	0	0	1	0	0	0	0	0	1	3	0	0
Average	1.6	1.6	1.8	1.6	1.6	1.6	1.2	1.6	1.8	1.2	1.2	1.6

Course Name: Pharmacognosy - III (Theory)

Course Code: C404

PO	PO 1 (K-3)	PO 2 (K-4)	PO 3 (K-3)	PO 4 (K-3)	PO 5 (K-3)	PO 6 (K-3)	PO 7 (K-2)	PO 8 (K-3)	PO 9 (K-4)	PO10 (K-6)	PO11 (K-2)	PO12 (K-3)
C404.1	3	2	3	3	3	3	2	3	2	0	2	3
C404.2	2	1	2	2	2	2	3	2	1	0	3	2
C404.3	2	1	2	2	2	2	3	2	1	0	3	2
C404.4	2	1	2	2	2	2	3	2	1	0	3	2
C404.5	3	2	3	3	3	3	2	3	2	0	2	3
Average	2.4	1.4	2.4	2.4	2.4	2.4	2.6	2.4	1.4	0	2.6	2.4

Course Name: Pathophysiology of common diseases

Course Code: C405

PO	PO 1 (K-3)	PO 2 (K-4)	PO 3 (K-3)	PO 4 (K-3)	PO 5 (K-3)	PO 6 (K-3)	PO 7 (K-2)	PO 8 (K-3)	PO 9 (K-4)	PO10 (K-6)	PO11 (K-2)	PO12 (K-3)
C405.1	2	1	2	2	2	2	3	2	1	0	3	2
C405.2	3	2	3	3	3	3	2	3	2	0	2	3
C405.3	2	3	2	2	2	2	1	2	3	1	1	2
C405.4	1	2	1	1	1	1	0	1	2	2	0	1
C405.5	0	1	0	0	0	0	0	0	1	3	0	0
Average	1.6	1.8	1.6	1.6	1.6	1.6	1.2	1.6	1.8	1.2	1.2	1.6

Course Name: Pharmaceutical Chemistry-III (Organic Chemistry-II) (Practical)

Course Code: C406

PO	PO 1 (K-3)	PO 2 (K-3)	PO 3 (K-4)	PO 4 (K-3)	PO 5 (K-3)	PO 6 (K-3)	PO 7 (K-2)	PO 8 (K-3)	PO 9 (K-4)	PO10 (K-6)	PO11 (K-2)	PO12 (K-3)
C406.1	2	2	1	2	2	2	3	2	1	0	3	2
C406.2	1	1	0	1	1	1	2	1	0	0	2	1
C406.3	2	2	1	2	2	2	3	2	1	0	3	2
Average	1.7	1.7	0.7	1.7	1.7	1.7	2.7	1.7	0.7	0	2.7	1.7

Course Name: Pharmaceutics V Unit operation II

Course Code: C407

PO	PO 1 (K-3)	PO 2 (K-3)	PO 3 (K-4)	PO 4 (K-3)	PO 5 (K-3)	PO 6 (K-3)	PO 7 (K-2)	PO 8 (K-3)	PO 9 (K-4)	PO10 (K-6)	PO11 (K-2)	PO12 (K-3)
C407.1	2	2	1	2	2	2	3	2	1	0	3	2
C407.2	3	3	2	3	3	3	2	3	2	0	2	3
C407.3	2	2	3	2	2	2	1	2	3	1	1	2
C407.4	1	1	2	1	1	1	0	1	2	2	0	1
C407.5	0	0	1	0	0	0	0	0	1	3	0	0
Average	1.6	1.6	1.8	1.6	1.6	1.6	1.2	1.6	1.8	1.2	1.2	1.6

Course Name: Pharmaceutical Microbiology (Practical)

Course Code: C408

PO	PO 1 (K-3)	PO 2 (K-3)	PO 3 (K-4)	PO 4 (K-3)	PO 5 (K-3)	PO 6 (K-3)	PO 7 (K-2)	PO 8 (K-3)	PO 9 (K-4)	PO10 (K-6)	PO11 (K-2)	PO12 (K-3)
C408.1	2	2	1	2	2	2	3	2	1	0	3	2
C408.2	3	3	2	3	3	3	2	3	2	0	2	3
C408.3	2	2	3	2	2	2	1	2	3	1	1	2
C408.4	1	1	2	1	1	1	0	1	2	2	0	1
C408.5	0	0	1	0	0	0	0	0	1	3	0	0
Average	1.6	1.6	1.8	1.6	1.6	1.6	1.2	1.6	1.8	1.2	1.2	1.6

Course Name: Pharmacognosy - III (Practical)

Course Code: C409

PO	PO 1 (K-3)	PO 2 (K-4)	PO 3 (K-3)	PO 4 (K-3)	PO 5 (K-3)	PO 6 (K-3)	PO 7 (K-2)	PO 8 (K-3)	PO 9 (K-4)	PO10 (K-6)	PO11 (K-2)	PO12 (K-3)
C409.1	3	2	3	3	3	3	2	3	2	0	2	3
C409.2	3	2	3	3	3	3	2	3	2	0	2	3
C409.3	2	3	2	2	2	2	1	2	3	1	1	2
C409.4	2	1	2	2	2	2	3	2	1	0	3	2
C409.5	1	2	1	1	1	1	0	1	2	2	0	1
Average	2.2	2	2.2	2.2	2.2	2.2	1.6	2.2	2	0.6	1.6	2.2

Course Name: Pharmaceutical Chemistry -IV (Biochemistry) (Theory)

Course Code: C501

PO	PO 1 (K-3)	PO 2 (K-4)	PO 3 (K-3)	PO 4 (K-3)	PO 5 (K-3)	PO 6 (K-3)	PO 7 (K-2)	PO 8 (K-3)	PO 9 (K-4)	PO10 (K-6)	PO11 (K-2)	PO12 (K-3)
C501.1	2	2	1	2	2	2	3	2	1	0	3	2
C501.2	2	2	1	2	2	2	3	2	1	0	3	2
C501.3	2	2	1	2	2	2	3	2	1	0	3	2
C501.4	2	2	1	2	2	2	3	2	1	0	3	2
C501.5	2	2	3	2	2	2	1	2	3	1	1	1
Average	2	2	1.4	2	2	2	2.6	2	1.4	0.2	2.6	1.8

Course Name: Pharmaceutics – VI (Pharmaceutical Technology -I) –(Theory)

Course Code: C502

PO	PO 1 (K-3)	PO 2 (K-4)	PO 3 (K-3)	PO 4 (K-3)	PO 5 (K-3)	PO 6 (K-3)	PO 7 (K-2)	PO 8 (K-3)	PO 9 (K-4)	PO10 (K-6)	PO11 (K-2)	PO12 (K-3)
C502.1	2	1	1	2	2	2	3	2	1	0	3	2
C502.2	3	2	2	3	3	3	2	3	2	0	2	3
C502.3	2	3	3	2	2	2	1	2	3	1	1	2
C502.4	1	2	2	1	1	1	0	1	2	2	0	1
C502.5	0	1	1	0	0	0	0	0	1	3	0	0
Average	1.5	1.8	1.8	1.6	1.6	1.6	1.2	1.6	1.8	1.2	1.2	1.6

Course Name: Pharmacology-I (Theory)

Course Code: C503

PO	PO 1 (K-3)	PO 2 (K-3)	PO 3 (K-4)	PO 4 (K-3)	PO 5 (K-3)	PO 6 (K-3)	PO 7 (K-2)	PO 8 (K-3)	PO 9 (K-4)	PO10 (K-6)	PO11 (K-2)	PO12 (K-3)
C503.1	2	2	1	2	2	2	3	2	1	0	3	2
C503.2	2	2	1	2	2	2	3	2	1	0	3	2
C503.3	2	2	1	2	2	2	3	2	1	0	3	2
C503.4	2	2	3	2	2	2	1	2	3	1	1	2
C503.5	3	3	2	3	3	3	2	3	2	0	2	3
Average	2.2	2.2	1.6	2.2	2.2	2.2	2.4	2.2	1.6	0.2	2.4	2.2

Course Name: Pharmacognosy IV (Theory)

Course Code: C504

PO	PO 1 (K-3)	PO 2 (K-3)	PO 3 (K-4)	PO 4 (K-3)	PO 5 (K-3)	PO 6 (K-3)	PO 7 (K-2)	PO 8 (K-3)	PO 9 (K-4)	PO10 (K-6)	PO11 (K-2)	PO12 (K-3)
C504.1	3	3	2	3	3	3	2	3	2	0	2	3
C504.2	2	2	1	2	2	2	3	2	1	0	3	2
C504.3	2	2	1	2	2	2	3	2	1	0	3	2
C504.4	2	2	1	2	2	2	3	2	1	0	3	2
C504.5	2	2	3	2	2	2	1	2	3	1	1	2
Average	2.2	2.2	1.6	2.2	2.2	2.2	2.4	2.2	1.6	0.2	2.4	2.2

Course Name: Pharmaceutical Chemistry -V (Medicinalchemistry-1)

Course Code: C505

PO	PQ 1 (K3)	PO 2 (K3)	PO 3 (K4)	PO 4 (K3)	PO 5 (K3)	PO 6 (K3)	PO 7 (K2)	PO 8 (K3)	PO 9 (K4)	PO10 (K6)	PO11 (K2)	PO12 (K3)
C505.1	2	2	1	2	2	2	3	2	1	0	3	2
C505.2	2	2	1	2	2	2	3	2	1	0	3	2
C505.3	2	2	1	2	2	2	3	2	1	0	3	2
C505.4	2	2	1	2	2	2	3	2	1	0	3	2
C505.5	2	2	3	2	2	2	1	2	3	1	1	1
Average	2	2	1.4	2	2	2	2.6	2	1.4	0.2	2.6	1.8

Course Name: Pharmaceutical Chemistry -IV (Biochemistry) (Practical)

Course Code: C506

PO	PO 1 (K-3)	PO 2 (K-3)	PO 3 (K-4)	PO 4 (K-3)	PO 5 (K-3)	PO 6 (K-3)	PO 7 (K-2)	PO 8 (K-3)	PO 9 (K-4)	PO10 (K-6)	PO11 (K-2)	PO12 (K-3)
C506.1	2	2	1	2	2	2	3	2	1	0	3	2
C506.2	3	3	2	1	3	3	2	3	2	0	2	3
C506.3	3	3	2	1	3	3	2	3	2	0	2	3
C506.4	1	1	2	1	1	1	0	1	2	2	0	1
C506.5	1	1	2	1	1	1	0	1	2	2	0	1
Average	2	2	1.8	1.2	2	2	1.4	2	1.8	0.8	1.4	2

Course Name: Pharmaceutics – VI (Pharmaceutical Technology -I) – (Practical)

Course Code: C507

PO	PO 1 (K-3)	PO 2 (K-4)	PO 3 (K-3)	PO 4 (K-3)	PO 5 (K-3)	PO 6 (K-3)	PO 7 (K-2)	PO 8 (K-3)	PO 9 (K-4)	PO10 (K-6)	PO11 (K-2)	PO12 (K-3)
C507.1	3	2	3	3	3	3	2	3	2	0	2	3
C507.2	3	2	3	3	3	3	2	3	2	0	2	3
C507.3	0	1	0	0	0	0	0	0	1	3	0	0
C507.4	0	1	0	0	0	0	0	0	1	3	0	0
C507.5	0	1	0	0	0	0	0	0	1	3	0	0
Average	1.2	1.4	1.2	1.2	1.2	1.2	0.4	1.2	1.4	1.8	0.4	1.2

Course Name: Pharmacognosy IV (Practical)

Course Code: C508

PO	PO 1 (K-3)	PO 2 (K-3)	PO 3 (K-4)	PO 4 (K-3)	PO 5 (K-3)	PO 6 (K-3)	PO 7 (K-2)	PO 8 (K-3)	PO 9 (K-4)	PO10 (K-6)	PO11 (K-2)	PO12 (K-3)
C508.1	3	3	2	3	3	3	2	3	2	0	2	3
C508.2	1	2	3	1	1	1	0	1	2	2	0	1
C508.3	2	2	3	2	2	2	1	2	3	1	1	2
C508.4	2	2	3	2	2	2	1	2	3	1	1	2
C508.5	2	2	3	2	2	2	1	2	3	1	1	2
Average	2.0	2.0	2.8	2.0	2.0	2.0	1.0	2.0	2.8	1.0	1.0	2.0

Course Name: Pharmaceutical Chemistry -V (Medicinal chemistry-1) (Practical)

Course Code: C509

PO	PO 1 (K3)	PO 2 (K3)	PO 3 (K4)	PO 4 (K3)	PO 5 (K3)	PO 6 (K3)	PO 7 (K2)	PO 8 (K3)	PO 9 (K4)	PO10 (K6)	PO11 (K2)	PO12 (K3)
C509.1	3	3	2	3	3	3	2	3	2	0	2	3
C509.2	1	1	2	1	1	1	0	1	2	2	0	1
C509.3	2	2	1	2	2	2	3	2	1	0	3	2
C509.4	2	2	1	2	2	2	3	2	1	0	3	2
Average	2	2	1.5	2	2	2	2	2	1,5	0.5	2	2

Course Name: Pharmaceutical Chemistry -VI (Medicinal chemistry-I1)

Course Code: C601

PO	PO 1 (K3)	PO 2 (K3)	PO 3 (K4)	PO 4 (K3)	PO 5 (K3)	PO 6 (K3)	PO 7 (K2)	PO 8 (K3)	PO 9 (K4)	PO10 (K6)	PO11 (K2)	PO12 (K3)
C601.1	2	2	1	2	2	2	3	2	1	0	3	2
C601.2	2	2	1	2	2	2	3	2	1	0	3	2
C601.3	2	2	1	2	2	2	3	2	1	0	3	2
C601.4	2	2	1	2	2	2	3	2	1	0	3	2
C601.5	2	2	3	2	2	2	1	2	3	1	1	1
Average	2	2	1.4	2	2	2	2.6	2	1.4	0.2	2.6	1.8

Course Name : Bio pharmaceutics & Pharmacokinetics (Theory)

Course Code : C602

PO	PO 1 (K3)	PO 2 (K3)	PO 3 (K4)	PO 4 (K3)	PO 5 (K3)	PO 6 (K3)	PO 7 (K2)	PO 8 (K3)	PO 9 (K4)	PO10 (K6)	PO11 (K2)	PO12 (K3)
C602.1	2	2	1	2	2	2	3	2	1	0	3	2
C602.2	1	1	2	1	1	1	0	1	2	2	0	1
C602.3	2	2	3	2	2	2	0	2	3	1	1	2
C602.4	1	1	2	1	1	1	0	1	2	2	0	1
C602.5	0	0	1	0	0	0	0	0	1	3	0	0
Average	1.2	1.2	1.8	1.2	1.2	1.2	0.6	1.2	1.8	1.6	0.8	1.2

Course Name: Pharmacology-II (Theory)

Course Code: C603

PO	PO 1 (K-3)	PO 2 (K-4)	PO 3 (K-3)	PO 4 (K-3)	PO 5 (K-3)	PO 6 (K-3)	PO 7 (K-2)	PO 8 (K-3)	PO 9 (K-4)	PO10 (K-6)	PO11 (K-2)	PO12 (K-3)
C603.1	2	1	2	2	2	2	3	2	1	0	3	2
C603.2	2	3	2	2	2	2	1	2	3	1	1	2
C603.3	2	1	2	2	2	2	3	2	1	0	1	2
C603.4	1	0	1	1	1	1	2	1	0	0	2	1
C603.5	3	2	3	3	3	3	2	3	2	0	2	3
Average	2	1.4	2	2	2	2	2.2	2	1.4	0.2	1.8	2

Course Name: Pharmaceutical Jurisprudence & Ethics

Course Code: C604

PO	PO 1 (K-3)	PO 2 (K-4)	PO 3 (K-3)	PO 4 (K-3)	PO 5 (K-3)	PO 6 (K-3)	PO 7 (K-3)	PO 8 (K-3)	PO 9 (K-4)	PO10 (K-6)	PO11 (K-2)	PO12 (K-3)
C604.1	2	1	2	2	2	2	3	2	1	0	3	2
C604.2	2	1	2	2	2	2	3	2	1	0	3	2
C604.3	3	2	3	3	3	3	2	3	2	0	2	3
C604.4	1	2	1	1	1	1	0	0	2	2	0	1
C604.5	0	1	0	0	0	0	0	0	1	3	0	0
Average	1.6	1.4	1.6	1.6	1.6	1.6	1.4	1.4	1.4	1	1.6	1.6

Course Name: Therapeutic Drug Monitoring and Bioavailability

Course Code: C605

PO	PO 1 (K-3)	PO 2 (K-3)	PO 3 (K-4)	PO 4 (K-3)	PO 5 (K-3)	PO 6 (K-3)	PO 7 (K-2)	PO 8 (K-3)	PO 9 (K-4)	PO10 (K-6)	PO11 (K-2)	PO12 (K-3)
C605.1	1	1	2	1	1	1	0	1	2	2	0	1
C605.2	0	0	1	0	0	0	0	0	1	3	0	0
C605.3	1	1	2	1	1	1	0	1	2	2	0	1
C605.4	1	1	1	1	1	1	0	1	1	2	0	1
C605.5	0	0	1	0	0	0	0	0	1	3	0	0
Average	0.6	0.6	1.4	0.6	0.6	0.6	0	0.6	1.4	2.4	0	0.6

Course Name : Pharmaceutical Chemistry -VI (Medicinal chemistry-I1)
Course Code : C606

PO	PO 1 (K-3)	PO 2 (K-3)	PO 3 (K-4)	PO 4 (K-3)	PO 5 (K-3)	PO 6 (K-3)	PO 7 (K-2)	PO 8 (K-3)	PO 9 (K-4)	PO10 (K-6)	PO11 (K-2)	PO12 (K-3)
C606.1	1	1	2	1	1	1	0	1	2	2	0	1
C606.2	0	0	1	0	0	0	0	0	1	3	0	0
C606.3	1	1	2	1	1	1	0	1	2	2	0	1
C606.4	1	1	1	1	1	1	0	1	1	2	0	1
C606.5	0	0	1	0	0	0	0	0	1	3	0	0
Average	0.6	0.6	1.4	0.6	0.6	0.6	0	0.6	1.4	2.4	0	0.6

Course Name : Bio pharmaceutics & Pharmacokinetics (Practical)
Course Code : C607

PO	PO 1 (K-3)	PO 2 (K-3)	PO 3 (K-4)	PO 4 (K-3)	PO 5 (K-3)	PO 6 (K-3)	PO 7 (K-2)	PO 8 (K-3)	PO 9 (K-4)	PO10 (K-6)	PO11 (K-2)	PO12 (K-3)
C607.1	2	2	1	2	2	2	3	2	1	0	3	2
C607.2	1	1	2	1	1	1	0	1	2	2	0	1
C607.3	2	2	3	2	2	2	1	2	3	1	1	2
C607.4	1	1	2	1	1	1	0	1	2	2	0	1
C607.5	0	0	1	0	0	0	0	0	1	3	0	0
Average	1.2	1.2	1.8	1.2	1.2	1.2	0.8	1.2	1.8	1.6	0.8	1.2

Course Name: Pharmacology-II (Practical)

Course Code: C608

PO	PO 1 (K-3)	PO 2 (K-4)	PO 3 (K-3)	PO 4 (K-3)	PO 5 (K-3)	PO 6 (K-3)	PO 7 (K-2)	PO 8 (K-3)	PO 9 (K-4)	PO10 (K-6)	PO11 (K-2)	PO12 (K-3)
C608.1	1	0	1	1	1	1	2	1	0	0	2	1
C608.2	2	1	2	2	2	2	3	2	1	0	3	2
C608.3	3	2	3	3	3	3	2	3	2	0	2	3
C608.4	2	3	2	2	2	2	1	2	3	1	1	2
C608.5	2	3	2	2	2	2	1	2	3	1	1	2
Average	2	1.8	2	2	2	2	1.8	2	1.8	0.4	1.8	2

Course Name: Therapeutic Drug Monitoring and Bioavailability (Practical)

Course Code: C609

PO	PO 1 (K-3)	PO 2 (K-3)	PO 3 (K-4)	PO 4 (K-3)	PO 5 (K-3)	PO 6 (K-3)	PO 7 (K-2)	PO 8 (K-3)	PO 9 (K-4)	PO10 (K-6)	PO11 (K-2)	PO12 (K-3)
C609.1	1	1	2	1	1	1	0	1	2	2	0	1
C609.2	0	0	1	0	0	0	0	0	1	3	0	0
C609.3	0	0	1	0	0	0	0	0	1	3	0	0
C609.4	0	0	1	0	0	0	0	0	1	3	0	0
C609.5	0	0	1	0	0	0	0	0	1	3	0	0
Average	0.2	0.2	1.2	0.2	0.2	0.2	0	0.2	1.2	2.8	0	0.2

Course Name: Pharmacognosy V [Chemistry of Natural Products] (Theory)

Course Code: C701

PO	PO 1 (K-3)	PO 2 (K-3)	PO 3 (K-4)	PO 4 (K-3)	PO 5 (K-3)	PO 6 (K-3)	PO 7 (K-2)	PO 8 (K-3)	PO 9 (K-4)	PO10 (K-6)	PO11 (K-2)	PO12 (K-3)
C701.1	2	2	3	2	2	2	1	2	2	1	1	2
C701.2	1	1	2	1	1	1	0	1	2	2	0	1
C701.3	1	1	2	1	1	1	0	1	2	2	0	1
C701.4	2	2	1	2	2	2	3	2	1	0	3	2
C701.5	0	0	1	0	0	0	0	0	1	3	0	0
Average	1.2	1.2	1.8	1.2	1.2	1.2	0.8	1.2	1.6	1.6	0.8	1.2

Course Name: Pharmaceutics-VIII (Pharmaceutical Technology-II) (Theory)

Course Code: C702

CO #	PO 1 (K-3)	PO 2 (K-4)	PO 3 (K-3)	PO 4 (K-3)	PO 5 (K-3)	PO 6 (K-3)	PO 7 (K-2)	PO 8 (K-3)	PO 9 (K-4)	PO10 (K-6)	PO11 (K-2)	PO12 (K-3)
C702.1	3	3	2	3	3	3	2	3	2	0	2	3
C702.2	2	2	1	2	2	2	3	2	1	0	3	2
C702.3	3	3	2	3	3	3	2	3	2	0	2	3
C702.4	2	2	3	2	2	2	1	2	3	1	1	2
C702.5	1	1	2	1	1	1	0	1	2	2	0	1
Average	2.2	2.2	2.0	2.2	2.2	2.2	1.6	2.2	2.0	0.6	1.6	2.2

Course Name: Pharmacology-III (Theory)

Course Code: C703

PO	PO 1 (K-3)	PO 2 (K-3)	PO 3 (K-4)	PO 4 (K-3)	PO 5 (K-3)	PO 6 (K-3)	PO 7 (K-2)	PO 8 (K-3)	PO 9 (K-4)	PO10 (K-6)	PO11 (K-2)	PO12 (K-3)
C703.1	2	2	1	2	2	2	3	2	1	0	3	2
C703.2	3	3	2	3	3	3	2	3	2	0	2	3
C703.3	2	2	3	2	2	2	1	2	3	1	1	2
C703.4	1	1	2	1	1	1	0	1	2	2	0	1
C703.5	0	0	1	0	0	0	0	0	1	3	0	0
Average	1.6	1.6	1.8	1.6	1.6	1.6	1.2	1.6	1.8	1.2	1.2	1.6

Course Name: Pharmaceutical Biotechnology (Theory)

Course Code: C704

PO	PO 1 (K2)	PO 2 (K3)	PO 3 (K4)	PO 4 (K2)	PO 5 (K3)	PO 6 (K5)	PO 7 (K3)	PO 8 (K4)	PO 9 (K2)	PO10 (K3)	PO11 (K5)	PO12 (K6)
C704.1	3	2	1	3	2	0	2	1	3	2	0	0
C704.2	2	3	2	2	3	1	3	2	2	3	1	0
C704.3	1	2	3	1	2	2	2	3	1	2	2	1
C704.4	0	1	2	0	1	3	1	2	0	1	3	2
C704.5	0	0	1	0	0	2	0	1	0	0	2	3
Average	1.2	1.6	1.8	1.2	1.6	1.6	1.6	1.8	1.2	1.6	1.6	1.2

Course Name: Pharmacology – IV (Clinical Pharmacy &Pharmacotherapeutics) (Theory)

Course Code: C705

PO	PO 1 (K-3)	PO 2 (K-4)	PO 3 (K-3)	PO 4 (K-3)	PO 5 (K-3)	PO 6 (K-3)	PO 7 (K-2)	PO 8 (K-3)	PO 9 (K-4)	PO10 (K-6)	PO11 (K-2)	PO12 (K-3)
C705.1	2	1	2	2	2	2	3	2	1	0	3	2
C705.2	3	2	3	3	3	3	2	3	2	0	2	3
C705.3	2	3	2	2	2	2	1	2	3	1	1	2
C705.4	1	2	1	1	1	1	0	1	2	2	0	1
C705.5	0	1	0	0	0	0	0	0	1	3	0	0
Average	1.6	1.8	1.6	1.6	1.6	1.6	1.2	1.6	1.8	1.2	1 .2	1.6

Course Name: Pharmacognosy V [Chemistry of Natural Products] (Practical)

Course Code: C706

PO	PO 1 (K-3)	PO 2 (K-3)	PO 3 (K-4)	PO 4 (K-3)	PO 5 (K-3)	PO 6 (K-3)	PO 7 (K-2)	PO 8 (K-3)	PO 9 (K-4)	PO10 (K-6)	PO11 (K-2)	PO12 (K-3)
C706.1	3	3	2	3	3	3	2	3	2	0	2	3
C706.2	3	3	2	3	3	3	2	3	2	0	2	3
C706.3	2	2	3	2	2	2	1	2	2	1	1	2
C706.4	2	2	3	2	2	2	1	2	2	1	1	2
C706.5	1	1	2	1	1	1	0	1	2	2	0	1
Average	2.2	2.2	2.4	2.2	2.2	2.2	1.2	2.2	2	0.8	1.2	2.2

Course Name: Pharmaceutics-VIII (Pharmaceutical Technology-II) (Practicals)

Course Code: C707

CO #	PO 1 (K-3)	PO 2 (K-4)	PO 3 (K-3)	PO 4 (K-3)	PO 5 (K-3)	PO 6 (K-3)	PO 7 (K-2)	PO 8 (K-3)	PO 9 (K-4)	PO10 (K-6)	PO11 (K-2)	PO12 (K-3)
C707.1	3	3	2	3	3	3	2	3	2	1	2	3
C707.2	2	2	1	2	2	2	3	2	1	0	3	2
C707.3	3	3	2	3	3	3	2	3	2	0	2	3
C707.4	2	2	3	2	2	2	1	2	3	1	1	2
C707.5	1	1	2	1	1	1	0	1	2	2	0	1
Average	2.2	2.2	2.0	2.2	2.2	2.2	1.6	2.2	2.0	0.8	1.6	2.2

Course Name: Pharmacology-III (Practical's)

Course Code: C708

PO	PO 1 (K-3)	PO 2 (K-3)	PO 3 (K-4)	PO 4 (K-3)	PO 5 (K-3)	PO 6 (K-3)	PO 7 (K-2)	PO 8 (K-3)	PO 9 (K-4)	PO10 (K-6)	PO11 (K-2)	PO12 (K-3)
C708.1	2	2	1	2	2	2	3	2	1	0	3	2
C708.2	2	2	3	2	2	2	1	2	3	1	1	2
C708.3	0	0	1	0	0	0	0	0	1	3	0	0
C708.4	0	0	1	0	0	0	0	0	1	3	0	0
C708.5	0	0	1	0	0	0	0	0	1	3	0	0
Average	0.8	0.8	1.4	0.8	0.8	0.8	0.8	0.8	1.4	2	0.8	0.8

Course Name: Pharmacology – IV (Clinical Pharmacy &Pharmacotherapeutics) (Practical)

Course Code: C709

PO	PO 1 (K-3)	PO 2 (K-4)	PO 3 (K-3)	PO 4 (K-3)	PO 5 (K-3)	PO 6 (K-3)	PO 7 (K-2)	PO 8 (K-3)	PO 9 (K-4)	PO10 (K-6)	PO11 (K-2)	PO12 (K-3)
C709.1	2	1	2	2	2	2	3	2	1	0	3	2
C709.2	3	2	3	3	3	3	2	3	2	0	2	3
C709.3	2	3	2	2	2	2	1	2	3	1	1	2
C709.4	1	2	1	1	1	1	0	1	2	2	0	1
C709.5	0	1	0	0	0	0	0	0	1	3	0	0
Average	1.6	1.8	1.6	1.6	1.6	1.6	1.2	1.6	1.8	1.2	1 .2	1.6

Course Name: Pharmaceutical Analysis-III

Course Code: C801

PO	PO 1 (K-3)	PO 2 (K-3)	PO 3 (K-4)	PO 4 (K-3)	PO 5 (K-3)	PO 6 (K-3)	PO 7 (K-2)	PO 8 (K-3)	PO 9 (K-4)	PO10 (K-6)	PO11 (K-2)	PO12 (K-3)
C801.1	2	2	1	2	2	2	3	2	1	0	3	2
C801.2	2	2	1	2	2	2	3	2	1	0	3	2
C801.3	2	2	1	2	2	2	3	2	1	0	3	2
C801.4	0	0	1	0	0	0	0	0	1	3	0	0
C801.5	0	0	1	0	0	0	0	0	1	3	0	0
Average	1.2	1.2	1	1.2	1.2	1.2	1.8	1.2	1	1.2	1.8	1.2

Course Name: Pharmacognosy IV

Course Code: C802

PO	PO 1 (K-3)	PO 2 (K-3)	PO 3 (K-4)	PO 4 (K-3)	PO 5 (K-3)	PO 6 (K-3)	PO 7 (K-2)	PO 8 (K-3)	PO 9 (K-4)	PO10 (K-6)	PO11 (K-2)	PO12 (K-3)
C802.1	1	1	2	1	1	1	0	1	2	2	0	1
C802.2	1	1	2	1	1	1	0	1	2	2	0	1
C801.3	2	2	3	2	2	2	1	2	3	1	1	2
C802.4	0	0	1	0	0	0	0	0	1	3	0	0
C802.5	0	0	1	0	0	0	0	0	1	3	0	0
Average	0.8	0.8	1.8	0.8	0.8	0.8	0.2	0.8	2.25	2.20	0.2	0.8

Course Name: Pharmaceutics-IX (Dosage form Design) (Theory)

Course Code: C803

PO	PO1 (K-3)	PO2 (K-3)	PO3 (K-4)	PO4 (K-3)	PO5 (K-3)	PO6 (K-3)	PO7 (K-2)	PO8 (K-3)	PO9 (K-4)	PO10 (K-6)	PO11 (K-2)	PO12 (K-3)
C803 .1	2	2	1	2	2	2	3	2	1	0	3	2
C803 .2	3	3	2	3	3	3	2	3	2	0	2	3
C803 .3	2	2	3	2	2	2	1	2	3	1	1	2
C803 .4	1	1	2	1	1	1	0	1	2	2	0	1
C803 .5	0	0	1	0	0	0	0	0	1	3	0	0
Average	1.6	1.6	1.8	1.6	1.6	1.6	1.2	1.6	1.8	1.2	1.2	1.6

Course Name: Pharmaceutical Industrial Management

Course Code: C804

PO	PO 1 (K-3)	PO 2 (K-4)	PO 3 (K-3)	PO 4 (K-3)	PO 5 (K-3)	PO 6 (K-3)	PO 7 (K-2)	PO 8 (K-3)	PO 9 (K-4)	PO10 (K-6)	PO11 (K-2)	PO12 (K-3)
C804.1	2	1	2	2	2	2	3	2	1	0	3	2
C804.2	3	2	3	3	3	3	2	3	2	0	2	3
C804.3	2	3	2	2	2	2	1	2	3	1	1	2
C804.4	1	2	1	1	1	1	0	1	2	2	0	1
C804.5	0	1	1	1	1	1	0	0	1	3	0	0
Average	1.6	1.8	1.6	1.6	1.6	1.6	1.2	1.6	1.8	1.2	1.2	1.6

Course Name: Pharmaceutics –X (Hospital Pharmacy) Theory

Course Code: C8O5

PO	PO 1 (K-3)	PO 2 (K-3)	PO 3 (K-4)	PO 4 (K-3)	PO 5 (K-3)	PO 6 (K-3)	PO 7 (K-2)	PO 8 (K-3)	PO 9 (K-4)	PO10 (K-6)	PO11 (K-2)	PO12 (K-3)
C8O5.1	2	2	1	2	2	2	3	2	1	0	3	2
C8O5.2	3	3	2	3	3	3	2	3	2	0	2	3
C8O5.3	2	2	3	2	2	2	1	2	3	1	1	1
C8O5.4	0	0	1	0	0	0	0	0	1	3	0	1
C8O5.5	0	0	1	0	0	0	0	0	1	3	0	0
Average	1.4	1.4	1.6	1.4	1.4	1.4	1.2	1.4	1.6	1.4	1.2	1.4

Course Name: Pharmaceutical Analysis-III

Course Code: C806

PO	PO 1 (K-3)	PO 2 (K-3)	PO 3 (K-4)	PO 4 (K-3)	PO 5 (K-3)	PO 6 (K-3)	PO 7 (K-2)	PO 8 (K-3)	PO 9 (K-4)	PO10 (K-6)	PO11 (K-2)	PO12 (K-3)
C806.1	2	2	1	2	2	2	3	2	1	0	3	2
C806.2	2	2	1	2	2	2	3	2	1	0	3	2
C806.3	2	2	1	2	2	2	3	2	1	0	3	2
C806.4	2	2	1	2	2	2	3	2	1	0	3	2
C806.5	2	2	3	2	2	2	1	2	3	1	1	1
Average	2	2	1.4	2	2	2	2.6	2	1.4	0.2	2.6	1.8

Course Name: Pharmacognosy IV

Course Code: C807

PO	PO 1 (K-3)	PO 2 (K-3)	PO 3 (K-4)	PO 4 (K-3)	PO 5 (K-3)	PO 6 (K-3)	PO 7 (K-2)	PO 8 (K-3)	PO 9 (K-4)	PO10 (K-6)	PO11 (K-2)	PO12 (K-3)
C807.1	3	3	2	3	3	3	2	3	2	0	2	3
C807.2	1	1	2	1	1	1	0	1	2	2	0	1
C807.3	2	2	3	2	2	2	1	2	3	1	1	2
C807.4	2	2	3	2	2	2	1	2	3	1	1	2
C807.5	0	0	1	0	0	0	0	0	1	3	0	0
Average	1.6	1.6	2.2	2.6	2	1.6	0.8	1.6	2.2	1.4	0.8	1.6

Course Name: Pharmaceutics-IX (Dosage form Design) (Practical)

Course Code: C808

PO	PO 1 (K-3)	PO 2 (K-3)	PO 3 (K-4)	PO 4 (K-3)	PO 5 (K-3)	PO 6 (K-3)	PO 7 (K-2)	PO 8 (K-3)	PO 9 (K-4)	PO10 (K-6)	PO11 (K-2)	PO12 (K-3)
C808 .1	2	2	1	2	2	2	3	2	1	0	3	2
C808.2	3	3	2	3	3	3	2	3	2	0	2	3
C808 .3	2	2	3	2	2	2	1	2	3	1	1	2
C808 .4	1	1	2	1	1	1	0	1	2	2	0	1
C808 .5	0	0	1	0	0	0	0	0	1	3	0	0
Average	1.6	1.6	1.8	1.6	1.6	1.6	1.2	1.6	1.8	1.2	1.2	1.6

3.1.3. Course-PO matrix of courses for all four years of study (10)

Course	Po1	Po2	Po3	Po4	Po5	Po6	Po7	Po8	Po9	Po10	Po11	Po12
C101	1.4	1.4	1.6	1.4	1.4	1.4	1.4	1.4	1.6	1.4	1	1.6
C102	1.2	1.2	1.8	1.2	1.2	1.2	1.0	1.2	1.8	1.6	1.0	1.2
C103	2.4	2.4	2.2	2.4	2.4	2.4	1.4	2.4	2.2	0.8	1.4	2.4
C104	1.6	1.6	1.4	1.6	1.2	1.6	1.6	1.6	1.4	0.8	1.6	1.6
C105	1.8	1.8	0.8	1.8	1.8	1.8	2.8	1.8	0.8	0	2.8	1.8
C106	2.2	2.2	1.2	2.2	2.2	2.2	1.8	2.2	1.2	0	2.4	2.2
C107	1.6	1.6	1.4	1.6	1.2	1.6	1.6	1.6	1.4	0.8	1.6	1.6
C108	1.8	1.8	1.6	1.8	1.8	1.8	1.4	1.8	1.6	1	1.4	1.8
C109	1.4	1.4	2	1.4	1.4	1.4	0.8	1.4	2	1.6	0.8	1.4
C110	1.4	1.4	2	1.4	1.4	1.4	0.8	1.4	2	1.2	0.8	1.4
C111	1.6	1.6	1.4	1.6	1.2	1.6	1.6	1.6	1.4	0.8	1.6	1.6
C112	1.0	1.0	1.8	1.0	1.0	1.8	0.6	1.0	2.6	1.0	1.0	1.0
C201	1.4	1.4	2	1.4	1.4	1.4	0.8	1.4	2	1.2	0.8	1.4
C202	0.6	0.6	1.2	0.6	0.6	0.6	0.6	0.6	1.2	2.2	0.6	0.6
C203	2.4	1.8	2.4	2.4	2.4	2.4	2.2	2.4	1.8	0.2	2.2	2.2
C204	1	1	1.2	1	1	1	1	1	1.2	1.8	1	1
C205	1.6	1.6	1.4	1.6	1.2	1.6	1.6	1.6	1.4	0.8	1.6	1.6
C206	1	1	1.6	1	1	1	0.4	1	1.6	1.6	0.4	1
C207	1	1	1.6	1	1	1	0.4	1	1.6	2	0.4	1
C208	1.8	2	1.8	1.8	18	1.8	1.4	1.8	2	1.2	0.8	1.8
C209	1.8	1.8	2	1.8	1.8	1.8	0.8	1.8	2	1.2	0.8	1.8
C301	1.2	1.2	1.4	1.2	1.2	1.2	1	1.2	1.4	1.6	1	1.2
C302	2	2	2	2	2	2	1.5	2	2	0.75	1.5	2
C303	2.4	1.4	2.4	2.4	2.4	2.4	2.6	2.4	1.4	0	2.6	2.4
C304	1.6	1.6	1.8	1.6	1.6	1.6	1.4	1.6	1.8	1	1.4	1.6
C305	1.6	1.6	1.8	1.6	1.6	1.6	1.2	1.6	1.8	1.2	1.2	1.6
C306	1.8	1.8	1.6	1.8	1.8	1.8	1.2	1.8	1.6	1.2	1.2	1.8
C307	2	2	2	2	2	2	1.5	2	2	0.75	1.5	2
C308	2.8	2.2	2.8	2.8	2.8	2.8	1.8	2.8	2.2	0.2	1.8	2.8
C309	1.8	1.8	1.2	1.8	1.8	1.8	2.4	1.8	1.2	0.2	2.4	1.8
C310	1.6	1.6	1.8	1.6	1.6	1.6	1.2	1.6	1.8	1.2	1.2	1.6
C401	2	2	1.5	2	2	2	2.5	2	1.5	0.25	2.5	2
C402	1.6	1.6	1.8	1.6	1.6	1.6	1.2	1.6	1.8	1.2	1.2	1.6
C403	1.6	1.6	1.8	1.6	1.6	1.6	1.2	1.6	1.8	1.2	1.2	1.6
C404	2.4	1.4	2.4	2.4	2.4	2.4	2.6	2.4	1.4	0	2.6	2.4
C405	1.6	1.8	1.6	1.6	1.6	1.6	1.2	1.6	1.8	1.2	1.2	1.6
C406	1.7	1.7	0.7	1.7	1.7	1.7	2.7	1.7	0.7	0	2.7	1.7
C407	1.6	1.6	1.8	1.6	1.6	1.6	1.2	1.6	1.8	1.2	1.2	1.6
C408	1.6	1.6	1.8	1.6	1.6	1.6	1.2	1.6	1.8	1.2	1.2	1.6

C409	2.2	2	2.2	2.2	2.2	2.2	1.6	2.2	2	0.6	1.6	2.2
C501	1.2	1.2	1.8	1.2	1.2	1.2	0.8	1.2	1.8	1.6	0.8	1.2
C502	1.5	1.8	1.8	1.6	1.6	1.6	1.2	1.6	1.8	1.2	1.2	1.6
C503	1.6	1.6	1.8	1.6	1.6	1.6	1.4	1.6	1.8	1	1.4	1.6
C504	2.2	2.2	1.6	2.2	2.2	2.2	2.4	2.2	1.6	0.2	2.4	2.2
C505	2	2	1.4	2	2	2	2.6	2	1.4	0.2	2.6	1.8
C506	2	2	1.8	1.2	2	2	1.4	2	1.8	0.8	1.4	2
C507	1.2	1.4	1.2	1.2	1.2	1.2	0.4	1.2	1.4	1.8	0.4	1.2
C508	2.0	2.0	2.8	2.0	2.0	2.0	1.0	2.0	2.8	1.0	1.0	2.0
C509	2	2	1.5	2	2	2	2	2	1,5	0.5	2	2
C601	1.6	1.6	1.8	1.6	1.6	1.6	1.4	1.6	1.8	0.8	1.4	1.6
C602	1.2	1.2	1.8	1.2	1.2	1.2	0.6	1.2	1.8	1.6	0.8	1.2
C603	2	1.4	2	2	2	2	2.2	2	1.4	0.2	1.8	2
C604	1.6	1.4	1.6	1.6	1.6	1.6	1.4	1.4	1.4	1	1.6	1.6
C605	0.6	0.6	1.4	0.6	0.6	0.6	0	0.6	1.4	2.4	0	0.6
C606	1.8	1.5	2	1.8	1.8	1.8	0.8	1.8	2	1.2	0.8	1.8
C607	1.2	1.2	1.8	1.2	1.2	1.2	0.8	1.2	1.8	1.6	0.8	1.2
C608	2	1.8	2	2	2	2	1.8	2	1.8	0.4	1.8	2
C609	0.2	0.2	1.2	0.2	0.2	0.2	0	0.2	1.2	2.8	0	0.2
C701	1.2	1.2	1.8	1.2	1.2	1.2	0.8	1.2	1.6	1.6	0.8	1.2
C702	2.2	2.2	2.0	2.2	2.2	2.2	1.6	2.2	2.0	0.6	1.6	2.2
C703	1.6	1.6	1.8	1.6	1.6	1.6	1.2	1.6	1.8	1.2	1.2	1.6
C704	1.2	1.6	1.8	1.2	1.6	1.6	1.6	1.8	1.2	1.6	1.6	1.2
C705	1.6	1.8	1.6	1.6	1.6	1.6	1.2	1.6	1.8	1.2	1 .2	1.6
C706	2.2	2.2	2.4	2.2	2.2	2.2	1.2	2.2	2	0.8	1.2	2.2
C707	2.2	2.2	2.0	2.2	2.2	2.2	1.6	2.2	2.0	0.8	1.6	2.2
C708	0.8	0.8	1.4	0.8	0.8	0.8	0.8	0.8	1.4	2	0.8	0.8
C709	1.6	1.8	1.6	1.6	1.6	1.6	1.2	1.6	1.8	1.2	1 .2	1.6
C801	1.2	1.2	1	1.2	1.2	1.2	1.8	1.2	1	1.2	1.8	1.2
C802	0.8	0.8	1.8	0.8	0.8	0.8	0.2	0.8	2.25	2.20	0.2	0.8
C803	1.6	1.6	1.8	1.6	1.6	1.6	1.2	1.6	1.8	1.2	1.2	1.6
C804	1.6	1.8	1.6	1.6	1.6	1.6	1.2	1.6	1.8	1.2	1.2	1.6
C805	1.4	1.4	1.6	1.4	1.4	1.4	1.2	1.4	1.6	1.4	1.2	1.4
C806	1.6	1.6	1.4	1.6	1.6	1.6	1.6	1.6	1.4	1	1.6	1.6
C807	1.6	1.6	2.2	2.6	2	1.6	0.8	1.6	2.2	1.4	0.8	1.6
C808	1.6	1.6	1.8	1.6	1.6	1.6	1.2	1.6	1.8	1.2	1.2	1.6

3.2. ATTAINMENT OF COURSE OUTCOMES (40)

3.2.1. Describe the assessment processes used to gather the data upon which the evaluation of Course Outcome is based (10)

Direct Assessment	
Unit Test	After completion of each and topic we use to keep an unit test for the student best performance in university level exam without fail in each and every subject to attain the course outcome.
Sessional Exam	The Sessional exams are conducted four times in one year course. The sessional exam question papers contain the Essay type 20 Mark question and 5 Mark question and 2 Mark short answer type questions. The sessional exam question papers pattern are like university examination question papers model. The Course outcomes are assessed by the performance of students in university level examination and also evaluation system followed as per Pharmacy Council of india.
Improvement Test	The improvement test was conducted to the poor or less mark scorer of sessional exams. The question paper was set as like sessional exams and issued to the student for improving their sessional mark for the internal assessment
University Exam	The University exam with a much wider scope and covering complete syllabus. University examinations are more focused on attainment of course outcomes as well as Programme outcomes.
Assignments	The assignments are planned to assess the student's individual writing skill, increase the interest on survey of the information from the various National and International author's books and gain the knowledge in pharmacy subjects.
Laboratory tests	It is used to understand and improve the scientific and instrumental handling skills and techniques for the experimental purpose. Laboratory work demonstrates how theory can be verified by experiments through interpretation of results. Laboratory experiments are done in groups so students learn to work in teams.

Seminar/Project presentation:	Final year students are asked to present a seminar in every week end basis. This type of presentation will give an effective communication within the society. While presentations carry the questions and answers session related to the topic and have a wider discussions and suggestion session this lead to a realization of how important is a seminar and project presentation.
Viva –Voce:	During laboratory hours, the viva voce are conducted to examine the students oral presentation skills and to remove the panic of the students during university practical viva voce examination.
Student Project	Projects are taken in groups of 3-4 students in each. Students are guided by the faculty members. Here students apply their knowledge, skill related to a current trend research topic and develops a project towards research area and they submit during the university exam.
Indirect Assessment	
Course Outcome Feedback	After the end of every semester or in between the semester, the feedback is taken from the students to ensure any grievence from their side and action taken to make them rectified.
Graduate Exit Feedback	In the last year, a feedback is taken from the student for achievement of POs and graduate qualities are taken as criteria in the feedback.
Alumni Feedback	Alumni feedback is taken with reference to the attainment of Pos during the period of alumni meet and/or during the guest lectures given by the alumni.
International / National Level Examination	In this component, various examinations (national and international level) like GPAT, TOEFL, etc are taken in to consideration for students performance and evaluation.
Industrial Feedback	Students who have undergone vocational/summer training and internship in the industries as well as who got the jobs in the industries, from that industries, hospitals and any academic side an usual feedback is taken for the performance and achievement of the students. A verbal through telephone and written feedback is taken from industry persons when our faculty meets them at their facility and at any meeting. Also the feedback is taken from the industry person during their meet at our institute for giving their guest lectures, Placement or any training.

3.2.2. Record the attainment of Course Outcomes of all courses with respect to set attainment levels (30)

Program shall have set Course Outcome attainment levels for all courses. (The attainment levels shall be set considering average performance levels in the university examination or any higher value set as target for the assessment years. Attainment level is to be measured in terms of student performance in internal assessments with respect the course outcomes of a course in addition to the performance in the University examination)

Measuring Course Outcomes attained through University Examinations & Internal Assessment

Target may be stated in terms of percentage of students getting more than the university average marks or more as selected by the Program in the final examination. For cases where the university does not provide useful indicators like average or median marks etc., the program may choose an attainment level on its own with justification.

Example related to attainment levels Vs. targets: (The examples indicated are for reference only. Program may appropriately define levels)

Attainment Level 1: **50%** students scoring more than University average percentage marks or set attainment level in the final examination is considered to be attainment of "1"

Attainment Level 2: **60%** students scoring more than University average percentage marks or set attainment level in the final examination is considered to be attainment of "2"

Attainment Level 3: **70%** students scoring more than University average percentage marks or set attainment level in the final examination is considered to be attainment of "3"

- Attainment is measured in terms of actual percentage of students getting set percentage of marks.
- If targets are achieved then all the course outcomes are attained for that year. Program is expected to set higher targets for the following years as a part of continuous improvement.

- If targets are not achieved the program should put in place an action plan to attain the target in subsequent years.

Course Outcome	University Examination Attainment	Internal Assessment Attainment	University Examination Weightage 80%	Internal Assessment Weightage 20%
Course Name: C101				
C101Pharmaceutical Analysis – I	3	1	2.4	0.2
C102 Pharmacognosy - I	3	1	2.4	0.2
C103 Pharmaceutics – I (physical Pharmacy – I)	3	1	2.4	0.2
C104 Basic Electronics and Computer Applications	3	0.9	2.4	0.18
C105 Remedial Mathematics	3	3	2.4	0.6
C106 Remedial Biology	3	0.5	2.4	0.1
C107 Environmental Sciences	3	1	2.4	0.2
C108 Pharmaceutical Analysis – I	3	3	2.4	0.6
C109 Pharmacognosy – I	3	3	2.4	0.6
C110 Pharmaceutics – I (physical Pharmacy – I)	3	3	2.4	0.6
C111 Basic Electronics and Computer Applications	3	0.9	2.4	0.18
C112 Remedial Biology	3	3	2.4	0.6
Average attainment	3	18.55	2.4	0.35
Course attainment	2.75			

Course Name: C201				
C201 Pharmaceutics – II(Physical Pharmacy - II)	**3**	**3**	**2.4**	**0.6**
C202 Pharmaceutical Chemistry – I(Inorganic Chemistry)	**3**	**0.5**	**2.4**	**0.1**
C203 Anatomy, Physiology & Health Education – I	**1**	**0.7**	**0.8**	**0.14**
C204 Pharmaceutical Analysis – II	**3**	**0.7**	**2.4**	**0.14**
C205 Mathematics & Statistics	**3**	**0.9**	**2.4**	**0.18**
C206 Pharmaceutics – II(Physical Pharmacy - II)	**3**	**3**	**2.4**	**0.6**
C207 Pharmaceutical Chemistry – I(Inorganic Chemistry)	**3**	**3**	**2.4**	**0.6**
C208 Anatomy, Physiology & Health Education – I	**3**	**3**	**2.4**	**0.6**
C209 Pharmaceutical Analysis – II	**3**	**3**	**2.4**	**0.6**
Average attainment	**2.77**	**1.97**	**2.22**	**0.39**
Course attainment	**2.61**			
Course Name: C301				
C301 Pharmaceutical Chemistry – II (Organic Chemistry-I)	**3**	**0.6**	**2.4**	**0.12**

C302 Pharmaceutics - III (Unit Operations-I)	3	3	2.4	0.6
C303 Pharmacognosy – II	3	0.7	2.4	0.14
C304 Anatomy, Physiology & Health Education-II	0.6	0.6	0.5	0.12
C305 Pharmaceutics – IV (Dispensing and Community Pharmacy)	3	3	2.4	0.6
C306 Pharmaceutical Chemistry – II (Organic Chemistry-I)	3	3	2.4	0.6
C307 Pharmaceutics - III (Unit Operations-I)	3	3	2.4	0.6
C308 Pharmacognosy – II	3	3	2.4	0.6
C309 Anatomy, Physiology & Health Education-II	01	2	0.8	0.4
C310 Pharmaceutics – IV (Dispensing and Community Pharmacy)	3	3	2.4	0.6
Average attainment	2.56	2.19	2.05	0.43
Course attainment	2.48			
Course Name: C401				
C401 Pharmaceutical Chemistry – III (Organic Chemistry-II)	3	0.8	2.4	0.16
C402 Pharmaceutics - V (Unit Operations-II)	3	3	2.4	0.6
C403 Pharmaceutical Microbiology	0.8	0.5	0.64	0.1

C404 Pharmacognosy – III	**1**	**1**	**0.8**	**0.2**
C405 Pathophysiology of Common Diseases	**1**	**1**	**0.8**	**0.2**
C406 Pharmaceutical Chemistry – III (Organic Chemistry-II)	**3**	**3**	**2.4**	**0.6**
C407 Pharmaceutics - V (Unit Operations-II)	**3**	**3**	**2.4**	**0.6**
C408 Pharmaceutical Microbiology	**3**	**3**	**2.4**	**0.6**
C409 Pharmacognosy – III	**3**	**3**	**2.4**	**0.6**
Average attainment	**2.31**	**2.03**	**1.84**	**0.40**
Course attainment	**2.24**			
Course Name: C501				
C501 Pharmaceutical Chemistry - IV(Biochemistry)	**0.8**	**0.7**	**0.64**	**0.14**
C502 Pharmaceutics - VI(Pharmaceutical Technology -I)	**3**	**2**	**2.4**	**0.4**
C503 Pharmacology – I	**2**	**3**	**1.6**	**0.6**
C504 Pharmacognosy – IV	**1**	**0.7**	**0.64**	**0.14**
C505 Pharmaceutical Chemistry-V(Medicinal chemistry - I)	**2**	**0.6**	**1.6**	**0.12**

C506 Pharmaceutical Chemistry - IV(Biochemistry)	3	3	2.4	0.6
C507 Pharmaceutics - VI(Pharmaceutical Technology -I)	3	3	2.4	0.6
C508 Pharmacognosy – IV	3	3	2.4	0.6
C509 Pharmaceutical Chemistry- V(Medicinal chemistry - I)	3	3	2.4	0.6
Average attainment	2.31	2.81	1.83	0.42
Course attainment	2.25			
Course Name: C601				
C601 Pharmaceutical Chemistry VI(Medicinal Chemistry - II)	2	0.6	1.6	0.12
C602 Pharmaceutics - VII(Biopharmaceutics & Pharmacokinetics)	3	2	2.4	0.4
C603 Pharmacology – II	3	3	2.4	0.6
C604 Pharmaceutical Jurisprudence & Ethics	3	1	2.4	0.2
C605 Therapeutic Drug Monitoring & Bioavailability	3	2	2.4	0.4
C606 Pharmaceutical Chemistry	3	3	2.4	0.6

VI(Medicinal Chemistry - II)				
C607 Pharmaceutics - VII(Biopharmaceutics & Pharmacokinetics)	3	3	2.4	0.6
C608 Pharmacology – II	3	3	2.4	0.6
C609 Therapeutic Drug Monitoring & Bioavailability	3	3	2.4	0.6
Average attainment	2.88	2.28	2.31	0.45
Course attainment	2.76			
Course Name: C701				
C701 Pharmacognosy-V(Chemistry of Natural Products)	3	1	2.4	0.2
C702 Pharmaceutics – VIII(Pharmaceutical Technology -II)	3	2	2.4	0.4
C703 Pharmacology – III	3	1	2.4	0.2
C704 Pharmaceutical Biotechnology	3	3	2.4	0.6
C705 Pharmacology – IV(Clinical Pharmacy & Pharmacotherapeutics)	3	2	2.4	0.4
C706 Pharmacognosy-V(Chemistry of Natural Products)	3	3	2.4	0.6
C707 Pharmaceutics – VIII(Pharmaceutical Technology -II)	3	3	2.4	0.6

C708 Pharmacology – III	**3**	**3**	**2.4**	**0.6**
C709 Pharmacology – IV(Clinical Pharmacy & Pharmacotherapeutics)	**3**	**3**	**2.4**	**0.6**
Average attainment	**3**	**2.33**	**2.4**	**0.46**
Course attainment	**2.86**			

Attainment level 1: **50% ;**Attainment level 2: **60% ;** Attainment level 3: **70%**

Criteria 3.3.1

3.3.1. Describe assessment tools and processes used for assessing the attainment of each PO (10)

In Outcome based Education, assessment is done through one or more than one processes, carried out by the institution, that identify, collect, and prepare data to evaluate the achievement of programme educational objectives, program outcomes and course objectives and outcomes.

PO Assessment Tools

Assessment tools are categorized into **direct and indirect assessment methods** to assess course outcomes and program outcomes.

1. Direct assessment display the student's knowledge and skills from their performance in the

continuous assessment tests, end-semester examinations and classroom assignments etc. these methods provide a sampling of what students know and/or can do and provide strong evidence of student learning.

2. Direct assessment methods

The various direct assessment tools for assessing the students and the PO attained are as follows

Assessing Tools	Aims & Objectives	Frequency	Program outcomes
Continuous assessment tests,	Continuous assessment tests and semester end examination are metric for assessing whether all the POs are attained or not. Examination is more focused on attainment of course outcomes and program outcomes using a descriptive exam.	The Sessional exams are conducted three times sessional exam question papers contain the Essay type 14 Mark question and 8 Mark question and 3 Mark short answer type questions.	All POs

Semester End Examination(Theory + Practical)	Semester End Examination aims with a much wider scope and covering complete syllabus. Assessing the understanding of the fundamental concepts and expression of the practical skills and knowledge gained	One at the end of the semester at the University level	All POs

3. Indirect Attainment Tools

The various indirect assessment tools for assessing the students and the PO attained are as follows:

Assessing Tools	**Aims & Objectives**	**Frequency**	**Program outcomes**
Alumni Feedback	To assess the effectiveness of Program for the career development of the graduates	Every year during Alumni Meet	-
Employer Survey	To assess the observation skills and ability to relate theoretical and practical studies to industrial scenario	Once in a year	-
Industrial Visit	To assess the observation skills and ability to relate class room studies to industrial scenario.	Once during the Program	PO1, PO2, PO3, PO4, PO5,PO6,PO7, PO9,PO11 and PO12.
Student exit survey	To evaluate the success of programme in providing students with opportunities to achieve the programme outcome	-	-

3.3.2. Provide results of evaluation of each PO (30)

Program shall set Program Outcome attainment levels for all POs.

(The attainment levels by direct (student performance) and indirect (surveys) are to be presented through Program level Course-PO matrix as indicated).

PO Attainment

C101, C102 are indicative courses in the first year. Similarly, C808 is final year course. First numeric digit indicates year of study and remaining two digits indicate course nos. in the respective year of study.

Direct attainment level of a PO is determined by taking average across all courses addressing that PO. Fractional numbers may be used for example 1.55.

Indirect attainment level of a PO is determined based on the Alumni Feedback, student exit surveys, employer surveys, Industrial visit.

PO attainment level will be based on attainment levels of direct assessment and indirect assessment. It is assumed that while deciding on overall attainment level 80% weightage may be given to direct assessment and 20% weightage to indirect assessment. Assuming following actual attainment levels:

For example: C201 –High (3) C302 – Medium (2) C303 – Low (1) C401 – High (3) Attainment level will be summation of levels divided by no. of courses 3+2+1+3/4= 9/4=2.25

PO Attainment level will be 80% of direct assessment + 20% of indirect assessment i.e. 1.8 + 0.4 = 2.2

Indirect Assessments for example Industrial visit customized to an average value as per levels 1, 2 & 3. Assumed level - 2 PO Attainment level will be 80% of direct assessment + 20% of indirect assessment i.e. 1.8 + 0.4 = 2.2

Table 1. Direct Assessment Results

Course	Po1	Po2	Po3	Po4	Po5	Po6	Po7	Po8	Po9	Po10	Po11	Po12
C101	1.4	1.4	1.6	1.4	1.4	1.4	1.4	1.4	1.6	1.4	1	1.6
C102	1.2	1.2	1.8	1.2	1.2	1.2	1.0	1.2	1.8	1.6	1.0	1.2
C103	2.4	2.4	2.2	2.4	2.4	2.4	1.4	2.4	2.2	0.8	1.4	2.4
C104	1.6	1.6	1.4	1.6	1.2	1.6	1.6	1.6	1.4	0.8	1.6	1.6
C105	1.8	1.8	0.8	1.8	1.8	1.8	2.8	1.8	0.8	0	2.8	1.8
C106	2.2	2.2	1.2	2.2	2.2	2.2	1.8	2.2	1.2	0	2.4	2.2
C107	1.6	1.6	1.4	1.6	1.2	1.6	1.6	1.6	1.4	0.8	1.6	1.6

C108	1.8	1.8	1.6	1.8	1.8	1.8	1.4	1.8	1.6	1	1.4	1.8
C109	1.4	1.4	2	1.4	1.4	1.4	0.8	1.4	2	1.6	0.8	1.4
C110	1.4	1.4	2	1.4	1.4	1.4	0.8	1.4	2	1.2	0.8	1.4
C111	1.6	1.6	1.4	1.6	1.2	1.6	1 .6	1.6	1.4	0.8	1.6	1.6
C112	1.0	1.0	1.8	1.0	1.0	1.8	0.6	1.0	2.6	1.0	1.0	1.0
C201	1.4	1.4	2	1.4	1.4	1.4	0.8	1.4	2	1.2	0.8	1.4
C202	0.6	0.6	1.2	0.6	0.6	0.6	0.6	0.6	1.2	2.2	0.6	0.6
C203	2.4	1.8	2.4	2.4	2.4	2.4	2.2	2.4	1.8	0.2	2.2	2.2
C204	1	1	1.2	1	1	1	1	1	1.2	1.8	1	1
C205	1.6	1.6	1.4	1.6	1.2	1.6	1.6	1.6	1.4	0.8	1.6	1.6
C206	1	1	1.6	1	1	1	0.4	1	1.6	1.6	0.4	1
C207	1	1	1.6	1	1	1	0.4	1	1.6	2	0.4	1
C208	1.8	2	1.8	1.8	18	1.8	1.4	1.8	2	1.2	0.8	1.8
C209	1.8	1.8	2	1.8	1.8	1.8	0.8	1.8	2	1.2	0.8	1.8
C301	1.2	1.2	1.4	1.2	1.2	1.2	1	1.2	1.4	1.6	1	1.2
C302	2	2	2	2	2	2	1.5	2	2	0.75	1.5	2
C303	2.4	1.4	2.4	2.4	2.4	2.4	2.6	2.4	1.4	0	2.6	2.4
C304	1.6	1.6	1.8	1.6	1.6	1.6	1.4	1.6	1.8	1	1.4	1.6
C305	1.6	1.6	1.8	1.6	1.6	1.6	1.2	1.6	1.8	1.2	1.2	1.6
C306	1.8	1.8	1.6	1.8	1.8	1.8	1.2	1.8	1.6	1.2	1.2	1.8
C307	2	2	2	2	2	2	1.5	2	2	0.75	1.5	2
C308	2.8	2.2	2.8	2.8	2.8	2.8	1.8	2.8	2.2	0.2	1.8	2.8
C309	1.8	1.8	1.2	1.8	1.8	1.8	2.4	1.8	1.2	0.2	2.4	1.8
C310	1.6	1.6	1.8	1.6	1.6	1.6	1.2	1.6	1.8	1.2	1.2	1.6
C401	2	2	1.5	2	2	2	2.5	2	1.5	0.25	2.5	2
C402	1.6	1.6	1.8	1.6	1.6	1.6	1.2	1.6	1.8	1.2	1.2	1.6
C403	1.6	1.6	1.8	1.6	1.6	1.6	1.2	1.6	1.8	1.2	1.2	1.6
C404	2.4	1.4	2.4	2.4	2.4	2.4	2.6	2.4	1.4	0	2.6	2.4
C405	1.6	1.8	1.6	1.6	1.6	1.6	1.2	1.6	1.8	1.2	1.2	1.6
C406	1.7	1.7	0.7	1.7	1.7	1.7	2.7	1.7	0.7	0	2.7	1.7
C407	1.6	1.6	1.8	1.6	1.6	1.6	1.2	1.6	1.8	1.2	1.2	1.6
C408	1.6	1.6	1.8	1.6	1.6	1.6	1.2	1.6	1.8	1.2	1.2	1.6
C409	2.2	2	2.2	2.2	2.2	2.2	1.6	2.2	2	0.6	1.6	2.2
C501	1.2	1.2	1.8	1.2	1.2	1.2	0.8	1.2	1.8	1.6	0.8	1.2
C502	1.5	1.8	1.8	1.6	1.6	1.6	1.2	1.6	1.8	1.2	1.2	1.6
C503	1.6	1.6	1.8	1.6	1.6	1.6	1.4	1.6	1.8	1	1.4	1.6
C504	2.2	2.2	1.6	2.2	2.2	2.2	2.4	2.2	1.6	0.2	2.4	2.2
C505	2	2	1.4	2	2	2	2.6	2	1.4	0.2	2.6	1.8
C506	2	2	1.8	1.2	2	2	1.4	2	1.8	0.8	1.4	2
C507	1.2	1.4	1.2	1.2	1.2	1.2	0.4	1.2	1.4	1.8	0.4	1.2
C508	2.0	2.0	2.8	2.0	2.0	2.0	1.0	2.0	2.8	1.0	1.0	2.0
C509	2	2	1.5	2	2	2	2	2	1,5	0.5	2	2

C601	1.6	1.6	1.8	1.6	1.6	1.6	1.4	1.6	1.8	0.8	1.4	1.6
C602	1.2	1.2	1.8	1.2	1.2	1.2	0.6	1.2	1.8	1.6	0.8	1.2
C603	2	1.4	2	2	2	2	2.2	2	1.4	0.2	1.8	2
C604	1.6	1.4	1.6	1.6	1.6	1.6	1.4	1.4	1.4	1	1.6	1.6
C605	0.6	0.6	1.4	0.6	0.6	0.6	0	0.6	1.4	2.4	0	0.6
C606	1.8	1.5	2	1.8	1.8	1.8	0.8	1.8	2	1.2	0.8	1.8
C607	1.2	1.2	1.8	1.2	1.2	1.2	0.8	1.2	1.8	1.6	0.8	1.2
C608	2	1.8	2	2	2	2	1.8	2	1.8	0.4	1.8	2
C609	0.2	0.2	1.2	0.2	0.2	0.2	0	0.2	1.2	2.8	0	0.2
C701	1.2	1.2	1.8	1.2	1.2	1.2	0.8	1.2	1.6	1.6	0.8	1.2
C702	2.2	2.2	2.0	2.2	2.2	2.2	1.6	2.2	2.0	0.6	1.6	2.2
C703	1.6	1.6	1.8	1.6	1.6	1.6	1.2	1.6	1.8	1.2	1.2	1.6
C704	1.2	1.6	1.8	1.2	1.6	1.6	1.6	1.8	1.2	1.6	1.6	1.2
C705	1.6	1.8	1.6	1.6	1.6	1.6	1.2	1.6	1.8	1.2	1 .2	1.6
C706	2.2	2.2	2.4	2.2	2.2	2.2	1.2	2.2	2	0.8	1.2	2.2
C707	2.2	2.2	2.0	2.2	2.2	2.2	1.6	2.2	2.0	0.8	1.6	2.2
C708	0.8	0.8	1.4	0.8	0.8	0.8	0.8	0.8	1.4	2	0.8	0.8
C709	1.6	1.8	1.6	1.6	1.6	1.6	1.2	1.6	1.8	1.2	1 .2	1.6
C801	1.2	1.2	1	1.2	1.2	1.2	1.8	1.2	1	1.2	1.8	1.2
C802	0.8	0.8	1.8	0.8	0.8	0.8	0.2	0.8	2.25	2.20	0.2	0.8
C803	1.6	1.6	1.8	1.6	1.6	1.6	1.2	1.6	1.8	1.2	1.2	1.6
C804	1.6	1.8	1.6	1.6	1.6	1.6	1.2	1.6	1.8	1.2	1.2	1.6
C805	1.4	1.4	1.6	1.4	1.4	1.4	1.2	1.4	1.6	1.4	1.2	1.4
C806	1.6	1.6	1.4	1.6	1.6	1.6	1.6	1.6	1.4	1	1.6	1.6
C807	1.6	1.6	2.2	2.6	2	1.6	0.8	1.6	2.2	1.4	0.8	1.6
C808	1.6	1.6	1.8	1.6	1.6	1.6	1.2	1.6	1.8	1.2	1.2	1.6
Total attainment 100%	1.61	1.58	1.73	1.62	1.82	1.63	1.33	1.62	1.69	1.07	1.33	1.61
80%	1.29	1.26	1.38	1.30	1.46	1.30	1.06	1.30	1.35	0.86	1.06	1.29

Table 2. Indirect Assessment Results

Assessment Tools	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO10	PO11	PO12
Alumni Feedback	-	-	-	-	-	-	-	-	-	-	-	-
student exit surveys	-	-	-	-	-	-	-	-	-	-	-	-

employer surveys	-	-	-	-	-	-	-	-	-	-	-	-
Industrial visit	1	3	2	1	3	1	2	-	3	-	1	2
Average PO assessment	1	3	2	1	3	1	2	-	3	-	1	2
20% of Average	0.2	0.6	0.4	0.2	0.6	0.2	0.4	-	0.6	-	0.2	0.4

Table 3. PO Attainment

Attainment	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO10	PO11	PO12
Direct attainment (80%)	1.29	1.26	1.38	1.30	1.46	1.30	1.06	1.30	1.35	0.86	1.06	1.29
Indirect attainment (20%)	0.2	0.6	0.4	0.2	0.6	0.2	0.4	-	0.6	-	0.2	0.4
Total attainment	1.49	1.86	1.78	1.5	2.06	1.5	1.46	1.30	1.95	0.86	1.26	1.69

4. Students' Performance (180)

Item	CAY 2018-19	CAY*m*1 2017-18	CAY*m*2 2016-17	CAYm3 2015-16
Sanctioned intake of the program (N)	60	60	60	60
Total number of students admitted in first year (N1)	60	60	60	60
Number of students admitted in 2nd year in the same batch via lateral entry (N2)	03	00	6	3
Total number of students admitted in the program (N1 + N2)	63	60	66	63

4.1. Enrolment Ratio (20)

Enrolment Ratio= N1/N

Year	Sanctioned (N)	Enrolled (N1)	Enrolment ratio = N1/N X 100
CAY	60	60	100
CAY m1	60	60	100
CAY m2	60	60	100
CAY m13	60	60	100

Item (Students enrolled at the First Year Level on average basis during the previous three academic years starting from current academic year)	Marks
>=90% students enrolled	20
>=80% students enrolled	18
>=70% students enrolled	16
>=60% students enrolled	12
>=50% students enrolled	08
<50% students enrolled	0

4.2. Success Rate in the stipulated period of the program (50)

Year of entry	Number of students admitted in 1st year + admitted via lateral entry in 2nd year (N1 + N2)	Number of students who have successfully graduated without backlogs in any year of study (Without backlog means no compartment/failure in any semester/year of study)			
		I Year	II Year	III Year	IV Year
CAY(2018-19)	60+03				
CAY*m*1(2017-18)	60+00	39			
CAY*m*2(2016-17)	60+06	27	36		
CAY*m*3(2015-16)	60+03	41	49	45	
CAY*m*4(LYG) (2014-15)	60+00	39	32	33	16
CAY*m*5 (LYG*m*1) (2013-14)	60+00	35	32	14	16
CAY*m*6 (LYG*m*2) (2012-13)	43+00	30	20	14	27

Year of entry	Number of students admitted in 1st year + admitted via lateral entry in 2nd year (*N*1 + *N*2)	Number of students who have successfully graduated (Students with backlog in stipulated period of study)			
		I Year	II Year	III Year	IV Year
CAY	60+03				
CAY*m*1(2017-18)	60+00	59			
CAY*m*2(2016-17)	60+06	60	61		
CAY*m*3(2015-16)	60+03	61	58	38	
CAY*m*4 (LYG) (2014-15)	60+00	56	37	42	22
CAY*m*5 (LYG*m1)* (2013-14)	60+00	43	43	24	18
CAY*m*6 (LYG*m2)* (2012-13)	43+00	42	25	17	37

4.2.1. Success rate without backlogs in any year of study (30)

SI= (Number of students who graduated from the program without backlog)/ {(Number of students admitted in the first year of that batch) plus (lateral entry students admitted in second year of study)}

Average SI = Mean of success index (SI) for past three batches

Success rate without backlogs in any year of study = 30 × Average SI

Mean SI = 0.39

Average SI = 30X0.39

= 11.7

Item	Latest Year of Graduation (LYG) 2018	Latest Year of Graduation minus 1 (LYG*m*1) 2017	Latest Year of Graduation minus 2 (LYG*m*2) 2016
Number of students admitted in the corresponding First Year + admitted in 2nd year via lateral entry	60+0	60+0	43+0
Number of students who have graduated without backlogs in the stipulated period	16	16	27
Success index (SI)	0.27	0.27	0.63

Note: If 100% students clear without any backlog then also total marks scored will be 50 as both 4.2.1 & 4.2.2 will be applicable simultaneously.

4.2.2. Success rate with backlog in stipulated period of study (20)

SI= (Number of students who graduated from the program in the stipulated period of course duration)/ {(Number of students admitted in the first year of that batch) plus (lateral entry students admitted in second year of study)}

Average SI = mean of success index (SI) for past three

batches Success rate = 20 × Average SI

Mean SI = 0.5101

Average SI = 0.5101X20

= 10.20

Item	LYG 2018	LYG*m*1 2017	LYG*m*2 2016
Number of students Admitted in the Corresponding First Year + admitted in 2nd year via lateral entry	60+0	60+0	43+0
Number of students who have graduated with backlog in the stipulated period	22	18	37
Success Index (SI)	0.37	0.3	0.86

4.3. Academic Performance in Final Year (10)

Academic Performance = Average API

Academic Performance Index(API) = ((Mean of Final Year Grade Point Average of all successful Students on a 10 point scale) or (Mean of the percentage of marks of all successful students in Final Year/10)) x (successful students/number of students appeared in the examination)

Successful students are those who passed in all the final year courses

Academic Performance	2017-18 CAYm1	2016-17 CAY*m2*	2015-16 CAY*m3*
Mean of CGPA or Mean Percentage of all successful students (X)	7.725	7.95	7.32
Total no. of successful students (Y)	55	42	39
Total no. of students appeared in the examination (Z)	62	62	42
API = x* (Y/Z)	6.87	5.39	6.80
Academic Performance=Average API =(AP1 + AP2 + AP3)/3	6.35/10		

4.4. Academic Performance in Third Year (10)

Academic Performance = Average API

Academic Performance Index= *((Mean of 3rd Year Grade Point Average of all successfulStudents on a 10 point scale) or (Mean of the percentage of marks of all successful students in Third Year/10)) x (successful students/number of students appeared in the examination)*

Successful students are those who are permitted to proceed to the final year

Academic Performance	2017-18 CAYm1	2016-17 CAY*m2*	2015-16 CAY*m3*
Mean of CGPA or Mean Percentage of all successful students (X)	6.525	7.82	7.91
Total no. of successful students (Y)	41	46	45
Total no. of students appeared in the examination (Z)	66	61	62
API = x* (Y/Z)	4.05	5.89	5.74
Average API = (AP1 + AP2 + AP3)/3	5.23/10		
Academic Performance= Average API = (AP1 + AP2 + AP3)/3	5.23/10		

4.5. Academic Performance in Second Year (10)

Academic Performance = Average API

*Academic Performance Index = (**API**)= ((Mean of 2nd Year Grade Point Average of all successful Students on a 10 point scale) or (Mean of the percentage of marks of all successful students in Second Year/10)) x (successful students/number of students appeared in the examination)*

Successful students are those who are permitted to proceed to the third year

Academic Performance	2017-18 CAYm1	2016-17 CAY*m2*	2015-16 CAY*m3*
Mean of CGPA or Mean Percentage of all successful students (X)	8.9	8.5	8.32
Total no. of successful students (Y)	38	36	49
Total no. of students appeared in the examination (Z)	60	66	62
API = x* (Y/Z)	5.63	4.63	6.57
Academic Performance = Average API = (AP1 + AP2 + AP3)/3	5.608/10		

4.6. Academic Performance in First Year (20)

Academic Performance=2.0*Average API

Academic Performance Index (API) =((Mean of 1st Year Grade Point Average of all successful Students on a 10 point scale) or (Mean of the percentage of marks of all successful students in first Year/ 10)) x (successful students/number of students appeared in the examination)

Successful students are those who are permitted to proceed to the second year

Academic Performance	2017-18 CAYm1	2016-17 CAY*m2*	2015-16 CAY*m3*
Mean of CGPA or Mean Percentage of all successful students (X)	8.42	8.25	7.95
Total no. of successful students (Y)	39	27	41
Total no. of students appeared in the examination (Z)	60	60	61
API = x* (Y/Z)	5.473	3.7125	5.343
Average API = (AP1 + AP2 + AP3)/3	4.8411		
Academic Performance= 2.0 *Average API	9.68/20		

4.7. Placement and Higher Studies (40)

Assessment Points = 40 x (x+y)/N

Item	LYG 2017-18	LYG*m*1 2016-17	LYG*m*2 2015-16
Total No. of Final Year Students (N)	60	60	60
Number of students placed in Industries/Hospitals/Government sector through on/off campus recruitment or opted for Enterpreneurship(x)	41	29	18
No.of students admitted to higher studies with valid scores in various qualifying exams(y)	1	-	-
x + y	42	29	18
Placement Index : (x + y)/N	0.72	0.49	0.3
T = Average of (x + y)/N	0.50		
Assessment = 40 X T	20		

4.7.1 Provide the placement data in the below mentioned format with the name of the program and the assessment year:

4.71: Placement data (LYG – 2018)

S.NO	NAME OF THE STUDENT PLACED	ENROLMENT NUMBER	NAME OF THE EMPLOYER	EMPLOYMENT NUMBER WITH DATE
1	S.P.AJITH KUMAR	UP14G1500020	APOLLO HOSPITAL	04.12.2017
2	S.AKSHAYA	UP14G1500078	LISTER METROPOLIS	19.02.2018
3	AMBIKA	UP14G1500064	APOLLO HOSPITAL	04.12.2017
4	R.ANJITHA	UP14G1500069	APOLLO HOSPITAL	04.12.2017
5	V.A.CHANDINEE	UP14G1500083	LISTER METROPOLIS	19.02.2018
6	T.DEVISRI	UP14G1500052	APOLLO HOSPITAL	04.12.2017
7	S.C.DHANALAKSHMI	UP14G1500040	LISTER METROPOLIS	19.02.2018
8	K.DIVYA	UP14G1500075	LISTER METROPOLIS	19.02.2018
9	A.GNANASOWNDARIYA	UP14G1500002	APOLLO HOSPITAL	04.12.2017
10	J.JAY VIGNESH	UP14G1500001	BILLORTH HOSPITAL	09.09.2017
11	A.KALAIARASAN	UP14G1500013	BILLORTH HOSPITAL	09.09.2017
12	R.KARTHIKAYANI	UP14G1500071	LISTER METROPOLIS	19.02.2018
13	K.SHALINI	UP14G1500066	AGS HEALTH CARE	09.02.2018
14	N.LAVANIYA	UP14G1500076	APOLLO HOSPITAL	04.12.2017
15	B.S MAAGESWAREE	UP14G1500025	BILLORTH HOSPITAL	09.09.2017
16	M.MANJUSHREE	UP14G1500091	APOLLO HOSPITAL	04.12.2017
17	J.MOHAMED ISHAK	UP14G1500030	SKN ORGANICS	06.03.2018
18	S.NIVETHITHA	UP14G1500034	BILLORTH HOSPITAL	09.09.2017
19	K.PRIYADHARSHINI	UP14G1500094	AGS HEALTH CARE	09.02.2018
20	M.PRIYANKA	UP14G1500033	AGS HEALTH CARE	09.02.2018
21	S.PRIYANKA	UP14G1500035	AGS HEALTH CARE	09.02.2018
22	S.RASHMI	UP14G1500004	BILLORTH HOSPITAL	09.09.2017

23	A.RESHMA	UP14G1500055	APOLLO HOSPITAL	04.12.2017
24	M.SAKTHIKAMALAM	UP14G1500047	APOLLO HOSPITAL	04.12.2017
25	G.SANGEETHA	UP14G1500010	LISTER METROPOLIS	19.02.2018
26	P.SANKARI	UP14G1500048	EPI SOURCE PVT LTD	23.01.2018
27	R.SARANYA DEVI	UP14G1500005	EPI SOURCE PVT LTD	23.01.2018
28	A.SELVAKANNAN	UP14G1500043	APOLLO HOSPITAL	04.12.2017
29	S.SWETHA	UP14G1500053	BILLORTH HOSPITAL	09.09.2017
30	R.THIYAGARAJAN	UP14G1500045	APOLLO HOSPITAL	04.12.2017
31	R.VAISHNAVI DEVI	UP14G1500012	APOLLO HOSPITAL	04.12.2017
32	K.LOKESH	UP14G1500080	APOLLO HOSPITAL	04.12.2017
33	A.FAREEN	UP14G1500096	APOLLO HOSPITAL	04.12.2017
34	A.K.ABINAYA	UP14G1500070	APOLLO HOSPITAL	04.12.2017
35	P.AJITH	UP14G1500022	BILLORTH HOSPITAL	09.09.2017
36	P.ARAVIND	UP14G1500061	LISTER METROPOLIS	19.02.2018
37	S.ASWINI	UP14G1500007	EPI SOURCE PVT LTD	23.01.2018
38	K.BALAJI	UP14G1500072	BILLORTH HOSPITAL	09.09.2017
39	B.CHITRA MALINI	UP14G1500031	AGS HEALTH CARE	09.02.2018
40	D.DEEPAK SEN	UP14G1500049	WOCKHARDT	30.01.2018
41	H.IFFATH FATHIMA	UP14G1500058	YOGAM BPO	09.01.2018

Placement data (LYGm1 – 2017)

S.NO	NAME OF THE STUDENT PLACED	ENROLMENT NUMBER	NAME OF THE EMPLOYER	EMPLOYMENT NUMBER WITH DATE
1	Kaaviya Gadi	UP13G1500030	TECHNOSFT CORP	03.01.2017
2	E.Vignesh	UP13G1500003	SKN ORGANICS	18.01.2017
3	D.Sai Srinivas	UP13G1500058	SKN ORGANICS	18.01.2017

4	K.Nachammai	UP13G1500013	SKN ORGANICS	18.01.2017
5	A.G.Harine	UP13G1500033	SKN ORGANICS	18.01.2017
6	U.Aleema Shahada	UP13G1500076	SKN ORGANICS	18.01.2017
7	Kr.Rubini	UP13G1500032	SKN ORGANICS	18.01.2017
8	Bhavya Shree	UP13G1500086	VEE TECHNOLOGIES	03.05.2017
`9	Anuja.P	UP13G1500065	VEE TECHNOLOGIES	03.05.2017
10	Renuga Devi	UP13G1500010	VEE TECHNOLOGIES	03.05.2017
11	Kinnera.T	UP13G1500084	VEE TECHNOLOGIES	03.05.2017
12	Santhini.J	UP13G1500073	VEE TECHNOLOGIES	03.05.2017
13	Surrendar.D.R.	UP13G1500021	DR.LAL PATH LABS	07.02.2017
14	Venkateshwaran	UP13G1500041	DR.LAL PATH LABS	07.02.2017
15	Yuvaraj.A	UP13G1500094	DR.LAL PATH LABS	07.02.2017
16	Rohin Kumar.R	UP13G1500016	DR.LAL PATH LABS	07.02.2017
17	Prassana Kumar.S	UP13G1500020	S10 HEALTHCARE SOLUTIONS PVT.LTD	07.03.2017
18	Rubini.R	UP13G1500056	S10 HEALTHCARE SOLUTIONS PVT.LTD	07.03.2017
19	Sowmyashree.K	UP13G1500080	S10 HEALTHCARE SOLUTIONS PVT.LTD	07.03.2017
20	Kalesha.Y	UP13G1500081	ABBOTT LABORATORIES	24.03.2017
21	Santhiya.D.S.	UP13G1500073	ABBOTT LABORATORIES	24.03.2017
22	Vijay Kumar.R	UP13G1500038	DANONE NUTRICIA	12.06.2017
23	Marina Juliet.A	UP13G1500018	DANONE NUTRICIA	12.06.2017
24	Kavitha.N	UP13G1500036	DANONE NUTRICIA	12.06.2017
25	Manjula Begum	UP13G1500048	DANONE NUTRICIA	12.06.2017
26	Vijay Kumar.G	UP13G1500085	DANONE NUTRICIA	12.06.2017
27	Hans Raj.S	UP13G1500082	DANONE NUTRICIA	12.06.2017
28	George Fernades.A	UP13G1500022	DANONE NUTRICIA	12.06.2017
29	Debashis Chakrabathy	UP13G1500079	DANONE NUTRICIA	12.06.2017

Placement data (LYGM2 – 2016)

S.NO	NAME OF THE STUDENT PLACED	ENROLMENT NUMBER	NAME OF THE EMPLOYER	EMPLOYMENT NUMBER WITH DATE
1	Bala Kumaran	UP12G1500008	Apollo Hospitals	13.02.2016
2	Bijithra	UP12G1500034	Apollo Hospitals	13.02.2016
3	Jesu Raja	UP12G1500012	Apollo Hospitals	13.02.2016
4	Pavithra	UP12G1500015	Apollo Hospitals	13.02.2016
5	Pulla Divyashree	UP12G1500040	Apollo Hospitals	13.02.2016
6	Sneha Ganesh	UP12G1500002	Apollo Hospitals	13.02.2016
7	Suganya	UP12G1500006	Apollo Hospitals	13.02.2016
8	Supreeth	UP12G1500018	Apollo Hospitals	13.02.2016
9	Datchayani	UP12G1500016	Glenmark Pharmaceuticals	22.01.2016
10	Dhulipalla Sowmya	UP12G1500030	Glenmark Pharmaceuticals	22.01.2016
11	Richard Daniel	UP12G1500027	Glenmark Pharmaceuticals	22.01.2016
12	Sangeetha	UP12G1500025	Glenmark Pharmaceuticals	22.01.2016
13	Yuvanesh	UP12G1500024	Glenmark Pharmaceuticals	22.01.2016
14	Bhuvaneshwari	UP12G1500022	Microtherapeutics Pvt Ltd	02.02.2016
15	Jesu Raja	UP12G1500012	Microtherapeutics Pvt Ltd	02.02.2016
16	Rajamadhi	UP12G1500001	Microtherapeutics Pvt Ltd	02.02.2016
17	Vinoth Kumar	UP12G1500019	Microtherapeutics Pvt Ltd	02.02.2016
18	Rayapaneni Charitha	UP12G1500033	AGS Health Care	03.03.2016

4.8 Professional Activities (20)

4.8.1. Professional societies / chapters and organizing pharmacy events (5)

(Provide the relevant details)

S.NO	DATE	EVENT NAME	VENUE
1	13.12.2018	Awareness Campaign: Mitigation of Climate Change.	School of Pharmaceutical Sciences, VISTAS
2	31.10.2018	Rashtriya Ekta Diwas, National Unity Day.	School of Pharmaceutical Sciences, VISTAS
3	25/09/2018	State Level Quiz Competition Pharmacists as Medical Experts	School of Pharmaceutical Sciences, VISTAS.
4	1/08/2018	BLOOD DONATION CAMP	SPS, VISTAS in Association with ESI HOSPITAL
5	13.06.2018	Awareness Campaign, Theme: Save Oceans.	School of Pharmaceutical Sciences, VISTAS
6	04.06.2018	Awareness Campaign, World Environment Day 2018. Theme: Beat Plastic Pollution.	School of Pharmaceutical Sciences, VISTAS
7	11.04.2018	National Elephant Conference-II	School of Pharmaceutical Sciences, VISTAS
8	26/02/2018	Quiz programme on Pharmacy and Health	School of Pharmaceutical Sciences, VISTAS
9	14/11/2017	WORLD DIABETES DAY (Quiz Programme on Diabetes Mellitus)	School of Pharmaceutical Sciences, VISTAS
10	25/09/2017	SPS- HEALTH CLUB WORLD PHARMACIST DAY-2017 General Health Screening Camp	SPS, VISTAS in Association with APOLLO HOSPITAL
11	19/07/2017	BLOOD DONATION CAMP	SPS, VISTAS in Association with ESI HOSPITAL
12	23/07/2017	Modern Approaches In Drug Discovery, Nanoformulations And Pharmacokinetics	School of Pharmaceutical Sciences, VISTAS.
13	17/07/2017	AIDS Awareness Program	School of Pharmaceutical Sciences, VISTAS
14	24/08/2017	WOMEN IN CHEMICAL SCIENCES	School of Pharmaceutical Sciences,VISTAS

15	2017	PHARMACOLOGY CLUB	School of Pharmaceutical Sciences, VISTAS.
16	10/03/2017	BLOOD DONATION CAMP	SPS, VISTAS in Association with ESI HOSPITAL
17	02/01/ 2017	Elephant Conference Pharmacology	School of Pharmaceutical Sciences, VISTAS
18	28/01/2016	SYSTEMATIC REVIEW ON PRECLINICAL STUDIES	School of Pharmaceutical Sciences, VISTAS.

4.8.2. Publication of technical magazines, newsletters, etc. (5)

(List the publications mentioned along with the names of the editors, publishers, etc.)

S.NO	NAME OF THE FACULTY/STUDENT	DEPARTMENT	TITLE OF THE PAPER PRESENTED	DATE & VENUE; DETAILS OF PUBLICATION; PUBLISHERS; ISBN No.
1.	Dr.V. Sowmya Lakshmi	Pharmaceutical Chemistry & Analysis	Whole cells mediated biocatalytic reduction of ethyl-2-substituted β-keto esters: Inhibitors improve diastereo selectivity	27th-29th December 2018, SRMIST, Chennai; Proceedings of the "International Conference on Modern Trends in Chemical Sciences including Green Chemistry (MTCSGC-2018)"; OP-06; Gaurang Publishing Globalize Pvt. Ltd.; ISBN: 978-81-939102-1-4
2.	Dr.C. N.Hemalatha	Pharmaceutical Chemistry &Analysis	G-Quadruplux Ligands as stabilizer targeting Telomerase Enzyme as Anticancer agents	21st & 22nd October 2016, College of Pharmacy, Mother Theresa Post Graduate Research Institute of Health Sciences, Puducherry; Texo Pharma Virtus -2016 - Scientific Proceedings; TPV16/eP/005; International Journal of Pharma & Therapeutics, 2016: 7(5); 138

4.8.3. Participation in inter-institute events by students of the program of study (10)

(Provide a table indicating those publications, which received awards in the events/conferences organized by other institutes)

S.NO.	YEAR	NAME OF THE STUDENT/COURSE/YEAR	TITLE OF THE PAPER	DETAILES OF PRIZE	ISSUED BY
1.	2018	Elancheziyan K M.Pham I yr	---	NFPS Best Extra Curricular Award	NFPS international summit
2.	2018	A Selvakannan B.Pharm IV Yr	---	APP Best Student Award	APP 7th Annual Conference
3.	2018	Mohammed Shafiq M.Pham II yr	---	APP Best Student Award	APP 7th Annual Conference
4.	2016	Nivethitha.S of III B.Pharm	Phytochemical evaluation of an ayurvedic drug dichrostochys cinera (L) wight &Arn	First place in E-Poster	Recent trends in Industrial Pharmacognosy, RTIP-16, MTPG & RIHS) on 19th March 2016 at Puducherry

5. Faculty Information and Contributions (175)

Name of the faculty member	Qualification			Association with the Institution	Designation	Date of Joining the Institution	Department	Specia; ization	Academic Research			Sponsored Research (Funded research)	Consultancy and product development
	Degree (Highest Degree)	University	Year of Graduation						Research Paper publications	Ph.D Guidance	Faculty receiving Ph.D		
Dr. P. Shanmugasundaram	Ph. D.	University of madras	2006	School of Pharmaceutical Sciences, VISTAS.	Director/ Professor	08.09. 2005	P'Chemistry & Analysis	P'Analysis	34	7 (Guided) 8 (Guiding)	2006	-	HPLC Analysis
Dr. Binoy Varghese	Ph. D.	The Tamilnadu dr. MGR Medical university	2013	School of Pharmaceutical Sciences	Associate professor	01.07. 2016	P'Chemistry & Analysis	P'Chemistry	10	8 (Guiding)	2013	-	-
Dr. M.Sumithra	Ph. D.	Vels University	2017	School of Pharmaceutical Sciences	Assistant professor	28.08. 2008	P'Chemistry & Analysis	P'Analysis	10	8 (Guiding)	2017	-	-
Dr .C.N.Hemalatha	Ph. D.	VISTAS	2019	School of Pharmaceutical Sciences	Assistant Professor	05.08. 2015	P'Chemistry & Analysis-	P'Chemistry	16	-	-		

Dr. V. Sowmyalakshmi	Ph.D.	Indian Institute of Technology, madras	2015	School of Pharmaceutical Sciences	Assistant Professor	14.07.2016	P'Chemistry & Analysis-	P'Chemistry	7	8 (Guiding)	2015	-	-
Dr.S.Sathesh Kumar	Ph.D	Kakatiya University	2009	School of Pharmaceutical Sciences	Professor	02.07.2010	Pharmaceutics	Pharmaceutics	16	4 (Guided) 8 (Guiding)	2009	-	DSC Analysis
Dr.I.Somasundaram	Ph.D	Vels university	2017	School of Pharmaceutical Sciences	Associate professor	20.07.2007	Pharmaceutics	Pharmaceutical Biotechnology	9	8 (Guiding)	2017	-	-
Mrs.P.Sumathy	M.Pharm	The Tamilnadu dr. MGR Medical university	2008	School of Pharmaceutical Sciences	Assistant Professor	01.07.2015	Pharmaceutics	Pharmaceutics	2	-	-	-	-
Mrs. Keerthi S. Nair	M.Pharm	2014	Rajiv Gandhi Iniversity of Health Science	School of Pharmaceutical Sciences	Assistant Professor	08.08.2016	Pharmaceutics	Pharmaceutics	4	-	-	-	-
Dr.S.Jeganath	Ph.D	The Tamilnadu dr. MGR Medical university	2017	School of Pharmaceutical Sciences	Assistant Professor	03.07.2017	Pharmaceutics	Pharmaceutics	7	8 (Guiding)	2017	-	-

Dr. A. Vijayalakshmi	Ph.D	The TN Dr. MG medical University	2014	School of Pharmaceutical Sciences	Associate professor	21.08.2014	Pharmacognosy	Pharmacognosy	28	8 (Guiding)	2014	-	HPTLC analysis
Dr.E.Susithra	Ph.D	JNTU university	2015	School of Pharmaceutical Sciences	Assistant professor	01.07.2016	Pharmacognosy	Pharmacognosy	4	8 (Guiding)	2015	-	-
Mrs.Nithya.S	M.Pharm	The Tamilnadu dr. MGR Medical university	2010	School of Pharmaceutical Sciences	Associate professor	28.04.2010	Pharmacology	Pharmacology	10	-	-	-	-
Mrs.V.Jayashree	M. Pharm	The Tamilnadu dr. MGR Medical university	2011	School of Pharmaceutical Sciences	Assistant Professor	17.02.2014	Pharmacology	Pharmacology	11	-	-	-	-
Mrs.K.Manjula Devi	M. Pharm	The Tamilnadu dr. MGR Medical university	2011	School of Pharmaceutical Sciences	Assistant Professor	15.09.2014	Pharmacology	Pharmacology	5	-	-	-	-
Mrs. Vaheeda Rahman	M. Pharm	JNTU, Kakinada	2014	School of Pharmaceutical Sciences	Assistant Professor	18.01.2016	Pharmacology	Pharmacology	1	-	-	-	-

Dr.P.Saranya	Ph.D.	Sri Ramachandra Institute of Higher Eduation and Research	2019	School of Pharmaceutical Sciences	Assistant Professor	23.09.2014	Pharmacy Practice	Pharmacy Practice	7	-	-	-	-
Mrs.P.Geetha	M. Pharm	The Tamilnadu Dr. MGR Medical university	2008	School of Pharmaceutical Sciences	Assistant Professor	08.10.2015	Pharmacy Practice	Pharmacy Practice	12	-	-	-	-
Mrs. P. Maheshwari	M. Pharm	Vels Institute of Science, technology and Advanced Studies	2012	School of Pharmaceutical Sciences	Assistant Professor	01.03.2013	Pharmacy Practice	Pharmacy Practice	15	-	-	-	-

5.1. Student-Faculty Ratio (SFR) (20)

No. of UG Programs in the Department (n): 01

No. of Students = Sanctioned Intake + Actual admitted lateral entry
(The above data to be provided considering all the UG and PG programs of the department)
S = Number of Students in the Department = UG1
F = Total Number of Regular Faculty Members in the Department

Student Faculty Ratio (SFR) = S/F

Year	CAY (2018-19)	CAYm1 (2017-8)	CAYm2 (2016-17)
U1.1	60	60	60
U1.2	62	63	68
U1.3	58	66	62
U1.4	68	62	62
UG 1	258	251	252

No. of Faculty in the Department (F)	17	17	17
Student Faculty Ratio (SFR)	258/17 = 15.17	251/17 = 14.76	252/17 = 14.82
Average SFR	14.916		

5.1.1. Provide the information about the regular and contractual faculty as per the format mentioned below:

Year	**Total number of regular faculty in the department**	**Total number of contractual faculty in the department**
2016-17	17	-
2017-18	17	-
2018-19	17	-

5.2. Faculty Cadre Proportion (20)

The reference Faculty cadre proportion is 1(F1):2(F2):6(F3)

F1: Number of Professors required = 1/9 x Number of Faculty required to comply with 15:1 Student-Faculty ratio.

F2: Number of Associate Professors required = 2/9 x Number of Faculty required to comply with 15:1 Student-Faculty ratio.

F3: Number of Assistant Professors required = 6/9 x Number of Faculty required to comply with 15:1 Student-Faculty ratio

Year	**Professors (F1)**		**Associate Professors (F2)**		**Assistant Professors (F3)**	
	Required	**Available**	**Required**	**Available**	**Required**	**Available**
2016-17	2	2	4	4	11	11
2017-18	2	2	4	4	11	11

2018-19	2	2	4	4	11	11
Average Numbers	2	2	4	4	11	11

AF1 = Available faculty (Professor) AF2 = Available faculty (Assoc. Professor) AF3 = Available faculty (Asst. Professor)

RF1 = Required faculty (Professor) RF2 = Required faculty (Assoc. Professor) RF3 = Required faculty (Asst. Professor)

AF1/RF1 = 1 **AF2/RF2 = 1** **AF3/RF3 = 1**

Cadre Ratio Marks =[(AF1/RF1) + (AF2/RF2 x 0.6) + (AF3/RF3 x 0.4)] x 10

= [1+0.6 + 0.4] × 10

= [2] × 10

= 20

5.3 Faculty Qualification (20)

FQ = 2*(10X +4Y)/F

Year	**X (No. of faculty with Ph.D)**	**Y (No. of faculty with M. Pharm)**	**F (No. of faculty required)**	Faculty Qualification FQ=2*[(10X+6Y)/F]
2016-17	7	10	17	15.29
2017-18	9	8	17	16.23
2018-19	9	8	17	16.23
Average assessment:				15.91

5.4. Faculty Retention (20)

Item	Marks
>= 90% of required Faculty members retained during the period of assessment keeping 2016-17 as base year	20
>= 75% of required Faculty members retained	16
>= 60% of required Faculty members retained	12
>= 50% of required Faculty members retained	8
<= 50% of required Faculty members retained	0

Justification:

According to Faculty Cadre Proportion (5.2), we have calculated the no. of required faculties for the base year CAYm2 that was found to be 17 and the actual no. of faculty available was 17 so the faculty retention obtained by taking the CAYm2 as base year was 16 ÷ 17 = 94%.

5.5. Innovations by the faculty in Teaching and Learning (15)

In VISTAS the teaching and learning process begins with an orientation program or induction programmes for fresh students every year at the beginning of academic section. Senior faculties administrators and student mentors are involved in conducting the programme and the following instructions are provided

1. Student code of conduct
2. Disciplinary behavior expected from students
3. Examination pattern for different courses
4. Mentorship programme of VISTAS
5. Library facilities available
6. Hostel facilities and its regulation
7. Placement cell and its activities
8. Anti ragging codes in the campus
9. Girl students women grievance cell numbers
10. Availability of other academic programmes in the University

The institution constantly facilitates innovative strategies of teaching and learning and assessment using recent technology in order to meet global standards of education and keeping in mind its outcomes. Teaching and learning process is learner centric which enables the student to become lifelong independent learners. The teaching process has a blend of concepts, applications and problem-based teaching.

Teaching-learning and Evaluation

An enriched teaching, learning and evaluation process is carried out in VISTAS catering to the diversity of students and faculty. Students entering VISTAS enjoy a multivariate learning process. Bridge Courses are conducted to prepare the students to their respective study environments.

- The entire Teaching-Learning process is student centric focusing on LMS, KMS, and E-Learning resources.
- Interactive and instructional lectures, focused discussions, classroom deliberations, practical classes, hands-on training, projects, presentations, workshops and guest lectures help students to hone their technical skills.
- Comprehensive lesson plans are prepared regularly by faculties for effective teaching.
- Independent, Interactive, Collaborative and Participatory learning is encouraged and the required facilities are available for students in terms of SMART Classrooms, WiFi enabled Campus, Industrial Interactions, Projects and visits.
- Video lectures of VISTAS recorded using EduTech, NPTEL, EDX and other MOOCs to enhance student learning.
- Virtual learning through the A-VIEW and moodle programs of IIT are available.
- VISTAS employs an effective Mentor-Mentee system for guidance and counselling students on regular basis. The Faculty student ratio is 1:15.
- Class committee meetings are conducted regularly for all types of learners.
- Remedial and tutorial classes are conducted for slow learners to enhance the learning.
- Fast learners are involved in NPTEL courses, industrial problems and projects.
- All the programs offered by VISTAS have clearly defined POs, PSOs and COs and the outcomes are assessed through direct and indirect methods.
- VISTAS adopts Continuous Assessment System, where both formative and summative assessments are ensured to measure the attainment of course outcomes.
- VISTAS examination process is fully automated using ERP package.
- Results are published within 21 days of the last day of examination.
- Metrics at par with the world standards such as Cumulative Grade Point Average (CGPA) and Overall Weighted average mark (OWAM) is used to grade the students.
- The marks are distributed as 60% for end-semester examinations and 40% for continuous internal assessment.
- The quality of the Teaching-Learning process is assessed through student satisfaction survey and innovative practices are introduced based on the feedback received.

Here are list of initiatives to focus on student –centric learning

Design thinking to optimize student learning

Students of prefinal year and final year are assigned to design a project and its plan of work under the guidance of the faculty, so that they can focus on developing creativity and build up confidence through hands-on projects. Student has engaged in collection and compilation of literature from authentic sources and was directed to communicate in journal of national and international repute.

Focused group study

Students are divided into specific groups and are assigned specific topics related to curricular learning. These groups study the topics in detail through library books, internet, and library journals. Thereafter, the topics are discussed by individual groups in the class and the teacher further guides them about the specific topic

Interactive classrooms

Interactive class rooms are the effective ways of achieving the program outcomes (POs) and course outcomes (COs). The course outcomes could not be better achieved without these. Lectures are the best ways to get facts, make students to think and understand the concepts. The teacher is readily available to clear the doubts instantaneously. Thus these make a platform to cover and improve the ability to design, formulate and solve problems. Mode of delivery of lectures is power point presentations.

Simulation classes and labs

Topics are explained to students in class rooms with e-content in the form of animation and working pictures from YouTube to make them understand more clearly about the concepts and mechanisms and their application in real life. Performing animal experiments are restricted to undergraduate programmes in subjects like Pharmacology, which can be benefitted by simulation models

ICT usage

Students are provided with knowledge and proficiency in the usage of simulation software like, Empower, ExPharm, Chemdraw, Chemsketch, and SPSS. These soft wares are available online and students use it for various analysis purpose. Special training is offered to the students in the lab on regular basis.

Flipped classroom

The teachers put the material on a specific topic online on study groups for students to go through the material in advance, bring questions and queries about the topic and build additional knowledge on the subject during the class. This provides the opportunity for learning beyond syllabus also.

Web based learning:

The internet is an open information system from where the students can obtain various kinds of information, media and materials as texts, images, video sequences which can help them in a diverse way for generating self-learning environments. Due to its interactivity, learners can gather information which is important in learning and helpful in accomplishing their learning objectives. Hence, the potential of the internet self learning mode is considered to be very high. Therefore, the Institute provides internet facility in both the academic and hostel campuses for 24 hr. The availability of internet facility allows them to learn and to gather the information from worldwide network without any interruptions.

Presentations:

Every course allows students to prepare and present any topic from the curriculum. This type of delivery mode motivates students and enhances the their self learning and skills

Bridge Class

Students securing poor marks in class test and first internal exam were identified and given extra coaching classes to improve their results

Remedial Class

Students with backlog are given extra coaching and trained to perform better in their supplementary exams

Academic clubs

In academic clubs that group like-minded students meet together. While students do much of the planning, organizing and activities, an **academic** adviser usually a professor will be the mentor, allow students to prepare and present any topic from the curriculum and also on any non-technical topics. School of pharmaceutical sciences arranges club activities which includes guest lectures, quiz programmes, seminars and even entertainment programmes.

Journal Clubs

This helps the student to know the current research prospects in their field viz.,

1. Medicinal Garden Alliance
2. Pharmaceutics Fraternity
3. Women in Chemical Sciences
4. The Atoms
5. Stem Cell

Laboratory Component:
Laboratory is an important component that allows the students to acquire psychomotor (practical) skills. In addition, students are trained to collect the data, transformation of data as per the scientific principles, analysis, and interpretation and drawing conclusions. These skills also allow the students to appreciate the theoretical principles. It is a place where in several PO's can be attained, because of high contact time and 1 to 1basis.

Workshop:
These serve as a platform for sharing knowledge/expertise in advanced areas, which results in collaboration and attempt for enhancement of the skills, techniques and modern tools necessary for the practice of pharmacy profession.

Guest Lectures:
The institute invites guest faculties/resource persons on regular intervals. Expert talks by the eminent persons working in pharmaceutical industries/research organizations/ practicing pharmacists help the students and the faculty to understand current trends in various spheres, which leads to the attainment of PO's External resource persons also add value to the program and help students to realize the link between education and real world in the profession. These talks become a bridge to fill the gaps and also develop a rapport for meeting the future need of the industries / research organization / universities. These promote the sense of lifelong learning.

Training Programs:

Our college will provide special training programs to the students for their career development and to excel in competitive exams like:
GPAT coaching classes: GPAT is the key competitive exam for their higher studies, we invite resource persons from various places.

5.6. Faculties as participants in Faculty Development/Training Activities (15)

A Faculty scores maximum five points for participation
Participant in 2 to 5 days Workshop/Faculty Development Program: 3 Points
Participant >5 days Workshop/Faculty Development Program: 5 points

Faculty participation in FDP/training activities

Name of the Faculty	Max 5 per Faculty		
	CAY	CAYm1	CAYm2
Dr. P. Shanmugasundaram	3	3	3
Dr. Binoy Varghese	-	3	3
Dr. M.Sumithra	3	3	3
Dr.C.N.Hemalatha	3	3	3
Dr. V. Sowmyalakshmi	-	3	3
Dr. S. Sathesh Kumar	3	3	3
Dr. I. Somasundaram	3	3	3
Mrs. P. Sumathy	3	-	-
Mrs. Keerthi S. Nair	-	3	3
Dr. S. Jeganath	-	-	3
Dr. A. Vijayalakshmi	3	3	3
Dr. E. Susithra	-	3	5
Mrs..Nithya.S	3	3	3
Mrs. V.Jayashree	3	3	3
Mrs. K.Manjula Devi	3	3	3
Mrs. Vaheeda Rahman	3	3	3
Dr. P.Saranya	3	3	3
Mrs. P.Geetha	3	3	3
Mrs. P. Maheshwari	3	3	3
Sum	42	51	56
RF=Number of Faculty required to comply with15:1 Student-Faculty ratio as per 5.1	17	17	17
Assessment = 3 × Sum/(0.5RF)	14.82	18	19.76
Average assessment over three years (Marks limited to 15)	17.52		

5.7. Research and Development (40)

5.7.1. Academic Research (10)

Academic research includes research paper publications, Ph.D. guidance, and faculty receiving Ph.D. during the assessment period.

Publication

- Number of quality publications in refereed/SCI Journals, citations, Books/Book Chapters etc. (6)
- Ph.D. guided /Ph.D. awarded during the assessment period while working in the institute (4)

Year	Number of publications in refereed/SCI Journals	Citations	Book	Book Chapter
2016-17	89	246	Nil	Nil
2017-18	81	191		
2018-19	129	229		

Ph.D. guided /Ph.D. awarded

S.No	Name of the Faculty	No. of Ph. D guided	Ph.D Awarded
1.	Dr. P. Shanmugasundaram	7	-
2.	Dr. S. Sathesh Kumar	4	-
3.	Dr. A. Vijayalakshmi	1	-
4.	Dr. M. Sumithra	-	Awarded
5.	Dr. I. Somasundaram	-	Awarded
6.	Dr. C. N. Hemalatha	-	Awarded
7.	Dr. S. Jeganath	-	Awarded

Patents

Name of the Patent	Published/ awarded	Patent Number/ Year of Award	Name of the Applicant
Dibenzofuran compounds with antimalarial activity	Published	4520/CHE/2014	**E.Susithra,** D.Chamundeeswari, Shanmugam Meena, S.P. Thyagarajan, Rajasekhar Chekkara
2-Aminopyrimidine fused 7-azaindazole derivatives as anticancer agents	Published	201741012966 A/2017	Rajasekhar Chekkara, Venkata Reddy Gorla, Sobha Rani Tenkayala **Ethiraj Susithra,**

5.7.2. Sponsored Research (10)

S.No	Financial Year	Name of the Faculty (Principal Investigator)	Name of the funding agency	Title of the Project	Sanctioned order no.	Sanctioned date	Amount received (in rupees)	Amount received (in words)
1	2014-15	Dr. M. Vijey Aanandhi	DBT	Cytotoxic and anticancer activity of novel perylene di-imides	Ref. BT/Bio-CARe/03/10047/2013-14 **San. No.** 102/IFD/SAN/4692/2014-15	09. 09. 2014	21, 83,442	Twenty one lakhs eighty three thousand four hundred and forty two

5.7.3. Consultancy (from Industry) (10)

2016-17

Project Title	Funding agency	Duration	Amount (in Rupees)
HPTLC analysis of formulation	A.R.Magesh, GIET Pharmacy, Andhra Pradesh.	1 Week	4,000
Quantitative analysis of Bacoside enriched extract using HPTLC	J. Bhavana, Dept. of Biomedical Sciences, SRMC University	1 Week	4,500
Qualitative analysis herbal extract using HPTLC	S. Saravanakumar, Dept. of Biochemistry, Vels University	1 Week	1,000
Identification of Tablet formulation in parmaceutical dosage form by HPTLC analysis	E. Balapriyan, Adhiparasakthi College of Pharmacy, Melmaruvathur	1 Week	4,000
Quantitative analysis of Plant extract using marker compound gallic acid and Quinine - HPTLC	Ms. SaiSaraswathi, VIT University	1 Week	5,000
HPTLC analysis of 3 samples	Dr. K. Banu Dept. of Biotechnology, Vels University, Chennai.	1 Week	4500

2017-18

Project Title	Funding agency	Duration	Amount (in Rupees)
HPTLC analysis of siddha formulation	Siddha Yoga Pharma, Energy Foods, Radha Nagar Extension, Chennai-42.	1 Week	1,500
Qualitative analysis herbal extract using HPTLC	S. Saravanakumar, Dept. of Biochemistry, Vels University	1 Week	3,000
Differential Scanning Calorimetry (DSC) analysis of the samples	CL Baid Metha College of Pharmacy, Thorapakkam, Chennai.	1 Week	6,000

2018-19

Project Title	Funding agency	Duration	Amount (in Rupees)
Qualitative analysis of ethanol extract of *Smilax* species using HPTLC	A. Senthilkumar, Dept. of Pharmacology, AnnamalaiUniversity	1 Week	3,000
DRUG/MEDICINE SALES PRADHANMANTRI JANAUSHADI KENDRA, VISTAS	Pradhanmantri Bhartiya Janaushadi Kendra, New Delhi.	6 month	34,650
Qualitative analysis of ethanol extract using HPTLC	Dr. Lavakumar, Kalasingam College of Pharmacy, krishnankoil, Srivilliputhur.	1 Week	1,500

5.7.4. Honorary Consultancy from Central/State/Local Government Organizations (5) : NIL

5.8. Development activities (5)

Various Development activities are being conducted on routine basis which are as follows:

Product Development

- Development, characterization and molecular Interaction of Fibroblasts proliferation with 8-Prenyl derivative of Kaempeferol 3, 7, O- Diglucoside Hydrogel for skin trauma perturbations**.**
- *In-Vitro* and *In-Vivo* evaluation of the efficacy of 2% *Ocimum sanctum* flowable gel in the treatment of experimental periodontitis
- Evaluation of herbal ointment containing ethanol extract of *Plecranthus amboinicus* root for the management of psoriasis.

Working Models

Instrumental models for the formulation and evaluation of tablets and nanoparticles, testing of animal activities, isolation of volatile oil from plants, isolation of lead molecules from medicinal plants, standardization of traditional formulations, qualitative and quantitative analysis of synthetic and natural compounds using chromatographic techniques.

Research laboratories

- **CARD**: A centre, named, '**Centre for Advanced Research and Development'** (CARD) has been established with the aim of promoting research. Besides 12 advanced dedicated research labs in various schools, a Central Instrumentation lab is set up housing advanced instruments such as BET Surface Area Analyzer, Field Emission Scanning Electron Microscope, High Performance Thin Layer Chromatography, X-Ray Diffractometer, Particle Size and Zeta Potential Analyzer, Raman Spectrometer, etc. Research scholars from nearby universities also use VISTAS lab for research. The Board of Research Studies meets regularly to provide guidelines for research.
- **Elephant Research Centre:** The Elephant Research Centre [Centre for Elephant Disease Control and Prevention (CEDCP) & Elephant Formulary] at VISTAS, Chennai, India was inaugurated by the Chancellor of VISTAS Dr. Ishari K Ganesh & Vice- President (Planning & Development), VISTAS Prof. Dr. A. Jothi Murugan on Friday 27 October 2017. Our Elephant Research Centre is our country's unique Elephant Research Centre which primarily focusses on Elephant Formulary.

- **VISTAS - SPS Drug Testing Lab:** The research activities that are carried out in VISTAS - SPS Lab are the method development and validation of Active Pharmaceutical Ingredients (API) using RP-HPLC and Gas Chromatography, Application of different bioanalytical methods of analysis of API, quantitative analysis of components by HPLC techniques.

Instructional Materials:

- Video lectures of VISTAS recorded using EduTech, NPTEL, EDX and other MOOCs to enhance student learning.
- Virtual learning through the AVIEW and moodle programs of IIT are available.
- E-learning resources from digital library.
- **Lab Manuals**: Sample lab manuals are available.

Charts:

- Anatomical structures of different systems of body like circulatory system, excretory system, respiratory system, digestive system, human brain, human eye, human ear, human skin, lymphatic System, Female Reproductive system etc
- Transverse section of various crude drugs (51 Nos.)

Models: Models for various organ of the human body - Urinary system, Human Skin, Heart, Kidney, Eye, Brain, Ear, Intestine, Liver, Human Reproductive system- Female, Mouth, Human Skin.

Specimens: for plant kingdom and animal kingdom, crude drugs.

5.8. Faculty Performance Appraisal and Development System (FPADS) (20)

Institution has Performance Appraisal System for teaching and non-teaching staff

Response:

The Institution has introduced Self-Appraisal report for teachers which has to be submitted at the end of each academic year by both the teaching and non teaching faculty members.

Performance Appraisal for teaching Faculty members:

Institute has a very transparent self appraisal system. The appraisal system covers all the aspects of academic, administrative and research activities of the staff. The factors for appraisal are listed below:

- Teaching Assignment
- Mentoring & Guidance
- Journal Publication
- Conference Publication
- Research Project
- Award / Honors / Recognition

- Professional Membership
- Administration Support Services
- Organizing Events
- Accreditation Activities
- Consultancy

In addition to the above, faculty are rated by students through an online feedback system. The attributes covered for theory courses are:

Punctuality

* Sincerity
* Subject Knowledge
* Lecture Preparation
* Communication & Presentation Skills
* Coverage of Syllabus as per Schedule
* Standard of Test Questions
* Interaction & Approachability
* Helping for Clarification of Doubts
* Overall Rating of the Teacher

Award Reward

- Faculty Appreciation award is given to the faculty publishing books/book chapters on Teacher's day.
- Faculty Appreciation award is given to the faculty with good number of publications in indexed/impact journal on Teacher's day.
- Faculty Appreciation award is given to the faculty filing patent on Teacher's day.
- Faculty Appreciation award is given to the faculty receiving funding projects.

5.9. Visiting/Adjunct Faculty (5): NIL

6.1. Availability of adequate, well equipped classrooms to meet the curriculum requirements (20)

The School of Pharmaceutical Sciences is located amidst the various other schools within the Vels Institute of Science Technology & Advanced Studies (VISTAS) with well-structured classrooms to meet the curriculum needs their Classroom facilities are as follows

1. Our school has a class room to comfortably occupy the student strength for more than 60 candidates.
2. With a neat students table with desk and chair, fan, light & spacious windows for natural breeze from the trees planted inside the campus.
3. Boards & Separate LCD facilities for each class for teaching learning process.
4. Inside the classrooms our walls are pasted with different charts created by the students of the class.
5. Classrooms include separate four class rooms for normal regular classes and two classrooms for tutorial classes.
6. We have a separate hall in which we organize seminars, Guest Lectures in regular basis.
7. We have a separate hall for conducting conference which is also located within our institutional campus.
8. We have a common uninterrupted power supply through the power generators during power cut.
9. A separate Audio-Visual Hall within the campus

6.1a. Details of infrastructure available for B.Pharm Program

Table 6.1(a) infrastructure available for B.Pharm Program

S.No	Class room	Free occupy number	Facilities Available
1	I Year B.Pharmacy Lecture Hall	60	Fans, Lights, Students table with desk and chair set, LCD provisions, LAN connection provision, Sufficient extra switch box and switches for connecting LCD
2	II Year B.Pharmacy Lecture Hall	60	Fans, Lights, Students table with desk and chair set, LCD provisions, LAN connection provision, Sufficient extra switch box and switches for connecting LCD
3	III Year B.Pharmacy Lecture Hall	60	Fans, Lights, Students table with desk and chair set, LCD provisions, LAN connection provision, Sufficient extra switch box and switches for connecting LCD
4	IV Year B.Pharmacy Lecture Hall	60	Fans, Lights, Students table with desk and chair set, LCD provisions, LAN connection provision, Sufficient extra switch box and switches for connecting LCD
5	Tutorial Hall I	15	Fans, Lights, Students table with desk and chair set, LCD provisions, LAN connection provision, Sufficient extra switch box and switches for connecting LCD
7	Hall for Seminars/Conference	100	White Screen, LCD, Audio Visual Aids, Air conditioned, Sound Adjusting System with Mic.
8	Conference / Lecture	150	White Screen, LCD, Audio Visual Aids, Air conditioned, Sound Adjusting System with Mic.
9	Audio-Visual Hall	150	White Screen, LCD, Audio Visual Aids, Air conditioned, Sound Adjusting System with Mic.

6.2 Details of faculty Rooms (10)

The faculties of school are provided with a faculty place. The details are as follows:

Table 6.2 Faculty Rooms / Cabins available

S. No	Faculty Room/Cabin	Number of faculty accommodated
1	Director Room	01
2	Head, Department of Pharmacology, Cabin	01
3	Head, Department of Pharmacognosy, Cabin	01
4	Head, Department of Pharmaceutics, Cabin	01
5	Head, Department of Pharmaceutical Chemistry& Analysis, Cabin	01
6	Head, Department of Pharmacy Practice	01
6	Faculty Room I	04

6.3. Laboratories, instruments, machine room, computer labs, with equipments and other facilities:

- In the School, water supply, drainage, fire extinguishers, electrical plugs and fittings, first aid boxes, exhaust fans are provided; depending on the requirements in some labs we provide fuming cupboards also. Working stools
- Exclusively for B. Pharmacy institution has well equipped laboratories for conducting practical classes.
- The labs are cleaned regularly for maintaining the safety norms in the labs
- Computer laboratories are provided with air conditioners
- Racks and cupboards are available in the labs to place the glassware and chemicals safely
- The machine room is well equipped with prototypes of various industrial equipment which enable the students to get a hands on experience.

6.3a. Laboratories available in the institution:

Table 6.3(a) List of Laboratories available in the institution

S.No	Lab Description	Batch Size	Availability of Manuals	Quality of instruments	Safety Measures	Remarks
01	Pharmacology I	26	1. Instructional manual, Experimental procedure manual 2. Safety manual, and non-hazardous manual 3. Operational manual	Procured from the highly reputed manufacturer and in good and working condition	1. Gloves, laboratory hygiene should be maintained 2. Exhaust fan 3. First aid box 4. Bio disposable of the waste materials from the lab	Well-equipped laboratories are arranged with the facilities for the students to go through their experiments and maintaining the lab as per norms of the authorities
02	Pharmacology II	26				
03	Pharmaceutics I	26				
04	Pharmaceutics II	26				
05	Pharmaceutics III	26				
06	Pharmaceutical chemistry and analysis I	26				
07	Pharmaceutical chemistry and analysis II	26				
08	Pharmaceutical chemistry and analysis III	26				
09	Pharmacognosy I	26				
10	Pharmacognosy II	26				
11	Pharmaceutical biotechnology/ microbiology	26				
12	Human anatomy and physiology	26				
13	Pharmacy practice lab I	26				
14	Pharmacy practice lab II	26				
15	Computer lab	26				
16	Pharmaceutical analysis commercial lab	26				
17	PG Lab I Pharmaceutics	15				
18	PG Lab II Pharmaceutics	15				
19	Research Lab	26				
20	Analysis P.G lab I	15				
21	Analysis P.G lab II	15				

6.3b. Major Instruments:

Table 6.3(n) List of Major Instruments available in the institution

S.No	Name of the Department	Name of the Instrument	Name of the Manufacturer	SOP	Log Book
01	Pharmacology lab I	Photo-Acto-meter	INCO	AVAILABLE	AVAILABLE
		Incubator	PISCES		
		Digital tele-thermometer	INCO		
		Digital analgesiometer	INCO		
		Analgesiometer (Tail flick method)	INCO		
		Analgesiometer (Edi's hot plate method)	INCO		
		Lethisometer	ELICO		
		Photo electric calorimeter	------		
		Auto analyser	--------		
		Stereo lactic apparatus	---------		
02	Pharmacology lab II	Micro centrifuge	REMI		
		Homogenizer	REMI		
		Elevator plus maze	INCO		
		Swimming test apparatus	INCO		
		Rota Rod apparatus	INCO		
03	Pharmaceutics lab III	Water oven (small)	HICOM		
		Hot plate	GUNA enterprises		
		Weighing balance	WENSAR		
04	Pharmaceutics Lab I	Table dissolution test apparatus	--------		
		Bulk density apparatus	TEKNIK		
		Friability test apparatus	----------		
		Table disintegration test apparatus	--------		
		Orbital shaker	AUSCO		
05	Pharmaceutics lab II	Magnetic stirrer with hot plate	REMI		
		Weighing balance	WENSAR		
06	Pharmaceutical chemistry I	Water bath	INFRA		
		Hotplate	INFRA		
		Weighing balance	WENSAR		

07	PharmceuticalChemistry lab II	Hot plate -2	GUNA enterprises		
		Water bath	--------		
		Hot plate	INFRA		
		Hot air oven	MANISH		
		Fuming cupboard	CRYSTAL		
08	Pharmaceutical chemistry lab III	Water bath	INFRA		
		Rotary shaker	REMI		
		Micro centrifuge	REMI		
		Hot plate	GUNA enterprises		
09	Pharmacognosy lab I	Heating mantle large -1	GUNA enterprises		
		Heating mantle small -1	GUNA enterprises		
		Water bath	---------		
		Hot air oven	SELEC		
		Muffle furnace	EXACTTA		
10	Pharmaceutics P.G lab I	Lab stirrers 8	REMI		
		Heating mantle	GUNA enterprises		
		Digital weighing balance	WENSAR		
		Sonicator	ELECTROSONIC industries		
		Centrifuge 2	REMI		
		Hot air oven	HICON		
		Ultrasonic	PCI		
		Incubator	-		
		Magnetic stirrers 2	REMI		
		Refrigerator	Godrej Company		
11	Pharmaceutics P.G lab II	pH meter	ELICO		
		Digital weighing balance	WENSAR		
		Magnetic stirrer 5	REMI		
		Speed regulator	REMI		
		Research centrifuge	REMI		
		Soxhlet apparatus	GUNA enterprises		
		Gel Doc	Genei		
		Hot Plate	HICON		
		Cooling centrifuge	REMI		
		Vacuum pump			
12	Research lab (machine lab)	Rotary orbital shaker			
		Dryer			

		Cooling centrifuge machine			
		Punching machine			
		Melting point apparatus	GUNA enterprises		
		Photo reactor			
		Rotary vacuum evaporator	TONCO		
		Stability chamber			
		Sonicator	Branson		
13	Analysis PG lab I	Magnetic stirrer	REMI		
		Photo meter	ELICo		
		Melting point apparatus	Chemiline		
		Microcentrifuge	REMI		
		ELISA reader	Biorad		
		Calorimeter	Technico		
		Fuming cupboard	Airtech		
		Hot air oven	Technico		
14	Analysis PG lab II	Ultrasonic processor	Techlab		
		Magnetic stirrer with hot plate	DEEP vision		
		Digital conductivity meter	DEEP vision		
		Magnetic stirrer	REMI		
		Digital nephrometer	Deep Vision		
		pH meter	ELICO		
		Digital balance	Porsche		
15	Biotechnology lab	Hot air oven	GUNA enterprises		
		Incubator	GUNA enterprises		
		Microscope	MAGNUS		
		Speed regulator	REMI		
16	Pharmaceutical analysis commercial lab	Dissolution apparatus			
		Gas chromatography (FID)	SHIMADZU		
		CO2 incubator	Esquire Biotech		
		Thermal analyser	SHIMADZU		
		Lyophilizer	Esquire Biotech		
		DSC-60	SHIMADZU		
		HPLC with PDA	SHIMADZU		
		Automated HPLC	SHIMADZU		
		HPLC	SHIMADZU		
		UV spectrophotometer	Tech comp		

		Gel Doc Scanner	Enduro GDS		
		UV spectrophotometer (single beam)	Lab India		
		Digital dissolution	PCI		
		Research centrifuge	REMI		
		Bulk density	Teknik		
		Friability test	REMI		
		Tablet disintegration	SUN beam		
		UV Vis spectrophotometer	ELICO		
		Sonicator	Electro sonic		
		Digital flame photometer	ESICO		
		Compressor unit	ESICO		
		Fumingcupboard	Clean air		

6.3c) Details of Computing Facilities:

Table 6.3(c) List of Computing Facilities available in the institution

S.No	Type	Department	Quantity
01	DESKTOP: (61Nos)	Pharmacology lab I	1
02		Pharmacy practice II	15
03	Brands	Pharmacy practice I	14
04	(Acer, Lenovo, HP, Dell, Samsung)	Pharmacognosy lab II	1
05	LAPTOPS: (4 NOS)	Biotechnology Lab	1
06	Brand: Acer	Pharmaceutical analysis commercial lab	5
07		PG Lab I Pharmaceutics	1
08		Analysis P.G lab I	1
09		Analysis P.G lab II	1
10		Computer lab (218)	15
11		Director office (4 Laptops)	1+4
12		HOD Pharmacology	1
13		HOD Pharmceutics	1
14		HOD Pharmaceutical analysis and chemistry	1

15		HOD Pharmacognosy	1
16		Drug museum	1
	SOFTWARES:		
	Micromedex	Pharmacy practice I	
	Linux	Pharmacy practice II	
	ExPharm	Computer lab	
	Xcology pro (Trail version)	Computer lab	
	Health edu bureau (3 year licenced)	Computer lab	
	IT PERIPHERALS		
	Scanner		
	Laser print		
	Wi-Fi		
	Copier		
	Projector		
	UPS		
	SMART CLASSES		
	Smart class	Teaching and learning programme in library through video lecturers, SPS conference hall	02

6.4 Drug Museum (5)

Table 6.4 Details of formulations available in Drug Museum

S.no	Name of the commercial product	Therapeutic use	Type of dosage form	Manufacturing company
1.	Proliv	Restorant of normal liver function	Syrup	Medisidohpharmaprivare limited
2.	Triphalachurna	Eye disease and constipation	Churna	Divya pharmacy
3.	Figsy	Safe laxative	Syrup	Vopec pharmaceuticals pvt ltd
4.	Koflet	Allergic cough bronchitis	Syrup	The Himalaya drug company
5.	Swasanivaranpanaka	Cough syrup	Syrup	Healing drugs
6.	Septilin	Anti-infective therapy	Tablets	The Himalaya drug company
7.	Zandu balm	Strong headache body ache	Ointment	Zandu
8.	Pimple cure	For acne and pimple	Herbal cream	Pharm products
9.	Gentle baby bath	Hypoallergenic	Lotion	The himalaya drug company
10.	Kesovit	Herbal hair vitaligen	Medicated oil	Vopec pharmaceuticals pvt ltd
11.	V care	Hair oil	Herbal hair oil	V care pharcos
12.	Vaseline	Skin lightening lotion	Lotion	Hindutanuniy lever
13.	Keshkantiamla hair oil	Hair oil	Medicated oil	Patanjaliayurved ltd

14.	Henna	Colouring agent for grey hair	Powder	V care herbal concepts (p) ltd
15.	Neem face wash	Fox pimple	Herbal gel	The Himalaya drug company
16.	Honey	Nutrivite	Syrup	Dabur
17.	Mysore sandal soap	Toilet soap	Cosmetic soap	Karnataka soaps and detergents ltd
18.	Seenthlchooranam	Anti-diabetic	Powder	Imcops
19.	Ashtachurnam	Indigestion	Powder	Imcops
20.	Cystone	Kidney stone	Tablets	Himalaya herbal care
21.	Pankajakasthuri	Respiratory disorder	Syrups	Pankajakasthuri herbal India pvt ltd
22.	Chyavanprash	Immune booster	Capsules	Himalaya
23.	Nishamalaki	Antidiabetic	Churna/tablets	Amirtapharma
24.	Nilavembukudineer	Anti-viral fever	Powder	Vopec divine products
25.	Rasagandhimezhugu	Anticancer	Capsule	Jeyaindian medicine pharmaceutical pvt ltd
26.	Triphalachurunam	Indigestion	Powder	Jeyaindian medicine pharmaceutical pvt ltd
27.	Kanthagaparapam	Anti-arrthmitic	Powder	Imcops
28.	Bresol	Allergic rhinitis	Solution	Himalaya
29.	Bonniau	Gastrointestinal disorder	Drops/syrup	Himalaya
30.	Liv52ab	Antiviral hepatoprolichic	Capsules	Himalaya
31.	Yogarajaguggulu	Osteo-arthritis	Tablets	Imcops
32.	Naga bhasma	Anti-diabetic	Churna	Imcops
33.	Pinathailam	Antirheumetoid gout	Medicated oil	Imcops
34.	Aswanghlehyam	Neuromuscular adaptogen	Semisolid	Imcops
35.	Kumkumadilepam	Antiacne	Cream	Imcops
36.	Bilwadilehyam	Treating indigestion	Semi solid	Imcops
37.	Chitrakagotika	Anorexia indigestion	Tablet	Imcops
38.	Brahmighritam	Brain tonic	Medicated ghee	Imcops
39.	Rasnadichrunam	Migraine and sinus	Chruna	Imcops
40.	Arginaarishte	Heart ailments	Liquid	Imcops
41.	Parammaarishte	Anaemia health tonic	Liquid	Imcops
42.	Pippalayaesava	Liver complaints tb	Liquid	Imcops
43.	Bhringerahava	Cough, asthma	Liquid	Imcops
44.	Kastoryrdigutika	Neurological and neuromuscular	Tablets	Imcops
45.	Punarvamandu	Anaemia,piles,fever	Tablets	Imcops
46.	Daburisabgal	Laxative	Powder	Dabur
47.	Daburlaxirid syrup	Laxative	Syrup	Dabur
48.	Daburrheumatil gel	Joint pain relief	Cream	Dabur
49.	Viconarayani cream	Pain relief	Cream	Vicco
50.	Daburmeswak	Tooth care	Paste	Dabur

6.5 Medicinal Plant Garden (5)

Table 6.5 Medicinal Plants list available in medicinal plant garden

S. No	Common Name	Botanical Name	Family	Plant Type	Plant part used
1	Holy basil	*Ocimumtenuiflurm*	Lamiaceae	Tender plant	Leaf/ herbal
2	Betal	*Piper bette*	Piperaceae	Vine	Leaf/analgesic
3	Mature tea tree	*Sennaauricalata*	Fabaceae	Herb/ Shrub tree	Root,barks,leaves,flowers,seeds and gums/anti-diabetic laxative

4	Kariyat	*Andrographi spaniulate*	Acanthacea e	Erect annual herb	Leaves and roots/antipyretic,antimalarial,chloret ic and anti-viral
5	Indian tulip tree	*Thespesiapo pulnea*	Malvaceae	Tree	Whole plant/ skin problem, dysentery, cholera, hemorrhoids, gonorrhea,rheumatism
6	Horsesho e vitex	*Vitexnegund o*	Lamiaceae	Large aromatic shrub	Anti-arthritic, analgesic
7	Golden penda	*Xanthostem onchrysanth us*	Myrataceae	Tree	-
8	Vinca	*Catharanthu srosecus*	Apocynacea e	Shrub	Flower/anti-cancer
9	Aloe	*Aloe vera*	Liliaceae	Succulen t plant	Gel, latex ,leaf inner parts
10	Pongam	*Milletia pinnate*	Leguminosa e	tree	Whole plant
11	Millets	*Penniseumgl acum*	Pocueae	Small seeded grass	Flowers/scabies, anti-oxidant
12	Touch me not	*Mimosa pudica*	Mimosaceae	Annual perennial flowerin g plant	Roots and leaves/ antiasthma, anti-diabetic
13	Calotropis	*Calotropisgi gan*	Asclepiadea ceae	Flowerin g plant	Bark , root, latex/treat digestive disorder
14	Sweet flag	*Acoruscala mus*	Acoraceae	herb	Leaves stem and root/abdomen pain cough, asthma
15	Brahmi	*Bacopamon nieri*	Plantaginac eae	Creeping herb	Whole plant/memory enhance
16	Lemon balm	*Melissa officinalis*	Lamiaceae	herb	Essential oil/head ache, tooth ache
17	Lemon	*Citrus lemon*	Ruteceae	Evergree n tree	Renal peel and lemon juice/scurvy,swine flu
18	Curry tree	*Murrayekoe nigri*	Ruteceae	Small tree	Leaves/diabetic, dysentery, nausea
19	Climbing brinjal	*Solanamtril obatum*	Solanaceae	Herb	Leaves/TB, asthma , sinus

20	Ballon plant	*Cardiospermumhalicacabum*	Sapindaceae	Herb	Root and seeds/arthritis, gout, joint pain
21	Lavangan ipattai	*Cinnamomumzeylcamicum*	Lauracea	Tree	Bark and essential oil/,diabetic bronchitis
22	Indian borage	*Coleus ambonicus*	Lamiaceae	Pubescent herb	Leaves and juice/cancer fever
23	Indian lilac	*Meliaazedarach*	Meliaceae	Tree	Timber /dengue fever,infertility skin pink
24	Thorn apple	*Daturastrominum*	Solanaceae	Branching herb	Leaves and seeds/ asthma bone,bronchitis
25	Neem tree	*Azadirachtaindica*	Meliaceae	Tree	Leaves and flowers/leprosy,lever problem,skin ulcer
26	Seed under leaf	*Phyllanthus nirusi*	Phyllanthaceae	Herb	Leaves/enlargement of liver and spleen
27	Devils back bone	*Cissusquadrangularis*	Vitaceae	Perennial plant	Leaves and stems/ diabetic cancer , obesity,high cholesterol
28	Hog weed	*Boerhaviadiffusa*	Nyctaginaceae	Creeper	Roots /anti-diabetics, diuretic anemia
29	False diary	*Eclitta alba*	Asteraceae	Prostrate herb	Leaves and whole plant/improved hair,urinary infection
30	Devils weed	*Tribulustenestris*	Zygophyllaceae	Herbaceous perennial plant	Aerial plant,whole plant/headache antimicrobial, antitumor
31	Indian mallow	*Abutilon indicum*	Malvaceae	Herb,shrub and tree	Root bark flowers, leaves seeds/laxative diuretic,leprosy
32	Indian copper leaf	*Acaluphaindica*	Euphorbiaceae	Annual herb	Leaves, roots /scabies ,asthma
33	Indian borage	*Plectranthus amboinicus*	Lamiaceae	Succulent perennial plant	Leaves /mosquito repellant,nasal congestion
34	Sweet basic	*Ocimumbasilicum*	Lamiaceae	herb	Leaves and seeds / anti-diabetics, skin infection

35	Agathi	*Serbaniagrandifflora*	Fabaceae	Small tree	Leaf,flower , bark,root
36	Asoka	*Saracaasoca*	Fabaceae	tree	Bark, flower
37	Arugambul	*Cynodondactylon*	Poaceae	shrub	Grass, root
38	Elumichantulasi	*Ocimumgratissimum*	Lamiaceae	herb	Fruit
39	Karuppuravalli	*Anisochiluscarnosus*		herb	Leaf
40	Laiyanamurungai	*Erythrinavaricgata*	Fabaceae	Tree	Leaf,flower,seed,bark
41	Pudhina	*Menthes arvensis*	Lamiaceae	Plant	Leaf/cancer,smallpox,malaria
42	Puliyarai	*Oxalis corniculata*	Oxalidaceae	Plant	Leaf/dysentery,diarrhea, skin disease
43	Gauva	*Psidiumguajava*	Myrtaceae	Tree	Leaf,bark,fruit,root/high blood pressure,diabetic,cancer
44	Saamandhipoo	*Chrysanthemum indicum*	Asteraceaee	Flowering plant	Flower/chest pain, high BP,swelling
45	Cinthil	*Tinosaporacordifolia*	Menispermaceae	Climbing shrub	Leaf,climber root/dysentery,jaundice,skin disease
46	Pea egg plant	*Solanumforvumswarts*	Solanaceae	Spiny perennial plant	Root vegetable/fever wounds,tooth decay
47	Sambaruthi	*Gossypiumarbroum*	Malvaceae	Flowering plant	Leaf,flower,vegetable bark/cotton leaf cure disease
48	Thumbai	*Leucasaspera*	Lamiaceae	Annual herbal shrub	Leaf,flower/decoction of root,stem,scasis
49	Crape jasmine	*Taberneemontanadivaricate*	Apocynaceae	Evergreen shrub	Milk flower root,/anti-inflammatory,eye disease
50	Pilkunari	*Premnawilld tomentosa*	Verbenaceae	Tree	Leaf/diarrhea,diabetes
51	Frog fruit	*Lippie nodiflora*	Verbenaceae	Prostate perennial plant	Leaf vegetable/diuretic

52	Jasmine	*Jasminumsambac*	Oceaeceae	Evergreen shrub	Leaf,flower,root/hepatitis sedative
53	Capsicum	*Capsicum annum*	Solanaceae	Froast perennial	Vegetable herb/dyspepsia flatulence diphtheria
54	Drumstick	*Moringaoleifera*	Moringaceae	Tree	All parts/nutrition antidiabetic,diuretic
55	Centallaasiatic	*Centellaasiatica*	Apiaceae	Creeping shrub	Garlic/skin irritation,head ache , nausea
56	White gulmohar	*Delonixelata*	Fabaceae	Erect tree	Leaf/anti-inflammatory,arthritic disorder
57	Punarnava	*Boerhaaviadiffusa*	Nyctanginaceae	Spreeding shrub	Plant root/antioxidant,diuretic, anti-cancer
58	Vatpalai	*Wrightia-tinctoria*	Apocynaceae	Shrub or tree	Leaf bark,rice/skin disease,pills,kidney stone
59	Punnai	*Calophyllum Linn.*	Calophyllaceae	Tree or shrub	Leaf, flower , bark/anti HIV,cytotoxic,peptic ulcer
60	Indian tulip tree	*Thespesiapopulnea*	Malvaceae	Tree	Leaf , flower, bark/analgesic,anthelmetic,blood disorder
61	Ponnanganni	*Alternantheraasessilis*	Amaranthaceae	Perennial herb	Leaf/dysuria
62	Pomegrante	*Punicagranatum*	Lythraceae	tree	Flower,fruit,seed,bark/antioxidant,anticancer,arthritis
63	Parakipathai	*Similax china*	Smilaceae	Small tree	Stem/skin and liver disease
64	Java olive tree	*Sterculiafoetida*	Malvaceae	tree	Leaf,seed,flower,bark/diuretic insect repellent
65	Mountain knot grass	*Aervalanata*	Amaranthaceae	shrub	Leaves/snake bite,antioxidant
66	Gymnama	*Gymnemasylvestre*	Apocyanaceae	Perennial herb	Leaves/obesity,anti-diabetic,viral infection
67	Kodivalli	*Plumbagoindica*	Plumbaginaceae	Evergreen shrub	Leaves/liver cancer,anal cancer
68	Peanut	*Arachishypogaeae*	Fabaceae	Spreading herb	Leaves/pain varnish
69	Yellow berried night shade	*Solanumxanthocarpum*	Solanaceae	shrub	Leaves,stem,flowers/paralysis,cardiac disease

6.6. Non-Teaching Support – Details of Non-Teaching Support(20)

Table 6.6 Details of Non-Teaching Support

S. No	Name of the Technical Staff	Designation	Date of Joining	Qualification	Technical Skill Gained	Responsibilities
1	Mr.P. Ramdoss	Lab Assistant	17.09.2000	S.S.L.C	1.Laboratory work 2.Microscope Service 3.Instrumental Check-up	1. Solution Preparation 2. Crude Drug Collection 3.Medicinal Plant Collection 4. Examination Work 5. File Maintenance 6.Maintenance of Stock Register 7. Maintenance of Job Card 8. Product Distillation Work 9. Documentation & Filing Work 10. UG Project Assistance 11. Maintenance of Museum & Garden 12. Herbarium Plants
2	Mrs.Joyce Roy	Lab Assistant	01.07.2002	D.Pharm	1.Trained in Handling tablet compression machine 2.Capsulation 3.Drug dispensing in Hospital Pharmacy	1.Chemicals & Reagent Preparation 2. Maintenance of glassware 3.Maintenance of Instruments 4. Maintenance of Job Card 5. Maintenance of Log Book of instruments 6. Maintenance of Stock Register 7. Instrument Register 8.Maintenance of Equipment Register 9.Maintenance of Tablet Register

3	Mr.V. MohanaVelu	Lab Attender		S.S.L.C	1.Animal Handling 2.Anatomy experiment preparation 3. Handling of fire Extinguisher	1.Issue glasswares for Lab Classes 2. Maintain Cleanliness of Laboratory
4	Mr.A.Hilda	Lab Assistant	02.07.2008	DMLT	1.Handling of various appliances used in Laboratory	1.Maintenance of Glassware Register 2.Chemicals & Reagents Preparation 3.Maintenance of Instrument register 4.Maintenance of log books of various instruments 5.Maintenance of Stock register-Chemicals 6.Maintenance of Instrument Register 7. Maintenance of tablet Register
5	Mr.S. Kannan	Lab Attender	16.01.1996	10^{th}	1.Basic Safety techniques in laboratory 2.Safety lab maintenance 3. Handling of fire Extinguisher	1. Issue Glass wares 2.Laboratory Cleanliness & safety
6	Mrs.J. Sankari	Lab Assistant	03.08.2018	B.Sc Zoology	1. Animal handling & maintenance	1.Maintenance of Animal House 2.Maintenance of Glass wares Register 3.Maintenance of Chemicals Register 4.Maintenance of Job Card 5.Maintenance of Log Books of Various Instruments in Laboratory

						6. Maintenance of Animal Stock Register for Mice, Rats 7.Maintenance of animal Feed Register 8.Maintenance of Instruments
7	Mrs.Shobitha	Lab Attender	03.01.2004	8th	Basic Care Taker	1.Maintain Lab Cleanliness 2.Helpful in plant collection 3.Helpful in preparing for Extracts 4. General Care Taker
8	Mrs.A. Karpagam	Lab Attender	05.03.2004	S.S.L.C	Basic Care Taker	1.Issue Glassware 2.Maintain Cleanliness of Laboratories 3.Maintain Cleanliness of Animal House 4.Change bedding material for Animals- Mice & rats
9	Mrs.Lakshmi	Lab Attender	19.01.2018	Higher secondary	Basic Care Taker	Maintain Cleanliness of Laboratories
10	Mr.Singara Velu	Maintenance Head	01.08.2012	M.Com	Trained in civil supplies	Overall Civil, Mechanical, Electrical maintenance Head for School of Pharmaceutical Sciences
11	Mrs.Sumathy	House Keeping Supervisor	02.05.2016	SSLC	Trained on housekeeping	Overall Supervisor for monitoring Cleanliness of class rooms, Laboratories of School of Pharmaceutical Sciences
12	Mr.Guruvaiah	Scavenger	10.09.1995	5th	Trained on sewage cleaning	Maintain Cleanliness of Animal House, Person Salvaging waste materials, Animal House Sewage Cleaner.
13	Mr.Rajamani	Gardener	18.03.1995	4th	Trained on gardening	Taking care of garden, Watering and maintenance
14	Mr.Srinivasan	IT Professional	17.12.2007	BBM	Trained on IT	Computer Maintenance in various labs

15	Mr.Selvam	Store Keeper	1.07.1996	8th	Trained on chemical store availability	Maintenance of store Chemicals

16	Mr.Ragavender	Director office Attender	11.08.2004	Higher secondary	Director office maintenance	Attending the needs of Director of the School towards academics and research

6.6.1. Availability of adequate and qualified technical Supporting Staff for Program Specific Laboratories (10)

Table 6.6.1 Details of technical Supporting Staff

S.No	Name of the Technical Staff	Date of Joining	Qualification	Other Technical Skills gained	Responsibilities
1	Mr.P. Ramdoss (Pharmacognosy)	17.09.2000	S.S.L.C	1.Laboratory work 2.Microscope Servicing	1. Solution Preparation 2. Crude Drug Collection 3. Medicinal Plant Collection 4. Examination Work 5. File Maintenance 6. Maintenance of Stock Register 7. Maintenance of Job Card 8. Product Distillation Work 9. Documentation & Filing Work 10. UG Project Assistance 11. Maintenance of Museum & Garden 12. Herbarium Plants
2	Mrs.Joyce Roy (Pharmaceutics)	01.07.2002	D.Pharm	1. Handling of instruments used in formulation of Tablets, Capsules 2. Drug dispensing in Hospital Pharmacy	1. Chemicals & Reagent Preparation 2. Maintenance of glassware 3. Maintenance of Instruments 4. Maintenance of Job Card 5. Maintenance of Log Book of instruments 6. Maintenance of Stock Register 7. Instrument Register

					8. Maintenance of Equipment Register 9. Maintenance of Tablet Register
3	Mrs.A.Hilda (Chemistry & Analysis)	02.07. 2008	DMLT	1. Handling of various appliances used in Pharmaceutical Chemistry Laboratory 2. Helps in using various analytical Instruments like UV Visible Spectroscopy, Colorimeter & HPLC	1.Maintenance of Glassware Register 2.Chemicals & Reagents Preparation 3.Maintenance of Instrument register 4.Maintenance of log books of various instruments 5.Maintenance of Stock register-Chemicals 6.Maintenance of Instrument Register 7. Maintenance of tablet Register
4	Mrs.J. Sankari (Pharmacology)	03.08. 2018	B.Sc Zoology	1. Handling instruments used in Pharmacology & Human Anatomy Experiments 2. Animal handling & maintenance	1.Maintenance of Animal House 2.Maintenance of Glasswares Register 3.Maintenance of Chemicals Register 4.Maintenance of Job Card 5.Maintenance of Log Books of Various Instruments in Laboratory 6. Maintenance of Animal Stock Register for Mice, Rats 7.Maintenance of animal Feed Register 8.Maintenance of Instruments

6.6.2. Incentives, Skill Upgrade & Professional Development (10)

Tale 6.6.2 Details of Incentives, Skill Upgrade & Professional Development

S.No	Name of the technical Staff	Date of Joining	Qualification		Attended Skill Upgradation Program with Date	Name & Department of training person conducting Program
			While Joining	Present		
1	Mr.Ramdoss (Lab Assistant, Pharmacognosy)	17.9.2000	SSLC	Nil	Attended a Safety Week program on 12.11.2018	It's all about fire Safety, organized by SSS Security Service
					Attended a Flash Chromatography Demo	Vortex Enterprises
					Experimental Orientation Demo- UV Spectroscopy	Anchrome
2	Mrs.Joyce Ray (Lab Assistant, Pharmaceutics & Pharmacy Practice)	01.07.2002	D.Pharm	Nil	Attended a Safety Week program on 12.11.2018	It's all about fire Safety, organized by SSS Security Service
3	Mrs.A. Hilda (Lab Assistant, Pharmaceutical Chemistry & Analysis)	02.07.2008	DMLT	Nil		
4	Mrs.J.Sankari (Lab Assistant, Pharmacology)	03.08.2018	B.Sc Zoology	M.A (Persuing)		

7.1 Improvement in Success Index of Students Without the backlog

Table 7.1 Improvement in Success Index of Students Without the backlog

Items	LYG(2017 – 2018)	LYG(2016 – 2017)	LYG(2015 – 2016)
Success Index (from 4.2.1)	0.27	0.27	0.63

SI = (Number of students who graduated from the program without backlog)/ (Number of students admitted in the first year of that batch and admitted in 2nd year via lateral entry)

Assessment shall be based on improvement trends in success indices. Marks are awarded accordingly

7.2 Improvement in Placement and Higher Studies

Assessment is based on improvement in

- Placement: Number, quality placement,coreindustry,pay packages
- Higher studies: Performance in GPAT etc.,

The unrelenting effort taken by the college Training and Placement Cell has been reflected in the increased number of the students placed in various pharmaceutical sectors. Moreover, it facilitates visiting of diverse pharmaceutical industries to the campus to conduct placement and improves student's talent and provide open and healthy competiveness to them. The placement cell co-ordinate with Pharmaceutical industries and help in the placement and also it makes quality output to the needed sectors. The coordinating industries have been visited for last three years are Apollo Hospitals, Lister Metropolis, Episource Pvt Ltd, AGS Health Care, SKN Organics, Bill Roth Hospitals, Lockhart, Yogam BPO etc. They have been a significant average pay packages offered to the students over past few years. Every year nearly 40% of final year students appear for entrance exam of M. Pharmacy, i.e. GPAT.

Table 7.2(a) Details of Students Qualified in GPAT

Year	Number of Students Qualified in GPAT	Number of Students Opted for Higher Studies
2017 - 2018	1	27
2016 - 2017	2	21
2015 - 2016	1	04

Some of Our Major Recruiters and Average pay Package of Campus Placements

Table 7.2(b) Details of Major Recruiting Companies

Academic Year	Name of Major Recruiting Companies
2017 - 2018	Apollo Hospitals
	Lister Metropolis
	Episource Pvt Ltd
	AGS Health Care
	SKN Organics
	Bill Roth Hospitals
	Wockhardt
	Yogam BPO
2016 - 2017	Techno soft corp
	SKN Organics
	Vee Technologies
	Dr.Lal path Labs
	AGS Healthcare solutions pvt. Ltd
	Abbott Laboratories
	Danone Nutricia
2015 - 2016	Apollo Hospitals
	Glen mark Pharmaceuticals
	MicrotherapeuticsPvtLtd
	Sutherland Global Services
	AGS Healthcare

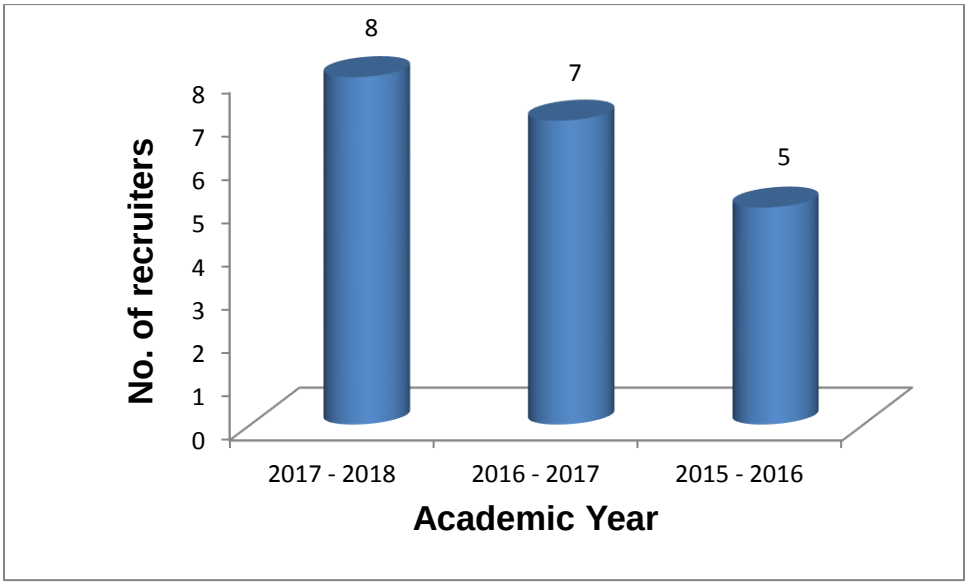


Figure 7.1 Number of Recruiters of B.Pharm. Graduates in Last Three years

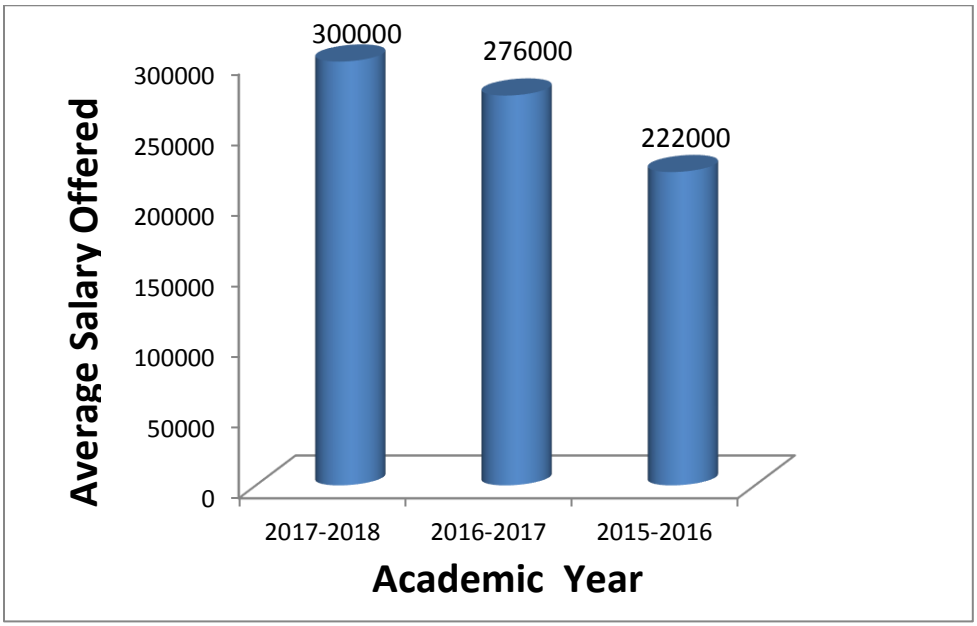


Figure 7.2 Average Salary offered to B.Pharm. Graduates in Last Three years

Items	LYG(2017 – 2018)	LYG(2016 – 2017)	LYG(2015 – 2016)
Placement Index (from 4.7)	0.72	0.3	0.4

7.3 Improvement in the API of the Final Year Students (10)

Table 7.3. Improvement in API of Final year Students

Academic Performance	CAY 2017-18	CAYm1 2016-17	CAYm2 2015-16
Mean of CGPA or Mean Percentage of all successful students (X)	88.71%	67.74%	92.85%
Total no. of successful students (Y)	55	42	39
Total no. of students appeared in the examination (Z)	62	62	42
API = x* (Y/Z)	7.87	4.59	8.62
Average of API	7.87+4.59+8.62=21.08/3=7.02		

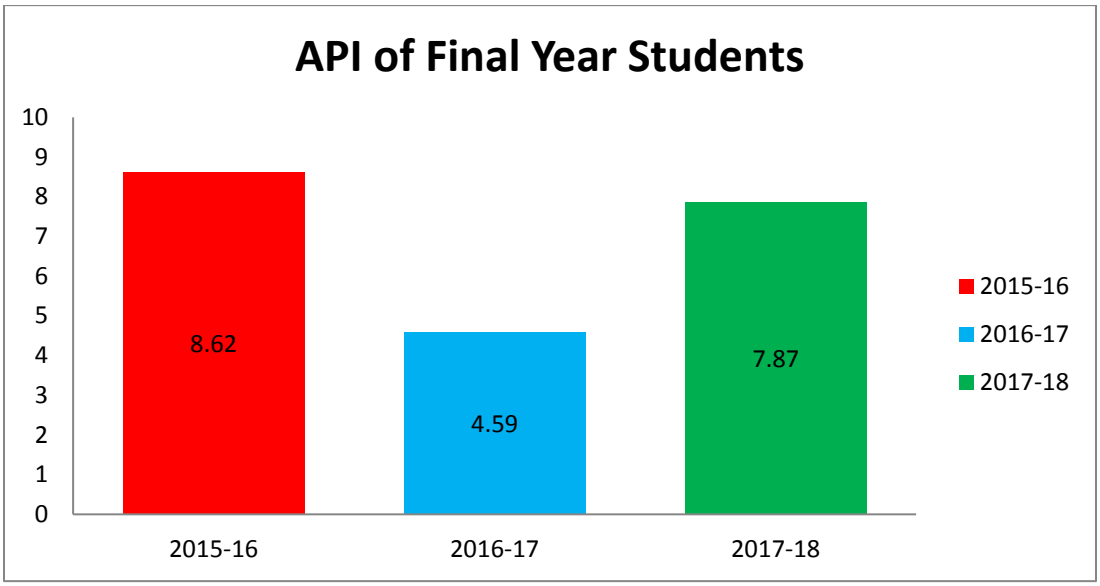


Figure: 7.3. Improvement in API of Final Year Students

7.4 Improvement in the quality of students admitted to the program (15)

Assessment is based on improvement in terms of ranks/score in qualifying state level/national level entrances tests, percentage marks in Physics, Chemistry and Mathematics in 12th Standard and percentage Marks of the lateral entry students.

Table 7.4 Improvement in the quality of students admitted in B.Pharm.

Item		2016-2017	2017-2018	2018-2019
National Level Entrance Examination (Name of the Entrance Examination)	No. of Students admitted	NA	NA	NA
	Opening Score/Rank	NA	NA	NA
	Closing Score/Rank	NA	NA	NA
State/University/Level Entrance Examination/Others (Name of the Entrance Examination)	No. of Students admitted	306	326	345
	Opening Score/Rank	188/1	191/1	190/1
	Closing Score/Rank	140/60	143/60	160/60
Name of the Entrance Examination for Lateral Entry or lateral entry details	No. of Students admitted	01	0	NA
	Opening Score/Rank	NA	NA	NA
	Closing Score/Rank	NA	NA	NA
Average CBSE/Any other Board Result of admitted students (Physics, Chemistry & Maths)		60	60	60

7.5. Actions taken based on the results of evaluation of each of the POs (20)

Identify the areas of weaknesses in the program based on the analysis of evaluation of POs attainment levels. Measures identified and implemented to improve POs attainment levels for the assessment years.

Actions to be written as per table in 3.3.2.

Table 7.5 Actions taken based on the results of evaluation of each of the POs

POs Attainment Levels and Actions for improvement – CAYm1 2017- 2018			
POs	**Target Level**	**Attainment Level**	**Observations**
PO1: Pharmacy Knowledge: Possess knowledge and comprehension of the core and basic knowledge associated with the profession of pharmacy, pharmaceutical sciences; behavioral, social, and administrative pharmacy sciences; and manufacturing practices			
PO1	**2.61**	**2.69**	**High**

Action 1: Assigning students to collect information on latest technologies use in pharmaceutical industries, various management programs conducted around them and time to time amendments in various acts as per the need of country and for benefit of consumer.

Action N:
Additional assignments and quizzes will be conducted which will strengthen their subject knowledge. Emphasis will be laid on the application of the principles of pharmaceutical engineering which will in turn help the students in relating better to the course and also in applying the knowledge gained in future.

PO2: Problem Analysis: Categorize and analyse the pathophysiological conditions of various diseases and make use of principles involved in development of drugs from natural and synthetic sources.

PO2	2.18	2.29	High

Action 1: More practice would be given to the students by giving them small assignments wherein they would be make use of the theoretical know

Action N: 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.

PO3: Design/Development of solutions: Utilise the various resources from synthetic & natural origin and develop a lead molecule for the treatment of particular ailments with minimal side effects for the safety of public/environment.

PO3	2.19	2.27	High

Action 1: In order to help them get interested in the area and to learn to find and use scientific information, an activity would be conducted wherein each student would be given a related problem and they would be encouraged to give a solution to it by referencing scientific material which would help them explore beyond the realm of the syllabus.

Action N: Assigning students to collect information on latest technologies by doing literature survey using internet sources and library resources.

PO4: Conduct investigations of complex problems: Make use of research based knowledge, research methods including design of experiments, analysis and interpretation of data for the synthesis of novel drug molecules.

PO4	2.01	2.13	High

Action 1: Assigning students to collect information on latest technologies use in pharmaceutical industries, various management programs conducted around them and time to time amendments in various acts as per the need of country and for benefit of consumer.

Action N:

Additional assignments and quizzes will be conducted which will strengthen their subject knowledge. Emphasis will be laid on the application of the principles of pharmaceutical engineering which will in turn help the students in relating better to the course and also in applying the knowledge gained in future.

PO5 Modern tool Usage: Choose and apply appropriate techniques, resources and modern software tools including prediction and modelling of lead molecules with appropriate considerations of toxic effects.

PO5	**1.94**	**2.00**	**High**

Action 1: The cause for poor performance of this course was the students had forgotten the Anatomy, Physiology and Pathophysiology taught in the previous Semesters, therefore couldn't understand the pharmacology.

Action N: Advanced Teaching -Learning Systems such as video lecture ,Blended learning and flip class are helpful to improve student knowledge

POs Attainment Levels and Actions for improvement – CAYm1 2016- 2017

POs	Target level	Attainment level	Observations

PO1: Possess pharmaceutical knowledge in dispensing and manufacturing of different dosage forms and also gives the clear knowledge about the need of pharmacy profession to increase the status of people.

PO1	**1.97**	**2.07**	**High**

Action 1: Seminars and guest lectures will be conducted to give emphasis on the energy profile diagram and different conformations. The students will be asked to solve the related problems where they learn to make the decisions.

Action N: Oral presentations and assignments will be conducted on major topics of pharmaceutical sciences contributing to understand importance of professional ethics.

PO02: Problem analysis: Utilize the principles of scientific enquiry, thinking analytically, clearly and critically, while solving problems and making decisions during daily practice. Find, analyze, evaluate and apply information systematically and shall make defensible decisions.

PO2	2.6	2.5	High

Action 1: The students are guided to survey the literatures regarding problems in the society and analyzing them systematically.
Action N: This will help to analyze evaluate and apply information systematically and shall make defensible decisions.

POs Attainment Levels and Actions for improvement – CAY – 1 m1 2015-2016

POs	Target Level	Attainment Level	Observations

PO5: 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 well- being.

PO5	1.3	1.5	High

Action 1: In order to help them get interested in the area and to learn to find and use scientific information, an activity would be conducted wherein each student would be given a related problem and they would be encouraged to give a solution to it by referencing scientific material which would help them explore beyond the realm of the syllabus.

Action N: Assigning students to collect information on latest technologies use in pharmaceutical industries, various management programs conducted around them and time to time amendments in various acts as per the need of country and for benefit of consumer.

PO6: Understand the impact of the pharmacy profession in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

PO6	1.5	1.8	Medium

Action 1: In the course on Computer lab, student performance has been low with respect to attainment of some COs as analysis of answer scripts and discussions with the students revealed that, there is no theory component in this subject and contributed to poor basic concepts and their applications in PO attainment.

Action N: Additional assignments will be given which will strengthen their subject knowledge. Emphasis will be laid on the application of computer technology

PO8: Honour personal values and apply ethical principles in professional and social contexts. Demonstrate behavior that recognizes cultural and personal variability in values, communication and lifestyles. Use ethical frameworks; apply ethical principles while making decisions and take responsibility for the outcomes associated with the decisions.

PO8	1.8	1.9	Medium

Action 1: Guest lectures are conducted in relation to personality development and the responsible for the pharmacist in the society

Action N: It gives the wide knowledge to the self personality and also includes the responsibility associated with the decisions.

PO10: 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 receive clear instructions.

PO10	2.6	2.5	High

Action 1: Posters presentations will be conducted on related with pharmacy profession and documentation, and receive clear instructions.

Action N: Assignments and quizzes will be conducted on basic concepts of community pharmacy.

PO12: 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- access and use feedback effectively from others to identify learning needs and to satisfy these needs on an ongoing basis.

P12	2.6	2.5	High

Action 1: Students are initiated to have a survey based on benefit of the society by using e – sources, survey based study in the society

Action N: Students will be guided to correlate the societal issues with the knowledge learned in the course and update accordingly.

8. Student support systems.

8.1 Mentoring systems to help at individual levels

1.Type of mentoring	**:**	All-round development (Professional guidance, Career advancement, course work, practicals, personal and higher Studies)
2. Number of faculty mentors	**:**	> 38
3. Number of students per mentor	**:**	15-20
4. Frequency of meeting	**:**	bimonthly

The faculties are assigned with mentees in the ratio 1:15 or 1:20 for mentoring them in various aspects including professional guidance, course work specific queries, advancements in their career, laboratory specific needs and so on for a complete development. The mentor meets his or her mentees bimonthly to help them individually as needed. The school issues a mentor book for each student, soon after their classes reopen for the semester, right from the first semester. This book has several provisions to record various details of a student like personal information, number of leaves availed during each month of a semester, in-disciplinary act during the semester, academic performance during the CA exams, awards received, competitive exams, conference/seminars attended, extra-curricular activities, etc.

The students meet their respective mentors for guidance regarding:-

Profession: In addition to classroom training, the faculties encourage the students to take part in various conferences/workshops/seminars to upgrade themselves and also insist them in presenting posters/publishing papers so that they reach heights in their profession.

Course: Mentors try to clarify their doubts, if required they analyze and direct them in the right way to get their doubts clarified. They guide them to utilize the available library resources of the university and also to the specific subject in-charge.

Practicals: The students are intensively counseled regarding the significance of a practical experiment. They insist their students in attending all the practical classes without fail. They enquire about the laboratory facilities, how the experiment was carried out, how was the experiment evaluated and try to improve the student's experience in the same.

Co-Curricular and Extra curricular activities: The mentors encourage the students to participate in various activities like paper presentations, poster presentations in conferences, sports etc.

Competitive Examination: Mentor keeps informing the students about the competitive exams and how to prepare for the exams. They encourage the students to try to attend competitive exam like GPAT.

Academic Performance: Students academic performance in their continuous assessment exams and model exams are monitored. Their academic attendance is also monitored and discussed if they avail leaves.

Personal: The students are counseled regarding their health and personal matters, if required so as to bring a balance.

Higher Studies: Students are counseled and encouraged to go for higher studies for better career opportunities.

Career guidance: Students are informed about the scope of the profession and guided according to their passions and interests. Assure them that our placement cell will pave a way for their career.

Overall development: In addition to academics, cultural, sports and other activities mentees are encouraged and trained to inculcate qualities like leadership, team spirit, decision making, analytical abilities, empathy and social awareness in order to bring them as a complete man/woman.

Efficiency of the mentoring system:

Mentoring system instituted by our school is functioning efficiently as from when it started. Regular monitoring of the students right from their first semester to the eight semesters develop a good rapport with the mentor after several follow ups. This cultures the student as a complete professional as expected. The academic performance of the student like class attendance, paper presentations, projects, paper published, etc. has increased. As the number of mentees allocated to each faculty is less than 20, the mentors are able to interact with their students on a regular basis. Meeting the young minds, the mentor comes to know about the day to day learner needs and they also get upgraded by this system.

8.2 Feedback analysis and reward, corrective measures taken, if any

Feedback collected for all courses: YES

Specify the feedback collection process:

A standard feedback questionnaire is collected from the students every semester end, course wise.

- Feedback mechanism is a well-organized system in the institution.
- The system of feedback collection is online
- Collected feedback is scrutinized by the university officials.
- The feedback is quantified
- All the parameters mentioned in the feedback form will be analyzed.
- Ability of teaching with respect to each item and comprehensive ability of the teachers will be analyzed
- Subject wise scoring and overall performance scoring will be given to the faculty to identify where to improve.

Percentage of students participating: 90 % - 100%

Specify the feedback analysis process:

The feedback analysis is done online

All the parameters mentioned in the feedback form will be analyzed in two levels

1st level: Average of one parameter with respect to subject is calculated.

2nd level: Average of averages of the parameters is calculated.

Ability of teaching with respect to each item and comprehensive ability of the teachers will be analyzed.

The scoring will be on a 10 point scale. Subject wise and overall scoring will be communicated to the respective faculty members along with their feedback levels to know their strengths and weaknesses and to enhance their teaching skills.

Basis of reward / corrective measures, if any:

Faculty members who get average feedback below 5 on 1-10 scale are identified.

Those faculty members are given orientation lectures and special inputs by the head of the department.

Also the faculty members who get above average feedback of 7 or above on a10 point scale are appreciated at the School level staff meetings.

Justification:

(Instruction: The institution needs to design an effective feedback questionnaire. It needs to justify that the feedback mechanism it has developed really helps in evaluating teaching and finally contributes to the quality of teaching.)

8.3: Feedback on facilities (5)

(Assessment is based on feedback collection, analysis and corrective action taken in respect of library, computing facilities, canteen, sports etc.)

- Online feedback about all the facilities provided by the college is collected once every semester.
- The feedback is kept anonymous and the concerned department, committee or individuals are counseled and steps are taken to implement changes.
- A periodic review is conducted by the Principal along with the Vice Principals to check the changes made and if they are continued.
- A repeat feedback is taken verbally from a representative audience directly by the Principal wherein the students can voice their view in a confidential environment.

Corrective measures

(Based on the feedback collection, analysis the corrective actions taken)

- Canteen facilities were improved.
- Sports hour is included for all the batches
- Sportskitwas provided.
- Extrainformation was provided in the form of quiz during library hour.
- New Sports kits were bought.
- Canteen menu was changed
- More general books was provided in the library.
- Printer was arranged in the library.
- More fans were arranged in computer lab.

OtherFacilities:

- Free breakfast,tea and milk are provided everyday.
- Transportation.
- RO Water.
- Medical facilities.
- MaintenanceofAmbulance

- Scanningandprintingfacilities.
- Xerox

8.4.Self Learning(5)

(*Specify the facilities, materials and scope for self-learning／learning beyond syllabus and creation off acilities forself-learning／learning beyond syllabus*)

Self learning facilities in the college:

Computer Lab: Computer Lab with internet facility is provided for students.

Multimedia Classrooms: The students can give an oral presentation with the help of audio-visual aids.

Library: We are maintaining sufficient number of textbooks and reference books in our library.

Digital Library: The Library is maintained with all kinds of e-journals and reference books which students can access.

Laboratory facilities: Laboratory facilities are made available beyond working hours for doing projects.

StudentClub: StudentClubencouragesthestudentsforthe innovativeideasandalsoaddressesthegrievancesandrequirementsofthestudents.

Table 8.4 Facilites available for providing enhanced Teaching – Learning Process

S.No	Facility	ItemDescription
1	Library	Journals General books Motivational books Magazines
2	e-learningresources	e-journal e-books Compact disc English Language Software
3	Internet	Free Wi-Fi
4	Auditorium	Audiovisual equipment available for any Presentations

8.5 Career Guidance, Training, Placement (10)

(Specify the facility, its management and its effectiveness for career guidance including counselling for higher studies, campus placement support, industry interaction for training/internship/placement, etc.)

Facility provided in the campus:

- The Campus Training and Placement Cell undertake activities in this regard by conducting guest lecturers from experienced industry professional.
- The students are made aware of the opportunities in various fields along with the required job profile, and they get a chance to interact with these industry professionals to take advantage of their experience in respective field through these activities.
- It makes students to choose the respective field according to their interest.

FACILITY MANAGEMENT:

- The students are well trained through the lectures on aspects of interviews such as preparing an effective resume and presentation skills to face an interview.
- The students are also counseled for making right decisions regarding their higher studies.

EFFECTIVENESS:

- The measures which we have taken to improve students ability has proven to be effective as it is evidence that the number of reputed pharma domain companies and hospitals visiting our campus for last three years.

Table 8.5(a) List of Major Recruiters of B.Pharm. Graduates

Academic Year	Name of Major Recruiting Companies
2017 - 2018	Apollo Hospitals
	Lister Metropolis
	Episource Pvt Ltd
	AGS Health Care
	SKN Organics
	Bill Roth Hospitals
	Wockhardt
	Yogam BPO
	Techno soft corp

2016 - 2017	SKN Organics
	Vee Technologies
	Dr.Lal path Labs
	S10Healthcare solutions pvt. Ltd
	Abbott Laboratories
	DanoneNutricia
2015 - 2016	Apollo Hospitals
	Glen mark Pharmaceuticals
	MicrotherapeuticsPvtLtd
	Sutherland Global Services
	AGS Healthcare

- The students also benefited with these efforts while attending interviews out of the campus.
- The students are encouraged to attend the qualified exams for higher studies.

Table 8.5(b) Details of Students Qualified in GPAT Exams

Year	Number of Students Qualified in GPAT	Number of Students Opted for Higher Studies
2017 - 2018	1	6
2016 - 2017	2	7
2015 - 2016	1	4

8.6. Entrepreneurship Cell (5)

(Describe the facility, its management and its effectiveness in encouraging entrepreneurship and incubation)

ENTREPRENEURSHIP INITIATIVES

The Pharmacy duty has been arranged to the students in different branches of Muthu Pharmacy in Chennai, such a way that they are trained to start their own drug store, by providing adequate knowledge about

- The drug store layout
- How to apply for getting the license
- Purchase procedure of drug

- Dispensing of drugs
- Storage of drugs
- Billing methods
- Over all maintenance of a drug store.

8.7. Co-curricular and Extra-curricular Activities (10)

(Instruction: The institution may specify the Co-curricular and extra-curricular activities, e.g., NCC/NSS, Health club, Sports club, Music club, Quiz club activities, etc)

Apart from the academic activities, the students are also involved in various extra-curricular andco - curricular activities organized at Inter-Collegiate as well as Intra-collegiate level. There are some clubs in the college which will organize the extra-curricular activities of the students and students itself are the members in the club and conduct all these activities.

- Sports club- the students are informed and encourage to participate in the various sports events conducted by other colleges in around the Chennai.
- Health club-in this club the students are encouraged to participate voluntarily in blood donation camps conducted by the college and hospital in the college.
- Quiz club- this club provide chance to the students in improving their knowledge beyond the class subjects.
- Music club & Dance club - students are encouraged to improve their cultural activities through this club.
- Journal Club- improves student presentation and communication skills
- Periodic conductance of Cultural and Sports events

DAYS OF IMPORTANCE CELEBRATIONS

EVENTS CONDUCTED BY SCHOOL OF PHARMACEUTICAL SCIENCES

Table 8.7(a) List of Important celebrations SPS, VISTAS

S.NO	EVENT	DATE	PLACE
1.	” WORLD PHARMACIST DAY “From research to health care your pharmacist at your service”	25TH SEPTEMBER 2017	VISTAS
2.	WORLD SIDDHA DAY –AGATH DAY	21 MARCH 2018	VISTAS
3.	ATOMS CLUB INAUGARTION	23rd MARCH 2018	VISTAS

4.	ELEPHANT CONFERENCE 2 On "SAVE THE ELEPHANT"	11th APRIL 2018	VISTAS
5.	INDO US CONFERWENCE ON MODERN TRENDS CURRENT CHALLENGES AND FUTURE SCENARIO OF PHARMACEUTICAL SCIENCES AND TECHNLOLOGY	27th JULY 2018	VISTAS

QUIZ COMPETITIONS:

The students are encouraged to participate in various inter and intra college Quiz competitions.

Table 8.7(b) List of Quiz competition participated by students of VISTAS

S.NO	EVENT	Date & Year
1.	All India pharmacy quiz competition Madras Medical College	04.02.2017
2.	Quiz program on Diabetes mellitus day	14.11.2017
3.	National pharmacy quiz 2018 at Madras Medical College	22.01.2018
4.	Quiz program on pharmacy and health	26.02.2018

BLOOD DONATION CAMP:

Table 8.7(c) List of Blood Donation camps organized by SPS, VISTAS

S.NO	Programme	Date & year
1.	Blood donation camp	27.01.2017
2.	Blood donation camp	19.07.2017
3.	Blood donation camp	01.08.2018

NSS ACTIVITES:

Table 8.7(d) List of NSS activities of VISTAS with participation of students and Faculty of SPS, VISTAS

S.NO	EVENT	DATE/YEAR
1.	RESPONDING TO THE CLARION CALLS OF THE ENVIRONMENTALISTS UNDERTOOK ‘’TREE PLANTATION PROGRAMME IN PALLAVRAM ON 06.04.2015.	6.04.2015
2.	WORLD YOGA DAY –INTERANATIONAL YOGA DAY-300 STUDENTS	21.06.2015
3.	WORLD YOGA DAY –INTERANATIONAL YOGA DAY-300 STUDENTS	6.7.2015
4.	NSS JOINED IN BAND WAGON OF VELS UNIVERSITY FOR CLASS `10&12TH PAST STUDENTS.	25.5.2015
5.	SPECIAL CAMP TO CREATE AWARENESS AMONG VOTERS	10.07.2017
6.	AIDS AWARENESS PROGRAM	17.07.2017
7.	INAUGURAL FUNCTION AND CLEANING WORK	22.03.2018

SPORTS

Table 8.7(e) List of students participated in Sports activities

S.NO	EVENT	WINNER
1.	3rd Inter-paramedical tournament-2018	1500 mts 1st Place
		Basket ball Runners
		Kabaddi Runners
		Javelin Throw 2nd place

9. Governance, Institutional Support and Financial Resources (100)

9.1. Organization, Governance and Transparency (50)

9.1.1. Governing body, administrative setup, functions of various bodies, service rules, procedures, recruitment and promotional policies (10)

Governance is the key activity that develops the relationship among the management, staff, students and the community. We believe it should be effective, efficient and economical in execution of its duties. We support modern governance and proper administration and believe these should be carried out in a way that actively acknowledges diversity. The Institute has a governing body in place wherein the members are drawn from distinguished cross-sections of the society, as shown in Table below.

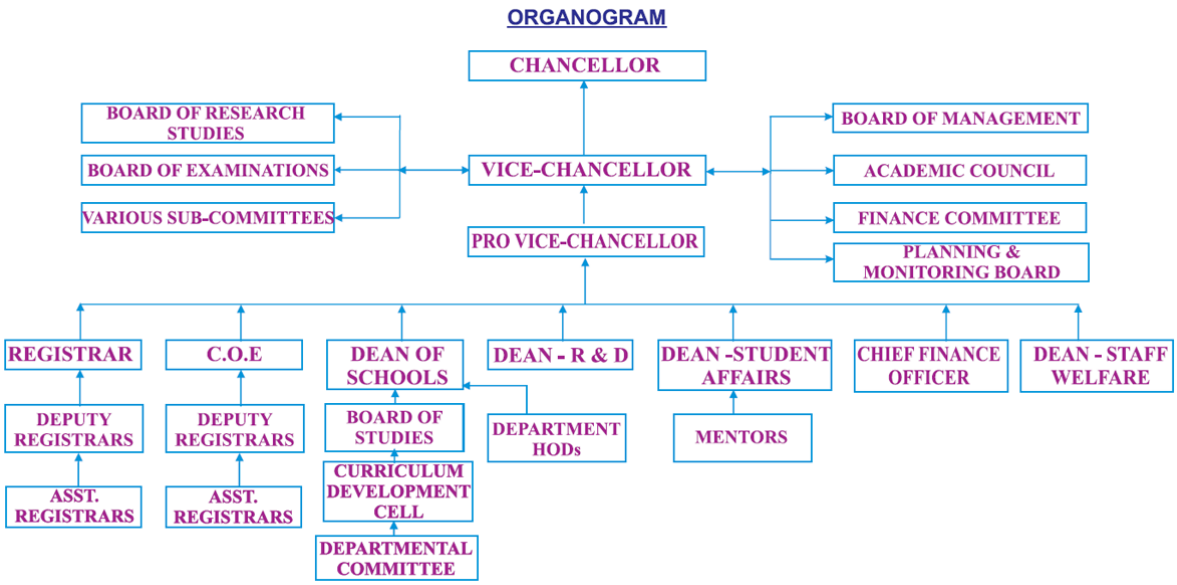


Figure 9.1(a) Flow Chart - Administrative Set up for Institution

Table 9.1(a) - Members of Governing Body (Board of Management (BOM))

MEMBERS OF THE BOARD OF MANAGEMENT
(as per UGC Regulations 2016)

Section 5.7 (i) **CHAIRPERSON**	**1.**	**Dr.P.Swaminathan** Vice-Chancellor, VISTAS Pallavaram, Chennai-600 117.
Section 5.7 (ii) **PRO-VICE CHANCELLOR**		Nil
Section 5.7 (iii) **DEAN OF FACULTIES NOT EXCEEDING TWO (BY ROTATION BASED ON SENIORITY)**	**2.**	**Dr. E.N. Ganesh** Dean, School of Engineering VISTAS, Pallavaram,Chennai-600 117
	3.	**Dr.M.Chandrasekaran** Dean, Academic Courses & Director, Dept. of Mechanical Engineering School of Engineering VISTAS, Pallavaram,Chennai-600 117
Section 5.7 (iv) **THREE EMINENT ACADEMICIANS NOMINATED BY THE CHANCELLOR**	**4.**	**Dr.S.P.Thiyagarajan** Former, Vice Chancellor, University of Madras Professor of Eminence - Research Sri Ramachandra University No.1 Ramachandra Nagar, Porur, Chennai-116.
	5.	**Dr.K.Muthuchelian,** Former, Vice Chancellor, Periyar University Chairperson School of Energy Sciences, Madurai Kamaraj University, Madurai.21
	6.	**Prof.C.Thangamuthu** Former Vice- Chancellor, Bharathidasan University, No.74, Agni Charity, Chettiyar Agaram Road (Behind Porur Ramachandra Hospital), Porur, Chennai – 600116

Section 5.7 (v) **UGC NOMINEE**	**7.**	Nomination yet to be received from UGC
Section 5.7 (vi) **TWO TEACHERS (FROM PROFESSORS, ASSOCIATE PROFESSORS) BY ROTATION BASED ON SENIORITY**	**8**	**Dr.V.Rajendran,** HOD, Dept. of ECE, School of Engineering VISTAS, Pallavaram,Chennai-600 117
Section 5.7 (viii) **MAXIMUM OF FOUR NOMINEES OF THE SPONSORING SOCIETY**	**9**	**Dr.V.Vijaya Kumar** (Former Vice Chancellor, Tamil Nadu Dr.Ambedkar Law University) Director, National Law School of India University, Bhopal
	10	**Dr. R. Srinivasan** Member Secretary Tamil Nadu State Council for Science and Technology, DOTE Campus, Sardar Patel Road, Guindy, Chennai-600025.
	11	**Dr. W. Selvamurthy** Chancellor - Amity University Chhattisgarh **J-3, Block, First Floor, Room #ll4,** **Amity Univerisyt, Secctor-125,** **Noida – 201313 (UP)**
	12	**Dr. M. Rajaram, IAS (Retd.)** 4/59, Luz Avenue, Mylapore, Chennai-600 004
Section 5.7 (ix) **MEMBER SECRETARY**	**13**	**Dr.A.R.Veeramani** Registrar, VISTAS, Pallavaram,Chennai-600 117

Rules and Responsibility of Governing Body (Board of Management (BOM)):

1. Framing the various policies and regulations of the institution like student admission, fees structure, faculty recruitment, salary, leave rules for the staff, promotion and budget allotment.

2. Providing the facilities or equipments for the development of the instituition.

3. Faculty Development Programme is conducted for all faculty members including newly recruited staffs during each academic year.

4. Orientation Programme is conducted for newly admitted students to aware the rules and regulations of institution.

5. Regular appointment of faculty recruitment is done by staff selection committee headed by the Vice chancellor and comprising the subject experts, the management representative and the Principal. In case of immediate requirement, recruitment is done by the college staff selection committee consisting of the management members, Principal, the Head of the concerned department and the subject experts.

6. Approve the request for developing infra structure and implementing the new program of study leading to award of degree

Meetings conducted by governing body (Board of Management (BOM)) (Past 3 years):

Meetings will be conducted twice per semester

Table 9.1(b) Details of Governing Body meetings held

Sl.No	Circular Number	Date of Meeting
1.	Vels Univ./V.C Off./107/2017	14.07.2017
2.	Vels Univ./V.C Off./107/2017	29.06.2017
3.	Vels Univ./V.C Off./063/2017	01.04.2017
4.	Vels Univ./V.C Off./019/2017	03.02.2017
5.	Vels Univ./V.C Off./001/2016	29.12.2016
6.	Vels Univ./V.C Off./301/2016	05.10.2016
7.	Vels Univ./V.C Off./296/2016	15.09.2016

Sample minutes of the meeting

VELS UNIVERSITY
(Office of the Vice Chancellor)

Minutes of the Meeting of the Deans,Directors and HoDs held on 14th July 2017 at 11.00 A.M in the Class Room VIB 109, VIBA Block

The meeting of the Deans, Directors and HoDs of the two campuses of Vels University started on time, the Registrar & Pro V.C were also present. At the outset, the Vice Chancellor welcomed the gathering and requested the Deans, Directors to provide freedom with accountability to Heads of departments and also to render utmost patronage for the new faculty members.

The Vice Chancellor then initiated discussions on the agenda items, the details of which are as follows :

Sl. No.	Description of Agenda items	Expected follow-up action
(1)	**Course on Environmental Studies :** The UGC has emphasized the urgent need for offering 'Environmental Studies' as a compulsory course, in all the Programs of Study, as per the verdict of the Supreme Court of India. Hence, all the Schools coming under UGC regulations need to offer the course as per the syllabus given by the UGC.	The Concerned HoDs are to ensure that the title and syllabus of the course, as given by the UGC, are incorporated in the modified version of the book of the Curriculum and Syllabus, due for submission to V.C's Office on or before 21.07.2017.
(2)	**Introduction of More MOOCs Courses :** As per the recent UGC guidelines, the universities have to facilitate students to take appropriate MOOCs courses to enhance the quality of Higher Education. Hence, the Heads of all the Schools, other than School of Engineering, are required to explore the possibilities for the same.	The Heads of Schools to initiate urgent action in this regard and come out with specific proposals.
(3)	**Personality Development Courses :** It has been widely accepted that the Syllabi of the different Personality Development Courses offered to the students of the different Schools need to be restructured to make them to serve the objective better.	A Committee to conduct a detailed study on this aspect and come out with specific proposal will be constituted by the Vice Chancellor within a week.
(4)	**Departmental Representatives :** For effective implementation of the Academic Programs uniformly across the departments, Departmental representatives for the following aspects are to be nominated 1. Academic Courses – One person 2. Academic Research & IQAC – One Person 3. Students Discipline – HoD & 2 More Persons (minimum)	The Heads of Departments are to send the list of Nominees for the three aspects (Signed Hard Copy) on or before 19.07.2017 to V.C's Office.
(5)	**NSS - As a Regular Course :** Based on the UGC's recommendations, some of the departments have included NSS as one of the regular course in the Curriculum. The methodology of offering the course needs to be carefully designed.	A Committee to examine this matter will be constituted by the Vice Chancellor within a week.
(6)	**M.Phil Program :** It is important to have M.Phil. Students to enhance the research activities of the university. Hence, the departments need to constitute a three-member M.Phil. Research Committee (HoD + Two other faculty members) to help in the conduct of M.Phil. Programs effectively to benefit the Research Scholars and the University.	The Heads of departments to send the details of the three-member (Signed Hard Copy) M.Phil. Research Committee on or before 19.07.2017 to V.C's Office.

The meeting ended with 'Thanks' by Vice Chancellor to one and all.

Vice Chancellor

Copy to : (i) The Chancellor, (ii) The Vice-President (P& D) & (iii) The Registrar

Figure 9.1(b) Sample minutes of the meeting

SERVICE RULES, PROCEDURES, RECRUITMENT, AND PROMOTONAL POLICIES

Staff Selection Committee:

Responsibilities:

1. Advertising about Vacancy position in Newspaper

2. Following PCI/AICTE regulations for selection of the staff and deciding the designation and salary for staffs

3. Monitoring the performance of the staff and encouraging them to perform well.

4. Framing the salary increment forms and staff relieving policy

Recruitment Policy:

1. Institution follows PCI/AICTE regulations.

2. All Pharmacy staffs must possess master degree recognized by Pharmacy Council of India of reputed University approved by PCI under 12 of the Pharmacy ACT, 1948

Promotional and Service Policies

Promotion

Based on UGC norms, higher designation like Professor and Associate professors are offered.

Relieving

1. Notice period for three months

2. At the time of relieving, experience and conduct certificate are issued.

OTHER IMPORTANT COMMITEES OF INSTITUTION

Institution have constitutes various following committees with different duties and responsibilities. The members of these committees meet once or twice per semester.

ACADEMIC RESEARCH COMMITTEE (SPS)

Table 9.1(c) Details of Members in Academic Research Committee (SPS)

Sl.No	Name	Designation
1.	Dr.P.Shanmugasundaram	Director, SPS
2.	Dr.S.Satheesh Kumar	HOD, P'Ceutics
3.	Dr.T.S.Shanmugarajan (Dept of Pharmaceutics)	Faculty Member
4.	Dr.V.Sowmyalakshmi (Dept of Pharmaceutical Analysis & Chemistry)	Faculty Member
5.	Dr.V.Santhosh Kumar (Dept of Pharmacology)	Faculty Member
6.	Dr.A.Vijayalakshmi (Dept of Pharmacognosy)	Faculty Member
7.	Mrs.P.Saranya (Dept of Pharmacy Practice)	Faculty Member

Rules and responsibilities:

1. Organize the conferences, seminars and workshops

2. Reviewing and promoting research activities in various fields

3. Apply the grants for projects, conferences, seminars and workshops

4. Monitoring the publications in well reputed journals (Scopus Indexed/ JCR impact factor)

DISCIPLINARY COMMITTEE (SPS)

Table 9.1(d) Details of Members in Disciplinary Committee (SPS)

Sl.No	Name	Designation
1.	Dr.P. Shanmugasundaram	Director, SPS
3.	Dr. M. Vijeyaanadhi (Dept of Pharm. Chemistry& Analysis)	Faculty Member
4.	Dr.I. Somusundaram (Dept of Pharmaceutics)	Faculty Member
5.	Mrs.S.Nithya (Dept of Pharmacology)	Faculty Member
6.	Dr. E. Susithra (Dept of Pharmacognosy)	Faculty Member
7.	Mrs.P.Maheshwari (Dept of Pharmacy Practice)	Faculty Member

Roles and responsibilities:

1. Implement the disciplinary rules of the institution.

2. Receive the complaints arising under the code of ethics

3. Resolving the complaints raised.

ACADEMIC COURSES COMMITTEE (SPS)

Table 9.1(e) Details of Members in Academic Courses Committee (SPS)

Sl.No	Name	Designation
1.	Dr.Shanmugasundaram	Director, SPS
2.	Dr. M.Vijeyaanandhi	HOD, P'Chem.&Analysis
3.	Dr.Jeganath (Dept of Pharmaceutics)	Faculty Member
4.	Dr. Sowmyalakshmi (Dept of Pharmaceutical Analysis & Chemistry)	Faculty Member
5.	Mrs.V.Jayashree (Dept of Pharmacology)	Faculty Member
6.	Dr.Malarkodi Velraj (Dept of Pharmacognosy)	Faculty Member
7.	Dr.Bhavya (Dept of Pharmacy Practice)	Faculty Member

Roles and responsibilities:

1. To perform Academic data compilation work
2. To verify Staff work load and other equivalent work hours, Individual timetable, Lesson plan, VC plan and discipline note.

3. To check the Mentor Mentee meeting records whether the meetings are conducted once/ twice in a month.

EXAMINATION COMMITTEE (SPS)

Table 9.1(f) Details of Members in Examination Committee (SPS)

Sl.No	Name	Designation
1.	Dr.Shanmugasundaram	Director, SPS
2.	Dr. M.Vijeyaanandhi	Academic Head
3.	Dr. M.Sumithra (Dept of Pharmaceutical chemistry and Analysis)	Convenor
4.	Mr.Anantha Kumar (Dept of Pharmaceutics)	Convenor
5.	Dr. Jeganath (Dept of Pharmaceutics)	Faculty Member
6.	Dr.Ramya (Dept of Pharmacy Practice)	Faculty Member

Roles and responsibilities

1. To take all necessary measures for the smooth conduct and fairness of examinations of CAT I, II, III and Model examination for B.Pharmacy and Pharm.D.

2. Preparing CAT/ Model exam timetable and get approval from the Academic Head/Director, SPS and circulate the same to the faculties.

3. Preparing the Invigilator list for all the examination

4. Execute the venue/seating arrangement for B.Pharmacy and Pharm.D students during examination

5. Collect the question papers (students copy) and required number of class attendance from the Academic Head, SPS, VISTAS a day prior.

6. Ensure that the subject/class and correct number of exam question papers for each day level has been received by checking the details indicated on the top of the bundle.

7. Distributing the Question papers and attendance to the invigilator 15 mts earlier before the commencement of the exam.

8. Maintaining a register and recording the details of exam hall/ subject/SEM/Sec/date/time/the invigilator who has received the Question paper/submitted the answer scripts etc.

9. Planning and executing the schedule and budget for University Practical Semester End Examination.

INSTITUTIONAL ANIMAL ETHICS COMMITTEE

Table 9.1(g) Details of Members in Institutional Animal Ethics Committee (SPS)

Sl.No	Name	Designation
1.	Dr. R. Dinakaran Michael	Chairman and Biological Scientist.
2.	Dr. K. G.Kripa	Scientist from different Biological discipline.
3.	Dr. T. S. Shanmugarajan	Scientist from different Biological discipline.
4.	Dr. P. Kanakaraj	Veterinarian.
5.	Dr. V. Santhosh Kumar	Member Secretary and Scientist Incharge of animal house facility.

CPCSEA hereby nominates the following members to the Institutional Animals Ethics Committee (IAEC) of your establishment / institute:-

Table 9.1(h) Nominated members of CPCSEA

Sl.No	Name	Designation
1.	Dr. S. R. Srinivasan	Main Nominee
2.	Dr. A. Muthuvel	Link Nominee
3.	Dr. P. Sriram	Scientist from outside institute
4.	Shri. M. Ravichandran	Social Aware Nominee

INSTITUTIONAL ETHICs COMMITTEE (SPS)

Table 9.1(i) Details of Members in Institutional Ethics Committee (SPS)

Sl.No	Name	Designation
1.	Dr.J.Anbu	Chairman
2.	Dr.M.Vijeyaanandhi	Member Secretary
3.	Dr.V.Mohan Ram	Clinician
4.	Dr.T.N.Uma Maheshwari	Clinician
5.	Dr.R.Geetha	Basic Medical Scientist
6.	Mr.S.Ashok Kumar	Legal Expert
7.	Mrs.R.Uma Maheshwari	Lay Person
8.	Dr.M.Tamilarasan	Social Scientist
9.	Rev.J.David Gnana Pragasam	Theologian
10.	Dr.S.Sathesh Kumar	Scientific Member
11.	Dr.R. Sangeetha	Scientific Member
12.	Prof.M.Sekar Babu	Scientific Member
13.	Dr.V.Santhosh Kumar	Scientific Member
14.	Mrs.M.Thilagam	Scientific Member

Guidelines to be followed for submission of proposals to VISTAS SPS IEC

1. One Hard copy of all the documents in soft bound form has to be submitted to the Member Secretary on prescribed date.

2. The Project Guide and all the co-investigators has to be present during the IEC meeting

3. The Student along with the Guide has to ensure all the documents are submitted as per the IEC requirements.

4. The Guides are requested to clearly go through all the documents that have been submitted for IEC.

5. The Student along with the Guide has to be present in the meeting room 10 minutes prior to their scheduled time.

6. A PowerPoint presentation of the protocol has to be made ready for IEC meeting for a presentation time of 6 minutes. (Not more than 10 slides including Title and reference slides should be made ready).

ANTI RAGGING COMMITTEE (VISTAS)

Table 9.1(j) Details of Members in Anti-Ragging Committee (VISTAS)

S.No.	Name	Designation
CHAIRMAN & NODAL OFFICER		
1	**Mr. C. Dhanasekaran** (Ph: 9962506202) E.Mail: dhans.se@velsuniv.ac.in	HOD Dept of Mech.Engg, School of Engineering,
CO-CONVENOR		
2	Dr. S.N. Sugumar (Ph:9884448037) Email: hodeco@velsuniv.ac.in	Associate Professor and Head Economics, School of Management Studies and Commerce.
CIVIL & POLICE ADMINISTRATION		
3	Mr. A. Johnson Ph:7010343501	Intelligent Section, Pallavaram Police Station, Pallavaram, Chennai – 600 043.
LOCAL MEDIA		
4	Mr. Sheldon Mark Jarrett Mobile : 9962236774 Email: Jarrett.sylvester@gmail.com	Media Artist Sterio Scopic Division L.V.Prasad Studio Saligramam , Chennai – 91
NGO'S		
5	Mr.Rangarajan.AL Ph : 044 - 22235133 Mobile: 9444971268 E.Mail : alrangarajan@rejuvenateindiamovement.org Website url: www.rejuvenateindiamovement.org	Chief Functionary & National coordinator, Rejuvenate India Movement(RIM), No.6,Nelson Mandela Street, Chittlapakkam, Chennai,Tamil Nadu
6	Mr.Panchaksharam.K Ph:044-2248 6791/92/93 E.Mail: sipapanchu@gmail.com sipa@vsnl.com	Secretary & CEO, Federation of South India Producer Associations (SIPA) No.21,Anna Street Sathya Nagar Extension Anakaputhur, Chennai- 600 070.
FACULTY MEMBERS		
7	Dr. A. Subramaniam Ph:9962506421 E.Mail:dean.studentaffairs@velsuniv.ac.in	Dean, Student affairs
8	Dr.P.Shanmugasundaram Ph: 9840126575 Email : director.sps@velsuniv.ac.in	Director School of Pharmaceutical Sciences

9	Dr.P.Mayilvahanan (Ph:9962506229) Email : mayil.scs@velsuniv.ac.in	Professor, School of Computing Sciences, Department of MCA
10	Capt.N.Kumar (Ph. : 9361852531) director.smts@velsuniv.ac.in	Director School of Maritime Studies
PARENTS		
11	Mr. R. Shanmugam Ph:9566104821	F/o S. Ajith Kumar(IV B.E (Mech)) No.3/77, Gengeaiyamman kovil street, Mylapore, Chennai-600004
12	Mr. R.K. Murthy Ph:8637413414	F/o. M. Divya (III Year B.Sc. Biotechnology) 37/74, 1st Street Karimedu, Perambur, Chennai-600039
13	Mr. T. Paramasivam Ph:8939211920	F/o. Ragul Arasan P(III Year B.E(CSE)), 39/139, East Mada Street, Thiruvanmiyur, Chennai-600041
JUNIOR & SENIOR STUDENTS		
14	Mrs. Jothi Meena A Ph:7395955095	II Year - B.Com (General) No:1/12A, 3rd cross street, Ramakrishna Nagar, Eranavoor, Chennai-600057.
15	Mr. B. Thamodharan Ph:8608622506	II Year – Bsc., (Viscomm) 52/24, Vada iyankulam street, Tiruvanamalai, Pin-606601.
16	Mrs. S. Swathi Ph:9841640465	II Year – B.Sc.Mathematics No.11, 10th street, Eswarn nagar, pammal, Chennai-600075.
17	Mrs. Mridhula Y Ph:9884815953	III year – B.Sc. Bio-computing, No:3, Ganesh Nagar, Nemilicherry, Chrompet, Chennai-600044.
18	Mrs. Divya Darshini V Ph:9790773449	IV Year B.E.(Civil), NO.12, Vembullai amman Kovil street, Gowriwakkam, Chennai-600007.
NON –TEACHNING STAFF		
19	Mr. B. Arun Prasad Ph:9962506207	Administrative Manager VISTAS
20	Mr.K.S.Paramasivam Ph :9962506220	Administrative Officer – Vels University
ANTI-RAGGING SQUAD		
21	Dr.R.A.Kalaivani Ph: 9962506223 Email: director.sbs@velsuniv.ac.in	Director School of Basic Sciences

22	Dr. P. Jagadeesan Ph:9962506219 Email: jaga.sms@velsuniv.ac.in	Assistant Professor & Head/ NSS Co-ordinator School of Management Studies & Commerce
23	Mr. S. Perumal Ph:9941155023 Email: perumal.scs@velsuniv.ac.in	Asst.Professor School of Computing Sciences
24	Mr.M. Ashok Kumar Ph: 9894606049 Email : hodpractice@velsuniv.ac.in	Asst. Professor, School of Pharmaceutical Sciences.
26	Dr. Mohammed Faisal Ph: 9952956833 Email : faisal.sms@velsuniv.ac.in	Asst.Professor, School of Management Studies
27	Mr.A.Gnanasihamani Ph:9962506242 Email: sihamani1946@gmail.com	Liaison Officer Vels University
CONVENOR		
28	Dr. A. R. Veeramani Ph :9962506245 Email: registrar@velsuniv.ac.in	Registrar

DUTIES OF ANTI-RAGGING COMMITTEE

It shall be the duty of the anti-ragging committee to take all necessary steps require to enforce provision of UGC regulations 2009 in this regard as well as the provision of any law for the time being in force concerning ragging, and also to monitor and oversee the performance of the anti-ragging squad in the prevention of ragging in the institution.

DUTIES OF ANTI-RAGGING SQUAD

1. To carryout surprise raids in the hostels and any other places vulnerable to incidents of ragging.

2. To conduct an on the spot enquiry into any incident of ragging referred to it by Head of the Institution, members of faculty, members of staff, any student, any parent or guardian, any employee of service provider or any other person. The enquiry report along with recommendations shall be submitted to anti-ragging committee. The anti-ragging squad shall conduct such an enquiry observing a fair and transparent procedure based on the principles of natural justice and after giving adequate opportunity to the student or students accused of ragging and other witnesses to place before it the facts, documents and views concerning the incident of ragging, and considering such other relevant information as may be required.

MENTORING CELL

As per UGC Regulations 2009 the Composition of the Mentoring Cell is as follows.

1. Students volunteer as mentors for the fresher's

2. Many levels or tiers of mentors

3. One mentor for six fresher's

4. One mentor of higher level for six mentors of lower level

5. One faculty member for a group of higher level mentors

ROLES AND RESPONSIBILITIES

1. Junior Level: To mentor fresher's, to interact with fresher's and to provide congenial and cordial environment in the campus. There will be a mentor for 6 students at Junior Level.

Senior Level: To guide and support as well as to interact with fresher's through junior level mentors. Depending on the number of Junior Level mentors, the number senior level mentors will be nominated.

9.1.2. Decentralization in working and grievance redressal mechanism (15)
List the names of the faculty members who are administrators/decision makers for various responsibilities. Specify the mechanism and composition of grievance redressal cell.

GRIEVANCE REDRESSAL COMMITTEE (VISTAS)

Table 9.1(k) Details of Members in Grievance Redressal Committee (VISTAS)

S.No.	Name	Designation
CHAIRMAN		
1	Dr. P.R. Ramakrishnan	Dean, School of Management Studies.
CO-CONVENOR		
2	Dr. S. Ambika Kumari	Director, School of Law.
MEMBERS		
3	Dr.M.Chandran	Professor and Head, School of Management Studies and Commerce.
4	Ms.K.Kalaivani	Asst. Professor and Head of CSE, School of Engineering.
5	Dr.P.Mayilvahanan	Professor, school of Computing Science.
6	Dr. V. Muthuraman	Asso.Professor Mechanical Engg., School of Engineering.

STUDENT'S NOMINEE		
7	Mr. S. Sundharsan	MBA - II Year(General) NO.6, Thiruvalluvar cross st, Pallikaranai, Chennai – 600 100.
8	Mr. Aadit Narendar	B.E – IV Year CSE 12, Kailasapuram, 4th street, Dr.Radhakrishnan Road, Mylapore, Chennai- 600004.
CONVENOR		
9	Dr. A.R. Veeramani	Registrar

POWER AND FUNCTIONS OF GRIEVANCE REDRESSAL COMMITTEE:

i. To entertain written and signed complaints and petitions of students in respect of matters directly affecting them individually or as a group;
ii. To enquire into the grievances, and make recommendations and report to the concerned authorities Academic Council and BoM for Redressal or suitable action; and
iii. To recommend appropriate action against complainant, if allegations made in the documents are found to be baseless.
iv. An appeal may be made to Ombudsman if not satisfied with the decision of Grievance Redressal Committee.

Conducting Enquiry by the Grievance Redressal Committee

Any person aggrieved by any contravention of this code, shall prefer a complaint before the Grievance Redressal Committee at the earliest point of time in any case within 15 days from the occurrence of the alleged contravention.

Complaint shall contain all the materials and relevant details concerning the alleged contravention including the names of the contravener and the complainant shall be addressed to the Chairperson of the Grievance Committee.

However, if the complaint does not reveal the identity, this may be addressed to the Head of the Institution for disposal on merit.

After the receipt of such complaint, the Head of the Institution shall retain original complaint and forward the gist of the complaint with other details to the Grievance Committee.

The Grievance Redressal Committee upon receipt of any complain or gist of the complain cause an enquiry to be made directly.

Where the Grievance Redressal Committee is satisfied that the complaint is justified

(i) In the case of person complained against is member of the body of management, Grievance Redressal Committee shall report to the management.

If the person is an employee of the university it shall be reported to the Vice-Chancellor.

In case of the person complained against happens to be a student it shall submit the report to the Head of the Institution.

Head of the Institution may suspend a person against whom complaint is made.

The Head of the Institution, upon receipt, of report from the Grievance Redressal Committee, shall give an opportunity (show cause notice) to the student / employee against whom the complaint is made for his reasonable defence. After, seeking the explanation, the Head of the Institution shall submit the report with his / her recommendation to the Management for punishment or otherwise.

Nothing in this code shall prevents the Head of the Institution from lodging a complaint straight away with the police in respect of any act amounting to any criminal or cognizable offense under the existing laws.

OMBUDSMAN

Table 9.1(l) Details of Ombudsman

Name of the Committee Member	Profession	Address, Mobile No. and E.mail. ID	Associated with	Designation not below the rank of District Retired judge or a retd. Professor	Department
Dr.R.Sivakumar	Professor \(Retd.)	No.62, Ritherdan Road, Vepery, Chennai-600 007	Vels University	Professor(Retd)	Dept. of English, Presidency College, Chennai

Any person aggrieved by the decision of the Grievance Redressal Committee may prefer an appeal to the Ombudsman within a period of 60 days.

Powers and Functions of Ombudsman:

1) The Ombudsman shall exercise his powers to hear any grievance:-

a) Of any student against the university or institution, as the case may be, after the student has availed of remedies available in such institution for redressal of grievances and

b) Any applicant for admission as student to such institution.

2) No application for revaluation or remarking of answer sheets shall be entertained by the Ombudsman unless specific irregularity materially affecting the outcome or specific instance of discrimination is indicated.

3) The Ombudsman shall have powers to seek the assistance of any person belonging to the SC / ST, Socially and Economically Backward Classes, Minority or Differently-able category, as Amicus Curiae, for hearing complaints of alleged discrimination.

SEXUAL HARASSMENT COMMITTEE (VISTAS)

Table 9.1(m) Details of Members in Sexual Harassment Committee (VISTAS)

S.No.	Name	Designation
CHAIRMAN		
1	Dr.R.A.Kalaivani	Professor & Head, School of Basic Sciences,
CO-CONVENOR		
2	Dr.M.Thiyalnayaki	HOD, Department of BBA
NGO		
3	REJUVENATE INDIA MOVEMENT(RIM) MR.RANGARAJAN.AL PH : 044 - 22235133 MOBILE: 9444971268 E.Mail : alrangarajan@rejuvenateindiamovement.org Website url: www.rejuvenateindiamovement.org	Chief Functionary & National Coordinator NO.6,Nelson Mandela Street, Chittlapakkam, Chennai,Tamil Nadu
MEMBERS		
4	Ms.S.Preetha	HOD, Department of MBA
5	Dr.S.Jeyakumari	Professor & Head Dept. of Pharmacognosy School of Pharmaceutical Sciences
6	Mr.T.Kamalakannan	HOD – Dept. of BCA & IT, School of Computing Sciences
7	Dr.K.Amutha	Associate Professor, Department of Biotechnology
8	Mr.S.Perumal	Asst.Prof., Dept. of Comp. Science School of Computing Sciences
STUDENTS		
9	Mr. Mohan.V	B.Com., – III Year
10	Ms.Asha.M	BBA - III Year
CONVENOR		
11	Dr. A.R. Veeramani	Registrar

Powers & Functions of Sexual Harassment Prevention Committee:

Objectives

The objectives of the Committee are:

- Prevent discrimination and sexual harassment against women, by promoting gender respect and harmony among students and employees;
- Make recommendations to the amendments or addition to the rules for students in the Prospectus and the Bye-Laws, to make them gender just and to lay down procedures for the prohibition, resolution, settlement and prosecution of acts of discrimination and sexual harassment against women, by the students and the employees;
- Deal with cases of discrimination and sexual harassment against women, in a time bound manner, aiming at ensuring support services to the victims and cessation of the harassment;
- Recommend appropriate punitive action against the delinquent to the management.

Procedure for Approaching the Committee

The Committee deals with issues relating to sexual harassment at the university. It is applicable to all students, staff and faculty. A complaint of discrimination or sexual harassment may be lodged by the victim or a third party. A written complaint may be addressed to the Convener of the Committee. If the complaint is made to the Dean, Director or any of the Committee members, they same may be forwarded to the Convener of the Committee against sexual harassment.

The Supreme Court has issued guidelines on prevention of sexual harassment and has defined it as "unwelcome" sexually determined behavior (whether directly or by implication) as follows:

- Physical contact and advances;
- Demand or request for sexual favors;
- Sexually colored remarks;
- Showing pornography; and
- Other unwelcome physical, verbal or non-verbal conduct of a sexual nature. (Vishaka judgment by Supreme Court)

The following is also sexual harassment and is covered by the committee:

- Eve-teasing,
- Unsavory remarks,
- Jokes causing or likely to cause awkwardness or embarrassment, Innuendos and taunts,
- Gender based insults or sexist remarks,
- Unwelcome sexual overtone in any manner such as over telephone (obnoxious telephone calls) and the like,
- Touching or brushing against any part of the body and the like,
- Displaying pornographic or other offensive or derogatory pictures, cartoons, pamphlets or sayings,
- Forcible physical touch or molestation and Physical confinement against one's will and any other act likely to violate one's privacy.

9.1.3. Delegation of financial powers (15)

(Explicitly mention financial powers delegated to the Principal, Heads of Departments and relevant in-charges. Demonstrate the utilization of financial powers for each year of the assessment years)

The Board of Management is empowered to delegate any of its powers to the Vice-Chancellor, Registrars, and Finance Officer or any other Officer, employee or Authority of the University.

The Finance Committee of the University had approved the delegation of financial powers and the same was ratified by the Board of Management.

Accordingly, the following Financial Powers for the Authorities / Officials have been delegated.

Table 9.1.3 Details of Financial Powers of Authorities

Financial Power	**Sanctioning authority**
Upto Rs.2,00,000	Registrar
Rs.2,00,001 – Rs.5,00,000/-	Vice-Chancellor
Above Rs.5,00,000/-	Board of Management

9.1.4. Transparency and availability of correct/unambiguous information in public domain (10)

(Information on the policies, rules, processes is to be made available on web site)

Our website displays the following rules and regulations. They are

1. Eligibility and rules for admissions to degree course in pharmacy (B.pharm, M.pharm, Pharm D and Post-Baccalaureate) are as per PCI norms.
2. Criteria for admission on Merit basis
3. Rules for reservation
4. Tuition Fees structure
5. Cancellation of admission and refund of fees
6. General rules students inside the campus
7. Rules for NRI students
8. Rules for attendance
9. Rules for examination
10. Rules for detention
11. Parents corner
12. E-Contents and E-learning for students developed by faculty

9.2. Budget Allocation, Utilization, and Public Accounting at Institute level (30)

Summary of current financial year's budget and actual expenditure incurred (for the institution exclusively) in the three previous financial years.

Total Income at Institute level: For CFY, CFYm1, CFYm2 & CFYm3 CFY: Current Financial Year, CFYm1 (Current Financial Year minus 1), CFYm2 (Current Financial Year minus 2) and CFYm3 (Current Financial Year minus 3)

For CFY

Total Income: 9,67,58,645				**Actual expenditure (till …):** 1,26,04,527			**Total No. of students:631**
Fee	**Govt**	**Grant (s)**	**Other sources (specify)-**	**Recurring including Salaries**	**Non recurring**	**Special Projects/ Any other, specify Industrial Tour & Extension activity**	**Expenditure per student**
9,67,58,645	**0**	0	0	1,20,60,401	5,44,126		**19,975.48**

Note: Similar tables prepared for CFYm1, CFYm2 & CFYm3.

Items	Budgeted in CFY	Actual expenses in CFY (till …)	Budgeted in CFY*m*1	Actual Expenses in CFY*m*1	Budgeted in CFY*m*2	Actual Expenses in CFY*m*2	Budgeted in CFY*m*3	Actual Expenses in CFY*m*3
	2018-2019		2017-2018		2016-2017		2015-2016	
Infrastructure Built-Up		3,92,264		3,98,154		1,59,812		1,58,595
Library		52,000		1,40,227		3,53,181		3,71,992
Laboratory equipment		4,92,126		6,39,724		23,050		4,41,555
Laboratory consumables		1,43,770		15,550		3,73,937		4,77,675
Teaching and non-teaching staff salary		93,64,562		44,94,844		23,21,454		12,70,851
Maintenance and spares		3,87,498		3,48,880		76,866		98,962

R& D		5,36,549		4,11,611		6,000		-
Training and Travel		4,54,552		33,234		2,14,941		54,291
Miscellaneous expenses *		6,90,306		2,77,954		80,892		2,92,158
Others, specify		9,09,000		2,34,692		14,43,482		13,91,484
Total		1,26,04,527		69,94,870		50,53,615		45,57,563

9.2.1. Adequacy of budget allocation (10)

(Justify that the budget allocated over the years was adequate)

The yearly budget is prepared according to the needs & requirements of the institute taking into consideration annual intake of students, laboratory & infrastructure requirements.

Formal budget estimates are prepared by Local Managing Committee of the institute and reviewed by the governing body. In cases where there are urgent requirements not taken into consideration while preparing budget, special allocation of funds are made on a case to case basis.

9.2.2. Utilization of allocated funds (15)

(State how the budget was utilized during the last three years.)

Utilization of allocated funds	2017-2018	2016-2017	2015-2016
	6994870	5053615	4557563

9.2.3. Availability of the audited statements on the institute's website (5)

(Needs to make audited statements available on its website.)

Audited statement is made available on the Institute's website

9.3. Library and Internet (20)

It is assumed that zero deficiency report was received by the institution, Effective availability and utilization to be demonstrated.

VISTAS Library is to provide world-class knowledge resources that not only cater to the curricular requirements but also provide intellectual enquiry and research. The Library provides access to wide range of electronic resources via the web and these are accessible both on and off campus. These sources include Electronic Journals & Books, Printed Journals & Books, Bibliographic Databases and Full text services. The library is automated with LIBGENIE, an Integrated Library Management Software Package, with all modules. A traditional library transformed into an automated library which includes Online Public Access Catalogue (OPAC) and Bar-coding system for Books, Non-Book Materials and ID cards to enable Laser Scanning of Issues and Returns. Touch Screen User Interface Design established for an interactive library. The library is air conditioned and CCTV surveillance for 24/7.The Central Library of VISTAS aims "To provide Physical and Virtual Environments, Services and Resources that meet the diverse needs of the Academic Community".

9.3.a. Library Infrastructure & Facilities

S. No	Particulars	Numbers available
1	Carpet area of library (in m^2)	1400
2	Number of seats in reading space	>300
3	Availability of Library Management Software	Yes
4	Computerization for Search, Indexing (OPAC)	06
5	Availability of Exclusive Servers	Yes
6	Availability of Intranet / Internet	Yes
7	Computers with Internet Connectivity	50
8	Wi-Fi Connectivity	Yes
9	40” Touch Screen: Interactive User Interface	01
10	Photocopier with Online Printer	01
11	Laser Printer	02
12	Image Scanner	01
13	Projector cum Computer	01
14	SWAYAM Prabha 32 DTH Channels with LED	1
15	Working Hours	**08.00 am to 08.00 pm** (on all working days)

9.3.1. Quality of learning resources (hard/soft) (10)

- Relevance of available learning resources including e-resources
- Accessibility to students

9.3.1. Quality of learning resources (hard/soft)

9.3.1.a. Details of learning resources including e-resources available in the library

S.No.	Particulars			Holdings
I. Print Resources				
a	Books	Titles	3531	12140
		Volumes	12140	
b	Periodicals	International	26	49
		National	23	
c	Projects			207
d	Back Volumes (1993 – 2017)			2591
II. Non Print Resources (E-Resources)				
e	Database	Micromedex Clinical Knowledge Suite		1
f	E-Books	Ebrary – Academic Complete		776
g	E-Journals	EBSCO Pharmacy Collection		327
		Bentham Science Pharmacy		23
		Inventi Online		12
h	AV (CDs & DVDs)			78
i	Inter Library Loan / Memberships	1. British Council Library (BCL) 2. Madras Library Network (MALIBNET) 3. Developing Library Network (DELNET)		
j	Institutional & Associate Memberships	1. e-ShodhSindhu (South Asia Archives & World e-book Library) 2. Shodhganga		
k	Digital Portals	1.Vels Subject Gateway Digital Portal (all open access and MHRD Digital Initiatives such as SWAYAM, ePG Pathsala, CEC, e-Vidya Mitra, etc. and International and National Online Open Courses such as Edx, Khan Academy, MIT Opencourseware, Coursera,Udacity, John Hopkins etc.) - http://www.velslibrarysubjectgateway.com/ 2. Library Web Portal - http://library.velsuniv.ac.in/ 3. NDL : National Digital Library		

9.3.1.b. Library Sections & Services

S. No.	Section	Services
1	Textbook	Books available for circulation.
2	Reference	It contains Pharmacopoeias, Encyclopedias, Dictionaries, Handbooks, Thesaurus, Year Books, Glossaries, Maps and Atlases etc.,
3	Periodicals	National & International Journals, Magazines, Dailies in Print and Online form.
4	Back Volumes	Bound Volumes of previous year issues of Journals.
5	Circulation	It provides lending services and facilities for return and renewal of loaned items.
6	Reprography	It provides photocopying and printing facility.
7	Virtual Knowledge Resource Centre	It supports the students in different learning environment and to the next level as virtual learning. It facilitates the users with supporting accessories like LCD Projector, LED TV along with Swayam Prabha 32 DTH Channel connection and proper supporting sound systems to view as well as to access MHRD Digital initiatives and other online resources.
8	e-Knowledge Resource Centre	e-KRC is to advanced the e-learning experience which allows easy access to a variety of both online and offline learning materials. In a productive manner.
9	Research Scholar Carrels	It is to avail for research scholars for their comprehensive work and actively engaged in writing their dissertations.
10	New Arrivals	Display of newly purchased books.
11	Question Bank	Collection of previous year's question papers
12	Competitive Examination	It contains more than 1500 books for students to prepare for the various Competitive Examinations

9.3.1.c. Information Services

- Lending Service
- Current Awareness Services (CAS)
- Selective Dissemination of Information (SDI)
- Article/Content Alert Service
- Online Access to Database Services
- Inter – Library Loan
- Reference and Referral Service
- User Orientation/ Information Literacy
- Photocopying / Scanning / Printing / CD Burning
- Question Bank / Research Guidance
- OPAC (Online Public Access Catalogue)
- Reprographic Services / News Clipping Service

9.3.1.d. Accessibility to Students

- Books are issued to the students on submission of valid identity card.
- Members shall not allow others to use their identity card to borrow books.
- A Student will be allowed to keep a book for 15 days from the date of issue. It may be renewed for further period of 15 days only.
- Reference books are not meant for circulation.
- The Library provides access to wide range of electronic resources via the web and these are accessible both on and off campus. These sources include Electronic Journals & Books, Printed Journals & Books, Bibliographic Databases and Full text services.

Circulation details:

Table 9.3.1(d) Details of Book Circulation for students

User Category	No. of Books	Retention Period (in days)	Renewal (in days)
UG	3	15	15
PG	5	15	15
Research Scholar	5	15	30
Faculty	10	90	90

9.3.2. Internet (10)

- Name of the Internet provider ; BSNL
  ACT Fibrenet

- Available bandwidth ;
  a) BSNL- 1000 Mbps connection with unlimited Data Access.
  b) Backup Line- ACT Fiber net – 200 MBps speed with 5TB Data Access

- Wi Fi availability; Enabled in all hostels and Library

- Internet access in labs, classrooms, library and other offices and class rooms in Pharmacy in PHB119, PHB214, PHB215, PHB216, PHB219 and Conference hall

- Security arrangements;

  a) Whole Campus is Enabled with CCTV Surveillance
  b) Firewall (Cyberoam 1500ing) and Antivirus (K7 Antivirus Installed for Network and Data Security
  c) All Desktops and Laptops maintained upto- Date.

Declaration

The Head of the Institution needs to make a declaration as per the format given below:

I undertake that, the institution is well aware about the provisions in the NBA's accreditation manual concerned for this application, rules, regulations, notifications and NBA expert visit guidelines in force as on date and the institute shall fully abide by them.

It is submitted that information provided in this Self-Assessment Report is factually correct. I understand and agree that an appropriate disciplinary action against the Institute will be initiated by the NBA in case any false statement/information is observed during pre-visit, visit, post-visit and subsequent to grant of accreditation.

VELS INSTITUTE OF SCIENCE, TECHNOLOGY & ADVANCED STUDIES (VISTAS) Pallavaram, Chennai-600 117.

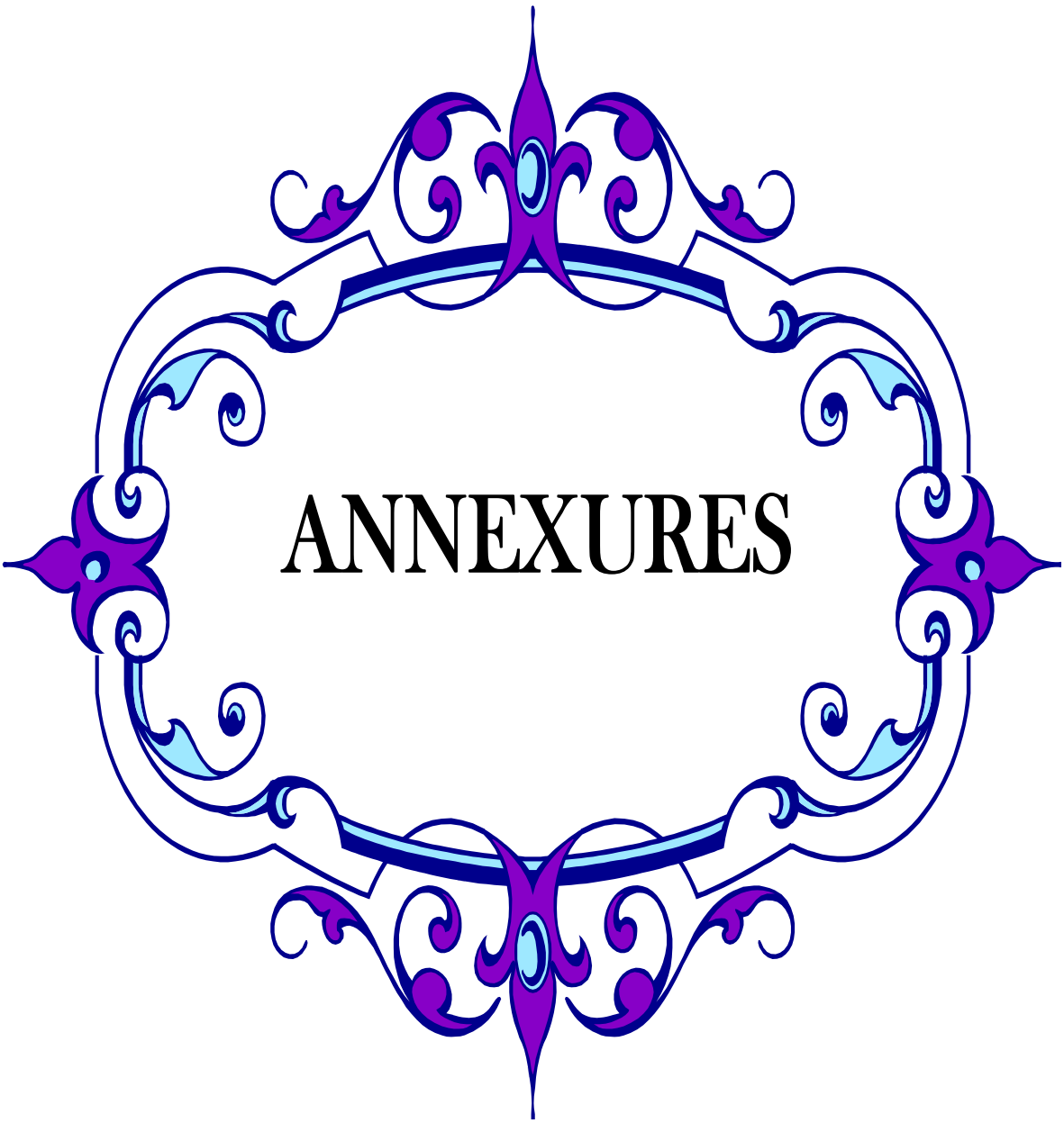
10.4.2019

Signature, Name and Designation of the Head of the Institution with seal

Dr.A.R. Veeramani
Registrar
Vels Institute of Science, Technology
& Advanced Studies (VISTAS)
Pallavaram, Chennai - 600 117.

Date : 10.04.2019

Place : Chennai – 600 117


ANNEXURES

ANNEXURE - I

VELS INSTITUTE OF SCIENCE, TECHNOLOGY AND ADVANCED STUDIES (VISTAS)

Programmes offered: 2018-19

I. SCHOOL OF BASIC SCIENCES:

1.	B.Sc., Chemistry	…	3 years (6 semesters)
2.	B.Sc., Physics	…	3 years (6 semesters)
3.	B.Sc., Mathematics	…	3 years (6 semesters)
4.	M.Sc., Chemistry	…	2 years (4 semesters)
5.	M.Sc., Pharmaceutical Analytical Chemistry	…	2 years (4 semesters)
6.	M.Sc., Industrial Chemistry & Management	…	2 years (4 semesters)
7.	Diploma in Green Chemistry	…	1 year (2 semesters)
8.	Certificate Course in Water Analysis	…	6 months (1 semester)

II. SCHOOL OF LIFE SCIENCES:

9.	B.Sc., Biotechnology	…	3 years (6 semesters)
10.	B.Sc., Biochemistry	…	3 years (6 semesters)
11.	B.Sc., Microbiology	…	3 years (6 semesters)
12.	B.Sc., Bio-computing	…	3 years (6 semesters)
13.	M.Sc., Biochemistry	…	2 years (4 semesters)
14.	M.Sc., Immunology & Microbiology	…	2 years (4 semesters)
15.	M.Sc., Applied Medical Biotechnology & Clinical Research	…	2 years (4 semesters)
16.	M.Sc., Biotechnology	…	2 years (4 semesters)
17.	M.Sc., Bioinformatics	…	2 years (4 semesters)

III SCHOOL OF COMPUTING SCIENCES:

18.	B.Sc., Computer Science	…	3 years (6 semesters)
19.	B.C.A	…	3 years (6 semesters)
20.	B.C.A. (Hons.)	…	4 years (8 semesters)

21.	B.Sc., Information Technology	…	3 years (6 semesters)
22.	M.Sc., Information Technology	…	2 years (4 semesters)
23.	M.Sc., Computer Science	…	2 years (4 semesters)
24.	M.C.A.	…	3 years (6 semesters)

IV. SCHOOL OF PHARMACEUTICAL SCIENCES:

25.	B.Pharmacy	…	4 years (8 semesters)
26.	B.Pharmacy (Practice)	…	2 years (4 semesters)
27.	M.Pharmacy (Pharmaceutics)	…	2 years (4 semesters)
28.	M.Pharmacy (Pharmaceutical Analysis)	…	2 years (4 semesters)
29.	M.Pharmacy (Pharmacy Practice)	…	2 years (4 semesters)
30.	Pharm.D (Doctor of Pharmacy)	…	6 years(Non-Semester)
31.	Pharm.D (Post Baccalaureate)	…	3 years(Non-Semester)

V. SCHOOL OF PHYSIOTHERAPY:

32.	B.P.T	…	4½ Yrs. (9 semesters)
33.	M.P.T - (Hand Conditions, Sports Physiotherapy, Pediatric Neurology, Adv. PT in Orthopedics, Adv. PT in Cardio. Res.Dis)	…	2 years (4 semesters)

VI. SCHOOL OF MARITIME STUDIES:

34.	B.Sc., Nautical Science	…	3 years (6 semesters)
35.	B.E., Marine Engineering	…	4 years (8 semesters)
36.	B.Sc., Maritime Operations	…	3 years (6 semesters)

VII.SCHOOL OF HOTEL & CATERING MANAGEMENT:

37.	B.Sc., Hotel & Catering Mgmt.	…	3 years (6 semesters)
38.	M.Sc., Hotel & Catering Mgmt.	…	2 years (4 semesters)
39.	M.Sc., Culinary Arts	…	2 years (4 semesters)

40.	Diploma in Hotel Management & Catering Technology	…	3 years (Non-sem)
41.	Certificate Course in Bakery and Confectionery	…	1 year
42.	Certificate Course in Food Production	…	1 year
43.	Certificate Course in Front Office Operation	…	1 year

VIII. <u>SCHOOL OF ENGINEERING:</u>

44.	B.E., Electrical & Electronics Engineering	…	4 years (8 semesters)
45.	B.E., Computer Science Engineering	…	4 years (8 semesters)
46.	B.E., Electronics & Communication Engineering	…	4 years (8 semesters)
47.	B.E., Mechanical Engineering	…	4 years (8 semesters)
48.	B.E., Civil Engineering	…	4 years (8 semesters)
49.	B.E., Automobile Engineering	…	4 years (8 semesters)
50.	B.Tech. I.T (Cloud & Mobile based Application Development In Association with IBM)	…	4 years (8 semesters)
51.	B.Tech., Biotechnology	…	4 years (8 semesters)
52.	B.E., Biomedical Engineering	…	4 years (8 semesters)
53.	M.E. Construction Engineering and Management	…	2 years (4 semesters)
54.	M.E., Computer Integrated Manufacturing	…	2 years (4 semesters)
55.	M.E., Computer Science Engineering	…	2 years (4 semesters)
56.	M.E., Automobile Engineering	…	2 years (4 semesters)

IX. <u>SCHOOL OF OCEAN ENGINEERING</u>

57.	B.Tech. Naval Architecture & Offshore Engg.	…	4 years (8 semesters)
58.	B.Tech. Petroleum Engineering	…	4 years (8 semesters)
59.	Diploma in Naval Architecture & Offshore Engg.	….	3 years (6 semesters)
60.	Diploma in Petroleum Engineering	…	3 years (6 semesters)

X.SCHOOL OF MASS COMMUNICATION:

61.	B.Sc., Visual Communication	…	3 years (6 semesters)
62.	B.Sc., Animation	…	3 years (6 semesters)
63.	Diploma in Visual Communication	…	3 years (6 semesters)
64.	Diploma in Animation	…	3 years (6 semesters)
65.	M.Sc., Visual Communication	…	2 years (4 semesters)

XI. SCHOOL OF MANAGEMENT STUDIES & COMMERCE:

66.	B.B.A	…	3 years (6 semesters)
67.	B.Com., (General)	…	3 years (6 semesters)
68.	B.Com., (Accounting & Finance)	…	3 years (6 semesters)
69.	B.Com., (Computer Applications)	…	3 years (6 semesters)
70.	B.A., Economics	…	3 years (6 semesters)
71.	M.B.A (Finance, HR, Marketing, Systems, Production)	…	2 years (4 semesters)
72.	M.B.A. (Logistics & Shipping Management)	…	2 years (4 semesters)
73.	M.B.A. (Logistics & Supply Chain Management (CII)	…	2 years (4 semesters)
74.	M.B.A. (Business Analytics) – in Association with IBM	…	2 years (4 semesters)
75.	MBA integrated	…	5 years (10 semesters)

XII. SCHOOL OF LANGUAGES:

76.	B.A., English	…	3 years (6 semesters)
77.	M.A., English	…	2 years (4 semesters)

XIII. SCHOOL OF LAW

78.	B.A., LL.B (Hons.)	…	5 years (10 semesters)
79.	LL.B.	…	3 years (6 semesters)

XIV. SCHOOL OF EDUCATION

80.	B.Sc., B.Ed.,	…	4 years (6 semesters)
81.	B.Ed.,	…	2 years (4 semesters)

XV. SCHOOL OF MUSIC & FINE ARTS – (IN ASSOCIATION WITH LAKSHMAN SHRUTI)

82.	B.A., Music (Instrumental – Veena, Violin, Guitar, Miruthangam & Thavil)	…	3 years (6 semesters)
83.	B.A., Dance (Bharatha Natyam)	…	3 years (6 semesters)
84.	B.A., Western Classical Music	…	3 years (6 semesters)
85.	M.A., (Bharatha Natyam)	…	2 years (4 semesters)
86.	Diploma in Western Music	…	2 years (4 semesters)
87.	Diploma in Bharatha Natyam	…	2 years (4 semesters)
88.	Certificate program in Karnatic Music	…	1 year (2 Semesters)
89.	Certificate program in Western Music	…	1 year (2 Semesters)

DEPARTMENT OF AVIATION – KNOWLEDGE PARTNER MADRAS FLYING CLUB LTD.,

90.	B.Sc., Aviation	…	3 years (6 semesters)

RESEARCH

M.Phil.: All post graduate departments offer Full-time / Part-time M.Phil. Programmes.

Ph.D. : All the Schools have experienced guides and hence both Full time and Part Time Ph.D., programme are offered by every school.

ANNEXURE - II

VELS UNIVERSITY

VELS INSTITUTE OF SCIENCE, TECHNOLOGY & ADVANCED STUDIES (VISTAS)

(Deemed to be University Estd. u/s 3 of the UGC Act, 1956)

NAAC ACCREDITED

PALLAVARAM - CHENNAI - INDIA

Calender 2016-2017

Important Dates -Odd Semester- 2016-17

Tuition Fee

Last Date for payment of Tuition Fee without penalty	18.07.2016
Last Date for payment of Tuition Fee with a penalty of Rs.500/-	02.08.2016
Last Date for payment of Tuition Fee with a penalty of Rs.1000 /-	01.09.2016
Date of deletion of fee defaulter's name will be removed from the Nominal Roll	02.09.2016

Revaluation

Last date for submitting revaluation application form	11.07.2016
Declaration of Revaluation Results	18.07.2016

Special Supplementary Examination

Last date for submitting application form for Special Supplementary Examination	22.07.2016
Special Supplementary Examination	27.07.2016
Declaration of Special Supplementary Examination Results	04.08.2016

Examination Fee

Commencement of collection of Examination Fee	12.09.2016
Last Date for collection of Examination Fee without penalty	26.09.2016
Last Date for collection of Examination Fee with a penalty of Rs.100/-	14.10.2016
Last Date for collection of Examination Fee with a penalty of Rs.500/-	21.10.2016

Continuous Assessment Tests for all courses except I year UG & PG courses

I-Continuous Assessment Test for UG & PG courses except I year UG & PG degree courses	08.08.2016
II-Continuous Assessment Test for UG & PG courses except I year UG & PG degree courses	08.09.2016
III Continuous Assessment Test for UG courses II continuous Test for I PG Courses	17.10.2016

Continuous Assessment Tests for I year UG & PG courses

I Continuous Assessment Test for I year UG courses	29.08.2016
IIContinuous Assessment Test for all I UG courses I Continuous Assessment Test for all I PG courses	21.09.2016
III Continuous Assessment Test for all UG courses II continuous AssessmentTest for I PG courses	17.10.2016

Model Examination

Model Examinations for all UG & PG courses	07.11.2016

Semester End Examinations Nov 2016

Commencement of University Practical Examinations	24.10.2016
Commencement of University Theory Examination	17.11.2016
Declaration of November 2016 Semester Examination results	31.12.2016

EXCELLENCE IN EDUCATION

VELS 25 YEARS

1992 - 2017

VELS UNIVERSITY

VELS INSTITUTE OF SCIENCE, TECHNOLOGY & ADVANCED STUDIES (VISTAS)

(Deemed to be University Estd. u/s 3 of the UGC Act, 1956)

NAAC ACCREDITED

PALLAVARAM - CHENNAI - INDIA

CALENDAR 2017 - 2018

IMPORTANT DATES - ODD SEMESTER 2017-2018

Tution Fee :

Last Date for payment of Tuition Fee without penalty	17-07-2017
Last Date for payment of Tuition Fee with penalty of Rs. 500/-	31-07-2017
Last Date for payment of Tuition Fee with penalty of Rs. 1000/-	31-08-2017
Date of removal of fee defaulter's name from the Nominal Roll	01-09-2017

Revaluation

Last Date for submitting revaluation application form	04-07-2017
Declaration of Revaluation Results	10-07-2017

Special Supplementary Examination

Last Date for submitting application for special supplementary examiantion (Application should be downloaded from website)	12-07-2017
Special Supplementary Examinations	17-07-2017
Declaration of Special Supplemenatry Examination Results	24-07-2017

Examination Fee

Commencement of Payment of Examinations Fee	11-09-2017
Last date for payment of examination fee without penalty	22-09-2017
Last date for payment of Examination Fee with a penalty of Rs. 100/-	13-10-2017
Last Date for payment of Examination Fee with a penalty of Rs. 500/-	23-10-2017

Continuous Assessment Tests for all courses except I year UG & PG Courses.

I-Continuous Assessment Test for UG & PG courses except I year UG & PG degree courses	09-08-2017
II-Continuous Assessment Test for UG & PG courses except I year UG & PG degree courses	11-09-2017
III - Continuous Assessment Test for UG Courses except I year	25-09-2017

Continuous Assessment Test for I year UG & PG Courses

I - Continuous Assessment Test for I year UG Courses	28-08-2017
II - Continuous Assessment Test for all I year UG Courses I - Continuous Assessment Test for all I year PG Courses	25-09-2017
III-Continuous Asssessment Test for all I year UG courses III continuous Assessment Test for I year PG Courses	23-10-2017

Model Examination

Model Examinations for all UG and PG Courses	01-11-2017

Semester End Examinations November 2017

Commencement of University Practical Examinations	30-10-2017
Commencement of University Theory Examinations	15-11-2017
Declaration of November 2017 Semester Examination Results	29-12-2017

EXCELLENCE IN EDUCATION

VELS 25 YEARS

1992 - 2017

VELS

INSTITUTE OF SCIENCE, TECHNOLOGY & ADVANCED STUDIES (VISTAS)

வேல்ஸ் அறிவியல் தொழில்நுட்ப உயர் ஆராய்ச்சி நிறுவனம்

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PALLAVARAM - CHENNAI - INDIA

CALENDAR 2018 - 2019

IMPORTANT DATE - EVEN SEMESTER 2018-2019

Tution Fee :

Last Date for payment of Tuition Fee without penalty	18-01-2019
Last Date for payment of Tuition Fee with penalty of Rs. 500/-	01-02-2019
Last Date for payment of Tuition Fee with penalty of Rs. 1000/-	01-03-2019
Date of removal of fee defaulter's name from the Nominal Roll	02-03-2019

Revaluation

Last Date for submitting revaluation application form	18-01-2019
Declaration of Revaluation Results	28-01-2019

Examination Fee

Commencement of Payment of Examination Fees	18-02-2019
Last date for payment of Examination fee without penalty	07-03-2019
Last date for payment of Examination Fee with a penalty of Rs. 100/-	15-03-2019
Last Date for payment of Examination Fee with a penalty of Rs. 500/-	22-03-2019

Continuous Assessment Test for all Courses

I-Continuous Assessment Test for all UG/PG degree courses	06-02-2019
II-Continuous Assessment Test for all UG/PG degree courses	04-03-2019
III-Continuous Assessment Test for all UG courses	01-04-2019

Model Examination

Model Examinations	15-04-2019

SE Examination May 2019

Commencement of University Practical Examinations	08-04-2019
Commencement of University Theory Examinations	06-05-2019
Declaration of May 2019 Semester Examination Results	27-06-2019

IMPORTANT DATES - ODD SEMESTER 2018-2019

Tution Fee :

Last Date for payment of Tuition Fee without penalty	20-07-2018
Last Date for payment of Tuition Fee with penalty of Rs. 500/-	02-08-2018
Last Date for payment of Tuition Fee with penalty of Rs. 1000/-	03-09-2018
Date of removal of fee defaulter's name from the Nominal Roll	04-09-2018

Revaluation

Last Date for submitting revaluation application form	09-07-2018
Declaration of Revaluation Results	18-07-2018

Special Supplementary Examination

Last Date for submitting application for special supplementary examiantion (Application should be downloaded from website)	23-07-2018
Special Supplementary Examinations	30-07-2018
Declaration of Special Supplemenatry Examination Results	08-08-2018

Examination Fee

Commencement of Payment of Examinations Fee	06-09-2018
Last date for payment of examination fee without penalty	20-09-2018
Last date for payment of Examination Fee with a penalty of Rs. 100/-	12-10-2018
Last Date for payment of Examination Fee with a penalty of Rs. 500/-	17-10-2018

Continuous Assessment Tests for all courses except I year UG & PG Courses.

I-Continuous Assessment Test for UG & PG courses except I year UG & PG degree courses	06-08-2018
II-Continuous Assessment Test for UG & PG courses except I year UG & PG degree courses	14-09-2018
III - Continuous Assessment Test for UG Courses except I year	11-10-2018

Continuous Assessment Test for I year UG & PG Courses

I - Continuous Assessment Test for I year UG Courses	27-08-2018
II - Continuous Assessment Test for all I year UG Courses I - Continuous Assessment Test for all I year PG Courses	24-09-2018
III-Continuous Asssessment Test for all I year UG courses II Continuous Assessment Test fro 1 Year PG Courses	22-10-2018

Model Examination

Model Examinations for all UG and PG Courses	29-10-2018

Semester End Examinations Novermber 2018

Commencement of University Practical Examinations	22-10-2018
Commencement of University Theory Examinations	14-11-2018
Declaration of November 2018 Semester Examination Results	05-01-2019

IMPORTANT DATES - EVEN SEMESTER 2017-2018

Tuition Fee

Last Date for payment of Tuition Fee without penalty	19-01-2018
Last Date for payment of Tuition Fee with penalty of Rs. 500/-	02-02-2018
Last Date for payment of Tuition Fee with penalty of Rs. 1000/-	02-03-2018
Date of removal of fee defaulter's name from the Nominal Roll	03-03-2018

Revalution

Last Date for submitting revaluation application form	12-01-2018
Declaration of Revaluation Results	25-01-2018

Examination Fee

Commencement of Payment of Examination Fee	19-02-2018
Last Date for Payment of Examination Fee without Penalty	08-03-2018
Last Date for Payment of Examination Fee with a penalty of Rs. 100/-	16-03-2018
Last Date for Payment of Examination Fee with a penalty of Rs. 500/-	23-03-2018

Continuous Assessment Test for all Courses

I - Continuous Assessment Test for UG & PG Courses	07-02-2018
II - Continuous Assessment Test for UG & PG Courses	05-03-2018
III - Continuous Assessment Test fort UG Courses	02-04-2018

Model Examination

Model Examination for all UG and PG Courses	16-04-2018

Semester End Examination May 2018

Commencement of University Practical Examinations	09-04-2018
Commencement of University Theory Examinations	07-05-2018
Declaration of May 2018 Semester Examination Results	28-06-2018

Important Dates -Even Semester- 2016-2017

Tuition Fee

Last Date for payment of Tuition Fee without penalty	20.01.2017
Last Date for payment of Tuition Fee with a penalty of Rs.500/-	03.02.2017
Last Date for payment of Tuition Fee with a penalty of Rs.1000/-	03.03.2017
Date of deletion of fee defaulter's name will be removed from the Nominal Roll	04.03.2017

Revaluation

Last date for submitting revaluation application form	21.01.2017
Declaration of Revaluation Results	01.02.2017

Examination Fee

Commencement of payment of Examination Fee	13.02.2017
Last Date for payment of Examination Fee without penalty	01.03.2017
Last Date for payment of Examination Fee with a penalty of Rs.100/-	11.03.2017
Last Date for payment of Examination Fee with a penalty of Rs.500/-	23.03.2017

Continuous Assessment Tests for all courses

I-Continuous Assessment Test for UG & PG degree courses	06.02.2017
II-Continuous Assessment Test for UG & PG degree courses	02.03.2017
III Continuous Assessment Test for UG courses	30.03.2017

Model Examination

Model Examinations for UG & PG courses	19.04.2017

Semester End Examinations May 2017

Commencement of University Practical Examinations	10.04.2017
Commencement of University Theory Examination	04.05.2017
Declaration of May 2017 Semster Examination results	28.06.2017

ANNEXURE - III

VELS UNIVERSITY

VELS INSTITUTE OF SCIENCE, TECHNOLOGY & ADVANCED STUDIES (VISTAS)

(Deemed to be University Estd. u/s 3 of the UGC Act, 1956)

NAAC ACCREDITED

PALLAVARAM - CHENNAI - INDIA

FACULTY DEVELOPMENT PROGRAM

on

PEDAGOGY & RESEARCH METHODOLOGY

Certificate

This is to certify that Dr. / ~~Mr.~~ / ~~Ms.~~ Binoy Varghese Cherian

of School of Pharmaceutical Sciences, Vels University

has participated in the two day Faculty Development Program on "Pedagogy & Research Methodology" organized by Vels University, Pallavaram, Chennai - 600 117 on 30th June & 1st July 2017.

Director-IQAC

Registrar

Vice-Chancellor

VELS UNIVERSITY

VELS INSTITUTE OF SCIENCE, TECHNOLOGY & ADVANCED STUDIES (VISTAS)

(Deemed to be University Estd. u/s 3 of the UGC Act, 1956)

NAAC ACCREDITED

PALLAVARAM - CHENNAI - INDIA

FACULTY DEVELOPMENT PROGRAM

on

STUDENT CENTRIC PEDAGOGY

Certificate

This is to certify that Dr. / Mr. / Ms. Binoy Varghese Cheriyan of Department of Pharmaceutical Chemistry & Analysis, School of Pharmaceutical Sciences, Vels University has participated in the three day Faculty Development Program on "Student Centric Pedagogy" organized by Vels University, Pallavaram, Chennai – 600 117 on 2nd, 4th & 5th of July 2016.

Registrar

Vice - Chancellor

VELS 25

VELS

INSTITUTE OF SCIENCE, TECHNOLOGY & ADVANCED STUDIES (VISTAS)

வேல்ஸ் அறிவியல் தொழில்நுட்ப உயர் ஆராய்ச்சி நிறுவனம்

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NAAC ACCREDITED

PALLAVARAM - CHENNAI - INDIA

FACULTY DEVELOPMENT PROGRAM
on
CREATIVE PEDAGOGY

Certificate

This is to certify that Dr. / Mr. / Ms. SUMITHRA. M

of SCHOOL OF PHARMACEUTICAL SCIENCES

has participated in the two day Faculty Development Program on **"Creative Pedagogy"** organized by Internal Quality Assurance Cell (IQAC), VISTAS, Pallavaram, Chennai - 600 117 on 29th & 30th, June 2018.

Dr. S. Arun
Director-IQAC

Dr. A. R. Veeramani
Registrar

Dr. P. Swaminathan
Vice-Chancellor

ANNEXURE - IV

PROGRAMME OBJECTIVES

1. Pharmaceutical Knowledge: Apply the knowledge of chemical and life sciences for discovery of various drugs for the treatment of wide range of health issues.

2. Problem Analysis: Categorize and analyse the pathophysiological conditions of various diseases and make use of principles involved in development of drugs from natural and synthetic sources.

3. Design/Development of solutions: Utilise the various resources from synthetic & natural origin and develop a lead molecule for the treatment of particular ailments with minimal side effects for the safety of public/environment.

4. Conduct investigations of complex problems: Make use of research based knowledge, research methods including design of experiments, analysis and interpretation of data for the synthesis of novel drug molecules.

5. Modern tool Usage: Choose and apply appropriate techniques, resources and modern software tools including prediction and modelling of lead molecules with appropriate considerations of toxic effects.

6. The Pharmacist and society: Apply the drug information by the contextual knowledge to create awareness about health, safety and legal issues among the population and also for exercising the responsibilities relevant to the pharmacy profession.

7. Environment and sustainability: Summarize the impact of societal and environmental factors for development of novel drug molecules by make use of contextual knowledge to develop sustainable methodologies for designing of the drug molecules from natural sources.

8. Ethics: Apply ethical principles and work towards professional ethics and render the responsibilities as per the norms of pharmacy profession.

9. Individual and team work: Function effectively as an individual, as a member or leader in diverse teams and in multidisciplinary settings.

10. Communication: Communicate effectively on emerging research topics among the students and academicians inorder to explore thrust research areas, design documentation, make effective presentations, give and receive clear instructions.

11. Project Management and finance: Illustrate knowledge and interpret the theoretical aspects of pharmaceutical management and apply these to one's own work, as a member or a leader in a team, to handle the projects and in multi disciplinary environments.

12. Life-long learning: Recognize and utilize the advanced technological developments and adapt in the independent and lifelong learning within the broadest context.