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## CO Attainment

Data was collected from internal examinations (theory, practical, seminars, assignments and presentations) and university examinations (theory and practical). The details are given in the following tables. The university examinations are conducted at a centre other than this college. As per the KBCNMU, Jalgaon, regulations, (CGPA system, June 2012) the components allotted to theory are 20% and practical 20% for internal assessment. The remaining 80% (for both theory and practical) is included in university assessment. Therefore, the scope for assessment is narrow. In this framework, the college conducts the following components.

- Midterm tests
- Assignments
- Consideration of attendance.

The KBCNMU, Jalgaon has decided to implement the new syllabus prescribed by Pharmacy Council of India, known as: The Bachelor of Pharmacy (B. Pharm.) Course Regulations, 2014, from the academic year 2017-2018. The subjects for theory and practical are much similar but contents have been revised to some higher extent. The examination pattern was changed; the theory subject is divided as 75 marks for university exam (end semester exam) and 25 marks for sessional exam (internal exam) of total 100 marks. The practical of total 50 marks is divided as 35 marks for university exam (end semester exam) and 15 marks for sessional exam (internal exam). there are two sessional exams prescribed in new PCI syllabus for each semester.

The difference in marks is highlighted in below table:

SN	Mark as per CGPA Pattern			Mark as per new PCI Syllabus Pattern		
	Theory			Theory		
	End term Exam (University)	Internal (Sessional exam)	Total	End term Exam (University)	Internal (Sessional exam)	Total
1	80	20	100	75 (75%)	25 (25 %)	100
2	-	-	-	35 (70 %)	15 (30 %)	50
	Practical			Practical		
3	80	20	100	35 (70 %)	15 (30 %)	50
4	-	-		15 (60 %)	10 (40 %)	25

The internal assessment evaluation is separately compiled and graded to understand the process.

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Component	Components of Evaluation	Nature of exam
Theory	First sessional exam	MCQs, short essay and long essay questions
	Second sessional exam	MCQs, short essay and long essay questions
Practical	Daily evaluation	Planning, analysis of lab skills, finishing the experiment
	First and second practical sessional examination	Synopsis, spotting and <i>viva-voce</i> , major experiment and minor experiments
	Laboratory manual	Communication, data interpretation
Beyond syllabus	Conducting 1/2 experiments	Practical examination by KBCNMU appointed examiner
Overall evaluation	External exam – semester wise	Short essay and long essay questions, Communication, data interpretation

In the above context, the scores of the students are listed into different categories.

#### Semester End Assessment-Tools

Component	Name of the exams	Items used
Theory	University end exams	MCQs, short essays, long essays, numerical problems.
Practical	University end exams	Synopsis, spotting, major experiment, minor experiment, interpretation, data-analysis, viva-voce, communication.

The internal assessment evaluation is separately compiled and graded to understand the process. The attainment of course outcomes of all courses are given in the following section. The above description allows us to evaluate the course outcomes achieved. In the present analysis, the targets for assessment were set using the standards prescribed by the KBCNMU, Jalgaon, as follows:

1. First class with distinction > 70% marks, attainment level is 3 (substantial)
2. First class 60 to 69% marks, attainment level is 2 (moderate)
3. Pass class 50 to 59% marks, attainment level is 1 (low)

The same yardsticks are applied to both sessional and University results. The number of students of all the above three categories are considered (rather than the criteria: as 80% students scoring more than 70% marks of the relevant maximum marks (is considered) for the attainment of 3). The calculation is as follows.

#### A) The calculations for CGPA pattern (June 2012) is explained as:

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**Internal marks:** The total internal marks are 20% for theory as per KBCNMU, Jalgaon, regulations.

Example: B. Pharmacy **III year** course (subject) – Pharmaceutics -VI (Pharmaceutical technology-I) in **2018-19** year. The following are the marks of theory internal examination.

	First class with Distinction (>70%); Attainment level is 3	First class (60 to 69 %); Attainment level is 2	Pass class 40 to 59%); Attainment level is 1	Total students
No of students	54	2	7	64
No of students X value	54 X 3= 162	2 X 2= 4	7 X 1= 7	
Total	162 + 4 + 7 = 173			
Ratio	173 / 64 = 2.70			
Value 20% for internal exams	2.70 X 0.20 = <b>0.54</b>			

For the practical exams the internal marks are 20% as per KBCNMU, Jalgaon, regulations.

Example: B. Pharmacy **III year** course (subject) – Pharmaceutics -VI (Pharmaceutical technology-I) in **2017-18** year. The following are the marks of practical internal examination. The calculation is as follows.

	First class with Distinction (>70%); Attainment level is 3	First class (60 to 69 %); Attainment level is 2	Pass class 40 to 59%); Attainment level is 1	Total students
No of students	57	5	2	64
No of students (X) value	57 X 3= 171	5 X 2= 10	2 X 1= 2	
Total	183			
Ratio	183 / 64 = 2.86			
Value 20% for internal exams	2.86 X 0.20 = <b>0.57</b>			

For University theory exams, the University marks are 80% as per KBCNMU, Jalgaon, regulations. The university theory examinations are conducted at another examination centre. In other words, students of college do not write their theory examination in their parent college.





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Example: B. Pharmacy **III year** course (subject) – Pharmaceutics -VI (Pharmaceutical technology-I) in **2017-18** year. The following are the marks of theory university examination. The calculation is as follows.

	First class with Distinction (>70%); Attainment level is 3	First class (60 to 69 %); Attainment level is 2	Pass class 40 to 59%); Attainment level is 1	Total students
No of students	5	11	42	64
No of students (X) value	5 X 3= 15	11 X 2= 22	42 X 1= 42	
Total	15 + 22 + 42 = 79			
Ratio	79 / 64 = 1.23			
Value 80% for internal exams	1.23 X 0.80 = <b>0.99</b>			

For University practical exams, the University marks are 80% as per KBCNMU, Jalgaon regulations.

Example: B. Pharmacy **III year** course (subject) – Pharmaceutics -VI (Pharmaceutical technology-I) in **2018-19** year. The following are the marks of practical university examination. The calculation is as follows.

	First class with Distinction (>70%); Attainment level is 3	First class (60 to 69 %); Attainment level is 2	Pass class 50 to 59%); Attainment level is 1	Total students
No of students	60	4	0	64
No of students (X) value	60 X 3= 180	4 X 2= 8	0 X 1= 0	
Total	180 + 8 + 0 = 188			
Ratio	188 / 64 = 2.94			
Value 80% for internal exams	2.94 X 0.80 = <b>2.35</b>			

For conducting practical examination of university, external examiner is appointed by the KBCNMU, Jalgaon. The above calculated values are tabulated as follows:

Subject code	Subject name	University		Internal		Total
		100%	80%	100%	20%	

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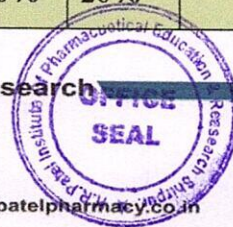
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T 2.3.1	Pharmaceutics -VI (Pharmaceutical technology-I)	1.23	0.99	2.70	0.54	<b>1.53</b>
Theoretical attainment = 1.97 % attainment of outcomes = $1.53 / 1.97 = 77.57\%$ or <b>2.33</b> (against the scale Max = 3)						
P 2.3.1	Pharmaceutics -VI (Pharmaceutical technology-I)	2.94	2.35	2.86	0.57	<b>2.92</b>
Theoretical attainment = 1.85 % attainment of outcomes = $2.92 / 1.85 = 100\%$ or <b>3.00</b> (against the scale Max = 3)						

**B) The calculations for PCI pattern (June 2017) is explained as:**

**Internal marks:** The total internal marks are 25 % for theory as per KBCNMU, Jalgaon, regulations.

Example: B. Pharmacy I year course (subject– Human Anatomy and Physiology I– (BP101T) in 2018-19 year. The following are the marks of theory internal examination.

	First class with Distinction (>70%); Attainment level is 3	First class (60 to 69 %); Attainment level is 2	Pass class 50 to 59%); Attainment level is 1	Total students
No of students	11	17	19	58
No of students X value	11 X 3= 33	17 X 2= 34	19 X 1= 19	
Total	33 + 34 + 19 = 86			
Ratio	$86 / 58 = 1.48$			
Value 20% for internal exams	$1.48 \times 0.25 = 0.37$			

For the practical exams the internal marks are 30 % as per KBCNMU, Jalgaon, regulations.

Example: B. Pharmacy I year course (subject– Human Anatomy and Physiology I– (BP107P) in 2017-18 year. The following are the marks of practical internal examination. The calculation is as follows.

	First class with Distinction (>70%); Attainment level is 3	First class (60 to 69 %); Attainment level is 2	Pass class 50 to 59%); Attainment level is 1	Total students
No of students	12	20	18	58





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No of students (X) value	12 X 3= 36	20 X 2 = 40	18 X 1 = 18	
Total	36 + 40 + 18 = 94			
Ratio	94 / 58 = 1.62			
Value 20% for internal exams	1.62 X 0.30 = 0.49			

For University theory exams, the University marks are 75 % as per KBCNMU, Jalgaon, regulations. The university theory examinations are conducted at another examination centre. In other words, students of college do not write their theory examination in their parent college.

Example: B. Pharmacy I year course (subject– Human Anatomy and Physiology I– (BP101T) in 2017-18 year. The following are the marks of theory university examination. The calculation is as follows.

	First class with Distinction (>70%); Attainment level is 3	First class (60 to 69 %); Attainment level is 2	Pass class 40 to 59%); Attainment level is 1	Total students
No of students	1	10	32	58
No of students (X) value	1 X 3= 3	10 X 2= 20	32 X 1= 32	
Total	3 + 20 + 32 = 55			
Ratio	55 / 58 = 0.95			
Value 80% for internal exams	0.95 X 0.75 = 0.72			

For University practical exams, the University marks are 70 % as per KBCNMU, Jalgaon regulations.

Example: B. Pharmacy I year course (subject– Human Anatomy and Physiology I– (BP107P) in 2017-18 year. The following are the marks of practical university examination. The calculation is as follows.

	First class with Distinction (>70%); Attainment level is 3	First class (60 to 69 %); Attainment level is 2	Pass class 50 to 59%); Attainment level is 1	Total students
No of students	39	9	5	58

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No of students (X) value	39 X 3= 117	9 X 2= 18	5 X 1= 5	
Total	117+ 18 + 5 = 140			
Ratio	140 / 58 = 2.41			
Value 80% for internal exams	2.41 X 0.70 = <b>1.69</b>			

For conducting practical examination of university, external examiner is appointed by the KBCNMU, Jalgaon. The above calculated values are tabulated as follows:

Assuming 80% weightage to University examination and 20% weightage to Internal assessment, the attainment calculations will be (80% of University level) + (20% of Internal level )  
i.e. 80% of 3 + 20 % of 3 = 2.4 + 0.6 = 3.0

Subject code	Subject name	University		Internal		Total
		100%	75%	100%	25%	
BP101T	Human Anatomy and Physiology I- Theory	0.95	0.72	1.48	0.37	<b>1.09</b>
	Theoretical attainment = 1.95 % attainment of outcomes = 1.09 / 1.95 = 55.89% or <b>1.67</b> (against the scale Max = 3)					
BP107P	Human Anatomy and Physiology I- Practical	2.41	1.69	1.62	0.49	<b>2.18</b>
	Theoretical attainment = 1.48 % attainment of outcomes = 2.18 / 1.48 = 100 % or <b>3.00</b> (against the scale Max = 3)					

Similar calculations are made for all courses for all academic years 2017, 2018-19, 2019-20, 2020-21 and 2021-22. The details of all courses are given below for all subjects. Thus, attainable outcomes and attained outcomes are matrixes to obtain as the percentage attainment.



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## PO Attainment

The course outcomes are mapped for each program outcome. The attainment of course outcomes achieved in the years 2017-18, 2018-19, 2019-20, 2020-21 and 2021-22 are translated into program outcomes based on the CO-PO Matrices and course-PO Matrices.

**The following are the assessments.**

### Assessment Tools:

Several tools are described for assessing course outcomes. The program outcomes are based on the course outcomes. Thus, the tools remain the same for assessing the program outcomes. In addition, the tools of survey based on the alumni and exit surveys are considered.

**The tools broadly are:**

- Student exit surveys
- Alumni surveys - yearly
- Staff surveys – yearly
- Higher education and placement

Component	Components of Evaluation	Nature of exam
<b>Internal examinations</b>		
Theory	MCQ's	Multiple choice questions
	First sessional exam	Short essay and long essay questions
	MCQ's	Multiple choice questions
	End sessional exam	Short essay and long essay questions
Practical	Daily evaluation	Planning, analysis of lab skills, finishing the experiment
	Practical examination	Synopsis, spotting and viva-voce, major experiment and minor experiment
	Laboratory manual	Communication data interpretation
Beyond syllabus	Conducting 02 experiments	
Overall Evaluation	External exam – semester wise	
<b>University examinations</b>		
Theory	University end exams	Short essays, long essays, numerical
Practical	University end exams	Synopsis, spotting, major experiment, minor experiment, interpretation, data analysis, viva voce, communication.



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### Assessment process:

The assessment tools are direct and indirect methods for evaluating the attainment of POs.

**Direct methods:** The sessional examinations and the internal assessment, wherein the teacher can focus on the POs. The question papers include short answers, short essay and long essay type. In addition, MCQs examinations are conducted on each unit test. Assignments are given for some extension of syllabus. In case of laboratory examination, synopsis, major experiment, minor experiment, *viva voce*, reports, etc., are the components. While setting a question paper, each question is framed based on the POs in order to attain them to a large extent. A few POs of minor importance may not be accommodated. It is necessary that a question has to cover 60% of 'essentials to know', 30% 'better to know' and 10% are 'nice to know'. Therefore, special attempts are made to attain these objectives.

The subjects are also categorized as professional core subjects, basic subjects (mathematics, science, computing, and humanities). Accordingly, the POs have assumed adequate importance. Having set the question papers, the answer papers are being evaluated from the same perspectives. The students are given feedback and POs are highlighted. Data are gathered after scrutinizing the answer for course outcomes. The course outcomes are translated to POs. Attainment of POs is considered from the data of all students.

**Indirect methods:** Surveys are conducted from two levels: alumni and exit survey.

### PO evaluation

Frequency of carrying out the process: once in year. The POs are obtained from course outcomes, which composed a number of tools, end examination practical, MCQs, assignments, seminars etc. Each effort has uniquely suited to achieve POs. The evaluation was summative as well as formative (experience and appreciation, MCQs). The evaluation is spread throughout the program, examinations, job placements data, faculty survey on students and experimental site perceptions. Higher studies records, GPAT scores are a few more tools.

  
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