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BHANDARKARS' ARTS AND SCIENCE COLLEGE

(RE-ACCREDITED AT 'A' GRADE WITH CGPA OF 3.32 ON 4 POINT SCALE)
KUNDAPURA - 576 201, UDUPI DISTRICT

Sponsored By
THE ACADEMY OF GENERAL EDUCATION
MANIPAL - 576 119, U.D.

2.6.1 Programme Outcomes (POs) and Course Outcomes (COs) for all Programmes offered by the institution are stated and displayed on website and attainment of POs and COs are evaluated.

PROPOSED ATTAINMENT OF COURSE OUTCOMES:
FOR NEP BATCH

In the Outcome Based Education (OBE), assessment is done through one or more than one processes, carried out by the department, that identify, collect, and prepare data to evaluatethe achievement of course outcomes (CO's).

The process for finding the attainment of Course outcomes uses various tools/methods. These methods are classified into two types: **Direct methods and indirect methods.**

• Direct methods display the student's knowledge and skills from their performance in the class/assignment test, internal assessment tests, assignments, semester examinations, seminars, laboratory assignments/practical's, mini projects etc. These methods provide a sampling of what students know and/or can do and provide strong evidence of student learning.

• Indirect methods such as course exit survey and examiner feedback to reflect on student's learning. They are used to assess opinions or thoughts about the graduate's knowledge or skills.

Rubrics are used for both formative and summative assessment of students. Same rubric is used for assessing an outcome so that the faculty is able to assess student progress and maintain the record of the same for each student. The rubrics are shared with students before being evaluated so that they are aware of the performance criteria and their weightage.

Following tables show the various methods used in assessment process that periodically documents and demonstrates the degree to which the Course Outcomes are attained. They include information on:

a) Listing and description of the assessment processes used to gather the data, and

b) The frequency with which these assessment processes are carried out.

Direct Assessment Tools used for CO attainment:

Sr. No.	Direct Assessment Method	Assessment frequency	Description
1.	Internal Assessment Test	Twice in a Semester	The Internal Assessment marks in a theory paper shall be based on two tests generally conducted at the end of 6th and 11th weeks of each semester. It is a metric used to continuously assess the attainment of course outcomes w.r.t course objectives. Average marks of two tests shall be the Internal Assessment Marks for the relevant course.
2.	Lab Assignments / experiments	Once in a week	Lab Assignment/Experiment is a qualitative performance assessment tool designed to assess students' practical knowledge and problem solving skills. Minimum eight experiments need to be conducted for every lab course.
3	End Semester Examination	Once in a Semester	End Semester examination (theory or practical) are the metric to assess whether all the course outcomes are attained or not framed by the course in charge. End Semester Examination is more focused on attainment of all course outcomes and uses a descriptive questions.
4	Practical Semester Examination		
5	Home Assignments	Twice in a Semester	Assignment is a metric used to assess student's analytical and problem solving abilities. Every student is assigned with course related tasks & assessment will be done based on their performance. Grades are assigned depending on their innovation in solving/deriving the problems.

Indirect Assessment Tool used for CO attainment:

Sr. No.	Indirect Assessment Method	Assessment frequency	Method Description
1	Course Exit Survey	End of Semester	Collect variety of information about course outcomes from the students after learning entire course.

List of Course Assessment tools:

Assessment Tools	Direct 90%	Internal Tools	Tools	Frequency	Weightage		
			Assignment	Twice in a semester			
			Internal assessment Test	Twice in a semester			
			Home Assignments	Selected Topic			
			Practical	Weekly			
			MOCK Practical	Once in a semester			
			Unit Test				
			Seminar/Presentations				
		External Tools	Mini Projects				
			Preliminary Examination	Once in a semester	**40%**		
			End Semester Examination	Once in a semester		**60%**	
	Indirect 10%	--	Course Exit Survey/ Examiners feedback	Once in a Semester			**10%**

Process to set Goal for course (effective from First semester of 2022)

Course Outcome Attainment level is set based on previous three years' average performance levels in the university examination in that course. Process is given below:

1. Find out the average marks scored in each course in the last three years.
2. Find the number of students scoring above the average marks
3. This is set as middle level of goal setting [Level-2]
4. Depending on the trend of the result the lower level [Level-1] can be set by reducing 5% ofthe students score than the middle level.
5. The upper level [Level-3] can be set by increasing 5% of the students score than the middlelevel

PHYSICS: I SEMESTER:

Course Outcomes: (UGC GUIDE LINES)

CO-ID	CO-STATEMENTS
CO-1	Will learn fixing units, tabulation of observations, analysis of data (graphical/analytical)
CO-2	Will learn about accuracy of measurement and sources of errors, importance of significant figures.
CO-3	Will know how g can be determined experimentally and derive satisfaction.
CO-4	Will see the difference between simple and torsional pendulum and their use in the determination of various physical parameters.
CO-5	Will come to know how various elastic moduli can be determined.
CO-6	Will measure surface tension and viscosity and appreciate the methods adopted.
CO-7	Will get hands on experience of different equipment.

Programme Outcomes (POs):

PO-1: Discipline Knowledge of Science and ability to apply to relevant areas

PO-2: Problem solving: Execute a solution process using first principles of science to solve problems related to respective discipline.

PO-3: Modern tool usage: Use a modern scientific, engineering and It tool or technique for solving problems in the areas of other discipline.

PO-4: Ethics: Apply the professional ethics and norms in respective discipline.

PO-5: individual and team work: work effectively as an individual as a team member in a multidisciplinary team.

PO-6: Communication: Communicate effectively with the stake holders, and give and receive clear instructions.

Course Articulation Matrix:

Mapping of Course Outcomes (CO's) with Programme Outcomes (PO's)

COs	PO1	PO2	PO3	PO4	PO5	PO6	PSO1	PSO2
CO-1	✓	✓				✓		
CO-2	✓	✓						
CO-3	✓							
CO-3	✓							
CO-4	✓			✓	✓	✓		
CO-5	✓				✓	✓		
CO-6	✓	✓						
CO-7	✓	✓	✓		✓	✓		
Average								

Course articulation Matrix relates course outcomes of course with the corresponding program outcomes whose attainment is attempted in this course are marked in the intersection cell if a course outcome addresses a particular program outcome.

ASSESSMENT PATTERN:

COGNATIVE LEVEL	TEST-1	TEST-2	ASSIGNMENT	SEMINAR
REMEMBER	2	2	0	2
UNDERSTANDING	2	4	0	0
APPLY	2	4	4	2
ANALYSIS	2	0	4	3
EVALUVATE	2	0	2	3
CREATE	0	0	0	0

Class Average in CIE- with 40% weightage to CIE:

CO	CLASS TEST-1 (10 MARKS) % OF CLASS AVERAGE	CLASS TEST-2 (10 MARKS) % OF CLASS AVERAGE	ASSIGNMENT (10 MARKS) % OF CLASS AVERAGE	SEMINAR (10 MARKS) % OF CLASS AVERAGE	CIE CLASS AVERAGE PERSENTAGE
CO-1	0.57/1	0	1.82/2	2/2	4.39/5 = 87.8
CO-2	0.57/1	0.86/2	0.91/1	2/2	4.34/6 = 72.3
CO-3	1.14/2	0.86/2	1.82/2	0	3.82/6 = 63.6
CO-4	1.14/2	0.86/2	0.91/2	0	2.91/5 = 58.2
CO-5	1.14/2	0.86/2	1.82/1	0	3.82/6 = 63.6
CO-6	1.14/2	0.86/2	0.91/1	0	2.91/5 = 58.2
CO-7	0	0	0.91/1	6/6	6.91/7 = 98.7

$$Class\ Average\ Marks = \frac{Totalmarks\ scored\ by\ all\ the\ students}{total\ number\ of\ student}$$

$$Percentage\ of\ class\ average\ marks = \frac{class\ average\ marks}{100}$$

SETTING OF CO ATTAINMENT TARGET:

CO	TARGET			
	% STUDENT GETTING LESS THEN ≤50	% STUDENT GETTING MORE THEN 50 BUT LESS THAN 65	% STUDENT GETTING MORE THAN 65 LESS THEN 80	% STUDENT GETTING MORE THEN ≥80
CO-1	39	16	19	26
CO-2	39	16	19	26
CO-3	39	16	19	26
CO-4	39	16	19	26
CO-5	39	16	19	26
CO-6	39	16	19	26
CO-7	39	16	19	26

COMPUTATION OF ATTAINMENT OF CO'S = 0.9% OF DIRECT CO ATTAINMENT + 0.1% OF INDIRECT CO ATTAINMENT

	DIRECT CO ATTAINMENT % AVERAGE = 0.4% OF CIE + 0.6% OF SEE CLASS AVERAGE MARKS	INDIRECT ATTAINMENT (EXTERNAL SURVEY) AVERAGE PERCENTAGE	CO'S ATTAINMENT IN PERCENTAGE	CO'S TARGET PERCENTAGE	CO'S ATTAINMENT GAP IN PERCENTAGE
CO-1					
CO-2					
CO-3					
CO-4					
CO-5					
CO-6					
CO-7					

CO-QUE \	Course Outcome Question	Rating Percentage										Average %	CO-Question Attainment
		No of students rated											
		'5'	%	'4'	%	'3'	%	'2'	%	'1'	%		
		Total number of students given Course Exit Survey						'23'					
1	Rate yourself :Will learn fixing units, tabulation of observations, analysis of data (graphical/analytical)												
2	Rate yourself: Will learn about accuracy of measurement and sources of errors, importance of significant figures.												
3	Rate yourself: Will know how g can be determined experimentally and derive satisfaction.												
4	Rate yourself: Will see the difference between simple and torsional pendulum and their use in the determination of various physical parameters.												
5	Rate yourself: Will come to know how various elastic moduli can be determined.												

6	Will measure surface tension and viscosity and appreciate the methods adopted.												
7	Will get hands on experience of different equipment.												