

Shetkari Shikshan Prasarak Mandal's
KRISHNA MAHAVIDYALAYA, RETHARE BK
DEPARTMENT OF ZOOLOGY
ZOOLOGY OBE PROCESS
Academic Year 2017-2018

1. Course- Program outcome Matrix: The Program Outcomes are developed through the curriculum (curricular/co-curricular extra-curricular activities). The program outcomes are attained through course implementation. As an educator, one must know, "to which POs his/her course in contributing?". So that one can design the learning experiences, select teaching methods and design the tool for assessment. Hence, establishing the Course-PO matrix is an essential step in the OBE. The course-program outcomes matrix indicates the correlation between the courses and program outcomes. The CO-PO matrix is the map of the list of courses contributing to the development of respective POS.

The Template is provided in the table below

Sr. No	Course Title	PSO-A	PSO-B	PSO C	PSO D	PSO E	PSO F	PSO G
1.	Zoology Paper- IX FUNCTIONAL ANATOMY OF NON-CHORDATES	√	√	√	√		√	
2.	Zoology Paper- X BIOSTATISTICS, BIOINFORMATICS AND MEDICAL ZOOLOGY		√	√		√	√	√
3.	Zoology Paper- XI MOLECULAR BIOLOGY, BIOTECHNOLOGY AND BIOTECHNIQUES		√	√	√	√	√	√
4.	Zoology Paper- XII ENDOCRINOLOGY, ENVIRONMENTAL BIOLOGY AND TOXICOLOGY		√	√		√	√	√
5.	Zoology Paper- XIII COMPARATIVE ANATOMY OF VERTABRATES	√	√	√	√	√	√	√
6.	Zoology Paper- XIV DEVELOPMENTAL BIOLOGY	√	√	√			√	
7.	Zoology Paper- XV PHYSIOLOGY		√	√			√	
8.	Zoology Paper- XVI APPLIED ZOOLOGY	√	√	√	√		√	√
9.	Zoology Practical	√	√	√	√	√	√	√

2. Course Outcomes (for all courses):

The course outcomes are the statement that describes the knowledge & abilities developed in the student by the end of course (subject) teaching. The focus is on development of abilities rather than mere content. There can be 5 to 7 course outcomes of any course. These are to be written in the specific terms and not in general. The list of Course Outcomes is the part of **Annexure-C** attached herewith.

3. Set Target levels for Attainment of Course Outcomes:

The course outcome attainment is assessed in order to track the graduates' performance w.r.t target level of performance. The CO-PO attainment is the tool used for continuous improvement in the graduates' abilities through appropriate learning & teaching strategies. In order to assess students' performance with respect to abilities (at the end of course teaching/by the end of program) the course outcome attainment are measured/calculated. In order to calculate the program outcome attainment, the course outcome attainment is calculated. Prior to that, the course-program outcome mapping is done.

4. Set Target level for Attainment of Program Outcomes:

The program outcome attainment is assessed in order to track the graduates' performance w.r.t target level of performance. The CO-PO attainment is the tool used for continuous improvement in the graduates' abilities through appropriate learning & teaching strategies. In order to assess student's performance with respect to abilities (at the end of course teaching/by the end of program) the course outcome attainment and program outcome attainment is measured/calculated. The program outcome attainment is governed by curricular, co-curricular and extra-curricular activities including the stakeholders' participation. The direct method and indirect method is adopted to calculate the PO attainment. **The direct method implies the attainment by course outcomes contributing to respective program outcomes. And indirect method is the satisfaction/feed-back survey of stakeholders.** In order to calculate the program outcome attainment, the course outcome attainment is calculated. Prior to that, the course-program outcome mapping is done. The set target level is the set benchmark to ensure continuous improvements in the learners/ graduates' performance.

5. Course Attainment Levels:

- a) CO attainment is defined/set at three levels;
- b) The CO attainment is based on end term examination assessment and internal assessment;
- c) The Co attainment is defined at three levels in ascending order
 - i. e.g. For end term and internal examination;

Sr. No	Level	CO Attainments
1.	Level-1:	30% students scored more than class average
2.	Level-2:	40% students score more than class average
3.	Level-3	50% students score more than class average

. The target level is set (e.g. Level-2). It indicates that, **the current target is level-2; 40% of students score more than class average.** The CO attainment is measured and the results are obtained. Based on the results of attainment, the corrective measures/remedial action are taken.

e. CO Attainment= 80% (Attainment level in end term examination) + 20% (Attainment level in internal examination)

6. Program attainment Level:

a. PO attainment is defined at five levels in ascending order;

b. **The PO attainment is based on the average attainment level of corresponding courses (Direct Method) and feed-back survey (Indirect method);**

c. The PO attainment levels are defined/set as stated below;

Sr. No	Level	PO Attainments
1.	Level-1:	Poor: Greater than 0.5 and less than 1.0 ($0.5 < 1$)
2.	Level-2:	Average: 1.0 to 1.5
3.	Level-3	Good: 3: 1.5 to 2.0
4.	Level-4	Very Good: 2.0 to 2.5
5.	Level-5	Excellent: 2.5 to 3.0

d. The PO attainment target level is set/defined (say, Level-4). It implies that, the department is aiming at minimum level-4 (very good) in the performance of abilities by the graduates. Based upon the results of attainment, the remedial measures are taken;

e. **PO Attainment= 80% (Average attainment level by direct method) + 20% (Average attainment level by indirect method).**

7. The Results of CO Attainment: The Results of CO Attainment is provided in Annexure-B

FOR EXAMPLE COURSE CODE/TITLE: Zoology Paper IX: FUNCTIONAL ANATOMY OF NON-CHORDATES

e.g. For end-term and internal examination;

- i. Level-1: 30% students scored more than class average**
- ii. Level-2: 40% students score more than class average;**
- iii. Level-3: 50% students score more than class average**

PAPER - IX FUNCTIONAL ANATOMY OF NON-CHORDATES.		
Average Marks in External examination:	20	
% Students score more than 20 is = 05	56%	Level: 3
Average Marks in Internal examination	10	
% Students score more than 10 is =09	100%	Level: 3
A(CO) Paper No. Paper IX: FUNCTIONAL ANATOMY OF NON-CHORDATES.		
	=	80% (3) +20 (3)
	=	2.4+0.6
	=	3

PAPER- X BIOSTATISTICS, BIOINFORMATICS AND MEDICAL ZOOLOGY.		
Average Marks in External examination:	18	
% Students score more than 18 is=03	33%	Level: 2
Average Marks in Internal examination	10	
% Students score more than 10 is =9	100%	Level: 3
A(CO) Paper No. Paper X: BIOSTATISTICS, BIOINFORMATICS AND MEDICAL ZOOLOGY.		
	=	80% (2) +20 (3)
	=	1.6+0.6
	=	2.2

PAPER -XI MOLECULAR BIOLOGY, BIOTECHNOLOGY AND BIOTECHNIQUES		
Average Marks in External examination:	18	
% Students score more than 18 is =03	33%	Level: 2
Average Marks in Internal examination	10	
% Students score more than 10 is =9	100%	Level: 3
A(CO) Paper No. Paper XI: MOLECULAR BIOLOGY, BIOTECHNOLOGY AND BIOTECHNIQUES		
	=	80% (2) +20 (3)
	=	1.6+0.6
	=	2.2

PAPER - XII ENDOCRINOLOGY, ENVIRONMENTAL BIOLOGY AND TOXICOLOGY		
Average Marks in External examination:	18	
% Students score more than 18 is =05	56%	Level: 3
Average Marks in Internal examination	10	
% Students score more than 10 is=9	100%	Level: 3
A(CO) Paper No.Paper XII: ENDOCRINOLOGY, ENVIRONMENTAL BIOLOGY AND TOXICOLOGY		
	=	80% (3) +20 (3)
	=	2.4+0.6
	=	2.2

PAPER- XIII ENDOCRINOLOGY, ENVIRONMENTAL BIOLOGY		
Average Marks in External examination:	14	
% Students score more than 14 is =07	78%	Level: 3
Average Marks in Internal examination	9	
% Students score more than 9 is =06	67%	Level: 3
A(CO) Paper XIII: ENDOCRINOLOGY, ENVIRONMENTAL BIOLOGY		
	=	80% (3) +20 (3)
	=	2.4+0.6
	=	3

PAPER- XIV DEVELOPMENTAL BIOLOGY		
Average Marks in External examination:	19	
% Students score more than 19 is = 05	56%	Level: 3
Average Marks in Internal examination	9	
% Students score more than 9 is=5	56%	Level: 3
A(CO) Paper XIV: DEVELOPMENTAL BIOLOGY		
	=	80% (3) +20 (3)
	=	2.4+0.6
	=	3

PAPER - XV PHYSIOLOGY		
Average Marks in External examination:	20	
% Students score more than 20 is =6	67%	Level: 3
Average Marks in Internal examination	9	
% Students score more than 9 is =6	67%	Level: 3
A(CO) Paper No.Paper IX: PHYSIOLOGY		
	=	80% (3) +20 (3)
	=	2.4+0.6
	=	3

PAPER-XVI APPLIED ZOOLOGY		
Average Marks in External examination:	21	
% Students score more than 21 is =05	56%	Level: 3
Average Marks in Internal examination	9	
% Students score more than 9 is =06	67%	Level: 3
A(CO) Paper No. Paper IX: APPLIED ZOOLOGY		
	=	80% (3) +20 (3)
	=	2.4+0.6
	=	3

Zoology Practical		
Average Marks in External examination:	189	
% Students score more than 189 is =07		
100%(100/100)3=3	78%	Level: 3

Hence, the attainment level is Level-3 and the set target level is Level-2 and therefore the CO is Fully attained.

Table No. 1.0: CO Attainment Level

Course Title	Course Attainment Value	Target Attainment Level	Fully Attained/ Not Attained	Remedial Measures
Zoology Paper- IX FUNCTIONAL ANATOMY OF NON-CHORDATES	3	2	Fully Attained	
Zoology Paper- X BIOSTATISTICS, BIOINFORMATICS AND MEDICAL ZOOLOGY	2.2	2	Fully Attained	
Zoology Paper- XI MOLECULAR BIOLOGY, BIOTECHNOLOGY AND BIOTECHNIQUES	2.2	2	Fully Attained	
Zoology Paper- XII ENDOCRINOLOGY, ENVIRONMENTAL BIOLOGY AND TOXICOLOGY	2.2	2	Fully Attained	
Zoology Paper- XIII COMPARATIVE ANATOMY OF VERTABRATES	3	2	Fully Attained	
Zoology Paper- XIV DEVELOPMENTAL BIOLOGY	3	2	Fully Attained	
Zoology Paper- XV PHYSIOLOGY	3	2	Fully Attained	
Zoology Paper- XVI APPLIED ZOOLOGY	3	2	Fully Attained	
Zoology Practical	3	2	Fully Attained	

8. The Results of PO Attainment:

The Results of PO attainment are provided in Annexure-B

FOR EXAMPLE: PO NO.: a (Note: Refer to point No. 11 above which describes the attainment level and set target attainment level).

PO Attainment= 80% (Average attainment level by direct method) + 20% (Average attainment level by indirect method).

(PSO-A) = 80% (3+3+3+3)/04 + 20% (3+3+3+3)/4 = 80% (3) + 20% (3) = 3 i.e. Level-5. The Target Level is Level-3.

(PSO-B) = 80% (3+2+2+3+3+3+3+3)/08 + 20% (3+3+3+3+3+3+3+3)/8= 80% (2.8) + 20% (3) = 2.8 i.e. Level-5. The Target Level is Level-3.

(PSO-C) = 80% (3+2+2+3+3+3+3+3)/08 + 20% (3+3+3+3+3+3+3+3)/8= 80% (2.8) + 20% (3) = 2.8 i.e. Level-5. The Target Level is Level-3.

(PSO-D) = 80% (3+2+3+3)/04 + 20% (3+3+3+3)/4 = 80% (2.7) + 20% (3) = 2.7 i.e. Level-5. The Target Level is Level-3.

(PSO-E) = 80% (2+2+3)/03+ 20% (3+3+3)/3= 80% (2.3) + 20% (3) = 2.4 i.e. Level-4. The Target Level is Level-3.

(PSO-F) = 80% (3+2+2+3+3+3+3+3)/08 + 20% (3+3+3+3+3+3+3+3)/8= 80% (2.8) + 20% (3) = 2.8 i.e. Level-5. The Target Level is Level-3.

(PSO-G) = 80% (2+2+3+3)/04 + 20% (3+3+3+3)/4 = 80% (2.5) + 20% (3) = 2.6 i.e. Level-5. The Target Level is Level-3.

Table No. 2.0 PO Attainment Level

PO/PSO Number	Target Attainment	PO/PSOs Attainment		Fully Attained/ Not Attained	Remedial Measures
	Level	Value	Level		
PSO-A	3	3	5	Fully Attained	
PSO-B	3	2.8	5	Fully Attained	
PSO-C	3	2.8	5	Fully Attained	
PSO-D	3	2.7	5	Fully Attained	
PSO-E	3	2.4	4	Fully Attained	
PSO-F	3	2.8	5	Fully Attained	
PSO-G	3	2.6	5	Fully Attained	

9. Planned Actions for Course Attainment:

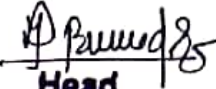
The courses for which the level attained is less than Level-2, the remedial measures will be taken in plan way that includes, tutorial, assignments, field work and remedial coaching.

10. Planned Actions for Program Outcome Attainment:

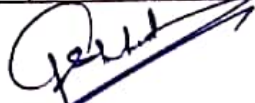
Not Applicable.

ANNEXURE-B RESULTS OF CO-PO ATTAINMENT

Sr. No	Course Title	PSO-A	PSO-B	PSO-C	PSO-D	PSO-E	PSO-F	PSO-G
1.	Zoology Paper- IX FUNCTIONAL ANATOMY OF NON-CHORDATES	3	3	3	3		3	
2.	Zoology Paper- X BIostatISTICS, BIOINFORMATICS AND MEDICAL ZOOLOGY		2	2		2	2	2
3.	Zoology Paper- XI MOLECULAR BIOLOGY, BIOTECHNOLOGY AND BIOTECHNIQUES		2	2	2	2	2	2
4.	Zoology Paper- XII ENDOCRINOLOGY, ENVIRONMENTAL BIOLOGY AND TOXICOLOGY		3	3		3	3	3
5.	Zoology Paper- XIII COMPARATIVE ANATOMY OF VERTABRATES	3	3	3	3		3	
6.	Zoology Paper- XIV DEVELOPMENTAL BIOLOGY	3	3	3			3	
7.	Zoology Paper- XV PHYSIOLOGY		3	3			3	
8.	Zoology Paper- XVI APPLIED ZOOLOGY	3	3	3	3		3	3
Average		3	2.8	2.8	2.7	2.3	2.8	2.5

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