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## DEPARTMENT OF ZOOLOGY

ZOOLOGY OBE PROCESSAcademic Year 2020-2021

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 is 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.	DSE-E29 (COMPARATIVE ANATOMY OF VERTEBRATES)		√		√		√	
2.	DSE-F29 (Molecular Cell Biology and Animal Biotechnology)		√	√	√	√	√	√
3.	DSE-F30(Biotechniques and Biostatistics)		√	√	√	√	√	√
4.	DSE-F31 (AQUATIC BIOLOGY)	√					√	
5.	DSE-E30(DEVELOPMENTAL BIOLOGY OF VERTEBRATES)	√	√	√			√	
6.	DSE-E32 (IMMUNOLOGY)		√	√		√	√	√
7.	DSE-E31 (Applied Zoology - II)	√	√		√		√	√
8.	DSE-F32 (Insect Vectors and Histology)	√	√	√			√	√
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.	<b>Level-2:</b>	<b>40% students score more than class average</b>
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.	<b>Level-3</b>	<b>Good: 3: 1.5 to 2.0</b>
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: Paper IX: DSE-E29 (COMPARATIVE ANATOMY OF VERTEBRATES)

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

<b>Zoology Paper IX: DSE-E29 (COMPARATIVE ANATOMY OF VERTEBRATES)</b>		
Average Marks in External examination:	27	
% Students score more than 27 is =5	83	Level: 3
Average Marks in Internal examination	10	
% Students score more than 10 is =4	67	Level: 3
<b>A(CO) Zoology Paper IX: DSE-E29 (COMPARATIVE ANATOMY OF VERTEBRATES)</b>		
	=	80% (3) +20 (3)
	=	2.4+0.6
	=	3

<b>Zoology Paper- X DSE-F29 (Molecular Cell Biology and Animal Biotechnology)</b>		
Average Marks in External examination:	21	
% Students score more than 21 is=4	67	Level: 3
Average Marks in Internal examination	10	
% Students score more than 10 is =6	100	Level: 3
<b>A(CO) Zoology Paper- X DSE-F29 (Molecular Cell Biology and Animal Biotechnology)</b>		
	=	80% (3) +20 (3)
	=	2.4+0.6
	=	3

<b>Zoology Paper- XI DSE-F30 (Biotechniques and Biostatistics)</b>		
Average Marks in External examination:	18	
% Students score more than 18 is =02	33	Level: 1
Average Marks in Internal examination	10	
% Students score more than 10 is =4	67	Level: 3
<b>A(CO) Zoology Paper- XI DSE-F30 (Biotechniques and Biostatistics)</b>		
	=	80% (1) +20 (3)
	=	0.8+0.6
	=	1.4

<b>Zoology Paper- XII DSE-F31 (AQUATIC BIOLOGY)</b>		
Average Marks in External examination:	26	
% Students score more than 26 is =4	67	Level: 3
Average Marks in Internal examination	10	
% Students score more than 10 is=6	100	Level: 3
<b>A(CO) Zoology Paper- XII DSE-F31 (AQUATIC BIOLOGY)</b>		
	=	80% (3) +20 (3)
	=	2.4+0.6
	=	3

<b>Zoology Paper- XIII DSE-E30 (DEVELOPMENTAL BIOLOGY OF VERTEBRATES)</b>		
Average Marks in External examination:	12	
% Students score more than 12 is =3	50	Level: 3
Average Marks in Internal examination	10	
% Students score more than 10 is =04	100	Level: 3
<b>A(CO) Zoology Paper- XIII DSE-E30 (DEVELOPMENTAL BIOLOGY OF VERTEBRATES)</b>		
	=	80% (3) +20 (3)
	=	2.4+0.6
	=	3

<b>Zoology Paper- XIV DSE-E32 (IMMUNOLOGY)</b>		
Average Marks in External examination:	26	
% Students score more than 26 is 4	67	Level: 3
Average Marks in Internal examination	10	
% Students score more than 10 is=4	100	Level: 3
<b>A(CO) Zoology Paper- XIV DSE-E32 (IMMUNOLOGY)</b>		
	=	80% (3) +20 (3)
	=	2.4+0.6
	=	3

<b>Zoology Paper- XV DSE-E31 (Applied Zoology - II)</b>		
Average Marks in External examination:	18	
% Students score more than 18 is =2	33	Level: 2
Average Marks in Internal examination	10	
% Students score more than 10 is =04	100	Level: 3
<b>A(CO) Zoology Paper- XV DSE-E31 (Applied Zoology - II)</b>		
	=	80% (2) +20 (3)
	=	1.6+0.6
	=	2.2

<b>Zoology Paper- XVI DSE-F32 (Insect Vectors and Histology)</b>		
<b>Average Marks in External examination:</b>	23	
<b>% Students score more than 23 is =4</b>	67	<b>Level: 3</b>
<b>Average Marks in Internal examination</b>	10	
<b>% Students score more than 10 is =03</b>	50	<b>Level: 3</b>
<b>A(CO) Zoology Paper- XVI DSE-F32 (Insect Vectors and Histology)</b>		
	=	80% (3) +20 (3)
	=	2.4+0.6
	=	3

<b>Zoology Practical</b>		
<b>Average Marks in External examination:</b>	193	
<b>% Students score more than 169 is =6</b>	100	<b>Level: 3</b>

**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
DSE-E29 (COMPARATIVE ANATOMY OF VERTEBRATES)	3	2	Fully Attained	
DSE-F29 (Molecular Cell Biology and Animal Biotechnology)	3	2	Fully Attained	
DSE-F30(Biotechniques and Biostatistics)	1.4	2	Not Fully Attained	Extra lectures taken
DSE-F31 (AQUATIC BIOLOGY)	3	2	Fully Attained	
DSE-E30(DEVELOPMENTAL BIOLOGY OF VERTEBRATES)	3	2	Fully Attained	
DSE-E32 (IMMUNOLOGY)	3	2	Fully Attained	
DSE-E31 (Applied Zoology - II)	2.2	2	Fully Attained	
DSE-F32 (Insect Vectors and Histology)	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) =  $80\% (3+3+2+3)/04 + 20\% (3+3+3+3)/4 = 80\% (2.7) + 20\% (3) = 2.8$  i.e. Level-5. The Target Level is Level-3.

(PSO-B) =  $80\% (3+3+1+3+2+3)/06 + 20\% (3+3+3+3+3+3)/6 = 80\% (2.5) + 20\% (3) = 2.6$  i.e. Level-5. The Target Level is Level-3.



(PSO-C) =  $80\% (3+1+3+3+3)/05 + 20\% (3+3+3+3+3)/5 = 80\% (2.6) + 20\% (3) = 2.7$   
 i.e. Level-5. The Target Level is Level-3.

(PSO-D) =  $80\% (3+3+1+2)/04 + 20\% (3+3+3+3)/4 = 80\% (2.25) + 20\% (3) = 2.4$  i.e.  
 Level-4. The Target Level is Level-3.

(PSO-E) =  $80\% (3+1+3)/03 + 20\% (3+3+3)/3 = 80\% (2.3) + 20\% (3) = 2.4$  i.e. Level-  
 4. The Target Level is Level-3.

(PSO-F) =  $80\% (3+3+1+3+3+3+2+3)/08 + 20\% (3+3+3+3+3+3+3)/8 = 80\% (2.6) + 20\% (3) = 2.7$  i.e. Level-5. The Target Level is Level-3.

(PSO-G) =  $80\% (3+1+3+2+3)/05 + 20\% (3+3+3+3+3)/5 = 80\% (2.4) + 20\% (3) = 2.5$   
 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	2.8	5	Fully Attained	
PSO-B	3	2.6	5	Fully Attained	
PSO-C	3	2.7	5	Fully Attained	
PSO-D	3	2.4	4	Fully Attained	
PSO-E	3	2.4	4	Fully Attained	
PSO-F	3	2.7	5	Fully Attained	
PSO-G	3	2.5	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.	DSE-E29 (COMPARATIVE ANATOMY OF VERTEBRATES)		3		3		3	
2.	DSE-F29 (Molecular Cell Biology and Animal Biotechnology)		3	3	3	3	3	3
3.	DSE-F30 (Biotechniques and Biostatistics)		1	1	1	1	1	1
4.	DSE-F31 (AQUATIC BIOLOGY)	3					3	
5.	DSE-E30 (DEVELOPMENTAL BIOLOGY OF VERTEBRATES)	3	3	3			3	
6.	DSE-E32 (IMMUNOLOGY)		3	3		3	3	3
7.	DSE-E31 (Applied Zoology - II)	2	2		2		2	2
8.	DSE-F32 (Insect Vectors and Histology)	3	3	3			3	3
9.	Zoology Practical	3	3	3	3	3	3	3
Average		2.8	2.6	2.7	2.4	2.4	2.7	2.5

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