

Shikshan Prasarak Sanstha's
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DEPARTMENT OF PSYCHOLOGY

Academic Year- 2021-2022

Mechanism for framing Learning Outcomes and Measuring their Attainment

Step 1: Defining the Vision and Mission of the Department.

Vision: To cultivate a comprehensive understanding of human behavior, foster critical thinking, and prepare students for diverse careers in psychology and related fields through rigorous academic training, research opportunities, and community engagement.

Mission: The mission of the Psychology undergraduate program is to provide a comprehensive understanding of psychological principles, foster critical thinking, and prepare students for diverse careers and advanced studies in psychology through rigorous coursework, research opportunities, and practical experiences.

Step 2: Defining Program Outcomes (PO's) and Program Specific Outcomes (PSO's) of the program.

Program Outcomes (PO's)

After successfully completing B.A. Program students will be able to:

PO 1	Speak, read, write and listen clearly in person and through electronic media in English and in one Indian language, and make meaning of the world by connecting people, ideas, books, media and technology.
PO 2	Take informed actions after identifying the assumptions that frame our thinking and actions, checking out the degree to which these assumptions are accurate and valid, and looking at our ideas and decisions (intellectual, organizational, and personal) from different perspectives.
PO 3	Understand the issues of environmental contexts and sustainable development.
PO 4	Acquire the ability to engage in independent and life-long learning in the broadest context socio-technological changes.

Program Specific Outcomes (PSO's)

After successfully completing B.A. Psychology Program students will be able to:

PSO 1	Apply their knowledge of psychology to effectively solve problems and address issues related to human behavior.
PSO 2	Apply psychological principles, theories and research results to a wide range of personal, social, cultural and organizational situations and problems.
PSO 3	Understand the importance of adhering to ethical principles, respecting diversity and accepting their own personal and professional limitations. They will use their knowledge of ethics to analyze situations in a thoughtful, deliberate manner.
PSO 4	Demonstrate an awareness of and respect for socio-cultural diversity on a local and global level.

Step 3: Defining Course Outcomes (CO's) of each course in a Program.

Course Outcomes (CO's)

B.A. I (Sem. I)

Course 1: Foundations of Psychology

CO 1.1	Understand the field of Psychology, Perception and Sleep.
CO 1.2	Grasp Learning and Memory Processes.

B.A. I (Sem. II)

Course 2: General Psychology

CO 2.1	Know the concepts of Intelligence and Motivation.
CO 2.2	Comprehend the concepts of Emotion and Personality.

B.A. II (Sem. III)

Course 3: Psychology for Living

CO 3.1	Familiar with the nature of Psychology for Living.
CO 3.2	Know the nature of Better Health, Stress, Mental Disorders and Helping Behavior.

B.A. II (Sem. III)

Course 4: Social Psychology

CO 4.1	Aware with the nature of Social Psychology.
CO 4.2	Get knowledge of the concepts of Social Perception, Self and Attitude.

B.A. II (Sem. IV)

Course 5: Modern Social Psychology

CO 5.1	Understand the concepts of Liking (Attraction) and Social Influence.
CO 5.2	Grasp the Pro-social Behavior and Aggression.

B.A. II (Sem. IV)

Course 6: Applied Psychology

CO 6.1	Familiar with the Applications of the psychology in Personal control, Decision Making, Personal growth, At Work and Leisure.
CO 6.2	Apply the skills in Making and keeping friends and Love and Commitment.

B.A. III (Sem. V)

Course 7: Cognitive Psychology

CO 7.1	Aware the approaches to Human Cognition, Visual Perception and Attention.
CO 7.2	Grasp the processes of Memory, Emotions and Consciousness.

B.A. III (Sem. V)

Course 8: Cross-Cultural Psychology

CO 8.1	Get knowledge the field of Cross-cultural Psychology and Key Concepts.
CO 8.2	Understand the concepts of Etics, Emics, Ethnocentrism and Indigenous Psychology, Culture and Intelligence, Prejudice and Parental Practices, Culture and Abnormality.

B.A. III (Sem. V)**Course 9: Psychopathology**

CO 9.1	Familiar with the field of Psychopathology and Perspectives of Psychopathology.
CO 9.2	Understand the nature of Anxiety disorder, OCD, Mood Disorder and Suicide.

B.A. III (Sem. V)**Course 10: Current Trends in Psychology**

CO 10.1	Aware with the emerging new trends in Psychology.
CO 10.2	Grasp and learn more about Health, Criminal and Cyber Psychology.

B.A. III (Sem. V)**Course 11: Practical (Experiments)**

CO 11.1	Familiar with Psychological Experiments and some Statistical methods.
CO 11.2	Learn the skills for conducting experiments and writing their reports.

B.A. III (Sem. VI)**Course 12: Psychological Testing**

CO 12.1	Comprehend the field of Psychological Testing in general.
CO 12.2	Know the nature and uses of Intelligence, Achievement and Personality tests.

B.A. III (Sem. VI)**Course 13: Counselling Psychology**

CO 13.1	Get knowledge of the field of Counselling Psychology.
CO 13.2	Apply the skills in the field of Career, School and College counselling.

B.A. III (Sem. VI)**Course 14: Developmental Psychology**

CO 14.1	Aware with the field of Lifespan Developmental.
CO 14.2	Understand the nature and processes in the Infancy, Childhood, Adolescence and Adulthood period.

B.A. III (Sem. VI)**Course 15: Psychology of Organizational Behavior**

CO 15.1	Familiar with the field of Organizational Behavior.
CO 15.2	Comprehend the nature and importance of Personality, Job satisfaction, Leadership, Group Behavior and Organizational Change.

B.A. III (Sem. VI)**Course 16: Practical (Psychological Tests)**

CO 16.1	Get Knowledge of the Psychological tests and some statistical methods.
CO 16.2	Learn the skills for administering Psychological Tests and writing their reports.

Step 4: Defining relation between Course Outcomes (COs) and POs/PSOs for each course to obtain overall CO mapping with each POs/PSOs. (Course Articulation Matrix)

In this step, CO's of each course are mapped with PO's & PSO's. A correlation is established between CO's and PO's / PSO's in the scale of 0 to 3. 0 if there is no correlation between CO's and PO's / PSO's, 1 being low, 2 being median and 3 being high.

For example, suppose program XYZ (say) has 4 PO's & 4 PSO's. Then, course articulation matrix for a course – 1 (say) with two CO's is as follows.

CO's – PO's & PSO's mapping matrix (1-low, 2-medium, 3-high, 0-No correlation)

CO's	PO's / PSO's							
	PO1	PO2	PO3	PO4	PSO1	PSO2	PSO3	PSO4
CO 1.1	3	2	2	3	3	3	2	2
CO 1.2	3	2	2	3	3	3	2	2

In the same way we have course articulation matrices for all courses in that Program.

CO's – PO's & PSO's mapping matrix (1-low, 2-medium, 3-high, 0-No correlation)

CO's	PO's / PSO's							
	PO1	PO2	PO3	PO4	PSO1	PSO2	PSO3	PSO4
CO 1.1	3	2	2	3	3	3	2	2
CO 1.2	3	2	2	3	3	3	2	2
CO 2.1	3	2	2	3	3	3	2	2
CO 2.2	3	2	2	3	3	3	2	2
CO 3.1	3	2	2	3	3	3	2	2
CO 3.2	3	2	2	3	3	3	2	2
CO 4.1	3	2	2	3	3	3	2	2
CO 4.2	3	2	2	3	3	3	2	2
CO 5.1	3	2	2	3	3	3	2	2
CO 5.2	3	2	2	3	3	3	2	2
CO 6.1	3	2	2	3	3	3	2	2
CO 6.2	3	2	2	3	3	3	2	2
CO 7.1	3	2	2	3	3	3	2	2
CO 7.2	3	2	2	3	3	3	2	2
CO 8.1	3	2	2	3	3	3	2	2
CO 8.2	3	2	2	3	3	3	2	2
CO 9.1	3	2	2	3	3	3	2	2
CO 9.2	3	2	2	3	3	3	2	2
CO 10.1	3	2	2	3	3	3	2	2
CO 10.2	3	2	2	3	3	3	2	2
CO 11.1	3	2	1	3	3	3	3	2
CO 11.2	3	2	1	3	3	3	3	2
CO 12.1	3	2	2	3	3	3	2	2
CO 12.2	3	2	2	3	3	3	2	2

CO 13.1	3	2	2	3	3	3	2	2
CO 13.2	3	2	2	3	3	3	2	2
CO 14.1	3	2	2	3	3	3	2	2
CO 14.2	3	2	2	3	3	3	2	2
CO 15.1	3	2	2	3	3	3	2	2
CO 15.2	3	2	2	3	3	3	2	2
CO 16.1	3	2	1	3	3	3	3	2
CO 16.2	3	2	1	3	3	3	3	2

Step 5: Development of overall CO's-PO's mapping matrix for all courses (Program Articulation Matrix).

The CO levels corresponding to each PO/PSO in course articulation matrix are averaged to obtain overall level of relation of course with each PO & PSO. For example, the overall relation of course – 1 (say) are reported the following matrix.

CO's	PO's / PSO's							
	PO1	PO2	PO3	PO4	PSO1	PSO2	PSO3	PSO4
CO 1.1	3	2	2	3	3	3	2	2
CO 1.2	3	2	2	3	3	3	2	2
Average ($X_{1,..,l}$)	3	2	2	3	3	3	2	2

Similarly, the overall level of relation of all the courses in the program is established. These levels are reported in the matrix form and this matrix is called as the program articulation matrix. For example, if the program XYZ has 19 courses then the program articulation matrix will be as follows.

Program Articulation Matrix

ID	Course name	$X_{i,..,1}$	$X_{i,..,2}$	$X_{i,..,3}$	$X_{i,..,4}$	$X_{i,..,5}$	$X_{i,..,6}$	$X_{i,..,7}$	$X_{i,..,8}$
C_1	Course_1	3	2	2	3	3	3	2	2
C_2	Course_2	3	2	2	3	3	3	2	2
C_3	Course_3	3	2	2	3	3	3	2	2
C_4	Course_4	3	2	2	3	3	3	2	2
C_5	Course_5	3	2	2	3	3	3	2	2
C_6	Course_6	3	2	2	3	3	3	2	2
C_7	Course_7	3	2	2	3	3	3	2	2
C_8	Course_8	3	2	2	3	3	3	2	2
C_9	Course_9	3	2	2	3	3	3	2	2
C_{10}	Course_10	3	2	2	3	3	3	2	2
C_{11}	Course_11	3	2	1	3	3	3	3	2
C_{12}	Course_12	3	2	2	3	3	3	2	2
C_{13}	Course_13	3	2	2	3	3	3	2	2
C_{14}	Course_14	3	2	2	3	3	3	2	2
C_{15}	Course_15	3	2	2	3	3	3	2	2
C_{16}	Course_16	3	2	1	3	3	3	3	2

Step 6: Methodology for measuring of Course Outcomes (CO's), Program Specific Outcomes (PSO's) and Program Outcomes (PO's) and setting up the target level.

In this step, methodology for measuring the attainment level of learning outcomes is defined and the target levels for the batch are defined.

➤ **Methodology for the attainment of learning outcomes for this year:**

Details of a program:

- Name of the Program: XYZ
- Program has n_1 PO's, say, $PO_1, PO_2, \dots, PO_{n_1}$
- Program has n_2 PSO's, say, $PSO_1, PSO_2, \dots, PSO_{n_2}$

Let $n = n_1 + n_2$, total number of PO's and PSO's.

- For convenience, let us denote the PO's & PSO's $PO_1, PO_2, \dots, PO_{n_1}, PSO_1, PSO_2, \dots, PSO_{n_2}$ by P_1, P_2, \dots, P_n
- Program has m courses, say, C_1, C_2, \dots, C_m
- Each course C_i has k course outcomes (CO's) denoted as $CO_{i,1}, CO_{i,2}, \dots, CO_{i,k}$, $i = 1, 2, \dots, m$. and k represents the number of outcomes particularly that of course.

Course articulation matrices and program articulation matrix are obtained as discussed in previous steps. Let $X_{i,j,l}$ be the level of correlation of $CO_{i,j}$ with P_l where, $i = 1, 2, \dots, m$, $j = 1, 2, \dots, k$, $l = 1, 2, \dots, n$. Then, the overall CO levels with PO's & PSO's of course C_i is computed as $X_{i, \dots} = \frac{\sum_{j=1}^k X_{i,j,l}}$, Here k be the number of outcomes in the average course taken.

➤ **Attainment of COs:**

The CO attainment levels are measured based on the results of the internal assessment and external examination conducted by the university. The CO attainment level based on internal assessment and external assessment are computed separately.

Attainment levels based on internal/external assessment method are defined as follows:

Level 1: Average of student marks belongs to the class 0% - 20% for that assessment method

Level 2: Average of student marks belongs to the class 20% - 40% for that assessment method

Level 3: Average of student marks belongs to the class 40% - 60% for that assessment method

Level 4: Average of student marks belongs to the class 60% - 80% for that assessment method

Level 5: Average of student marks belongs to the class 80%-100% for that assessment method

Let ALC_E and ALC_I be the CO attainment level of the course based on external assessment and internal assessment respectively. The overall CO attainment of the course is calculated by taking 80% weightage to external assessment and 20% weightage to internal assessment.

$$ALC = 0.2 * ALC_I + 0.8 * ALC_E.$$

Let $ALC_1, ALC_2, \dots, ALC_m$ be the attainment levels of the courses C_1, C_2, \dots, C_m respectively.

The overall course attainment levels are categorized as below,

Level 1: Poor – if $0 < ALC_i \leq 1$,

Level 2: Average – if $1 < ALC_i \leq 2$,

Level 3: Good – if $2 < ALC_i \leq 3$,

Level 4: Very Good – if $3 < ALC_i \leq 4$,

Level 5: Excellent – if $4 < ALC_i \leq 5$.

For every course, we have set Good – Attained as target level that is we are aiming minimum level 3 (good) and how the course status is attained in the performance of abilities of students.

At the end we will have attainment levels of all the courses,

ID	Course name	ALC_i	Level	Status
C_1	Course_1	3	Good	Attained
C_2	Course_2	3	Good	Attained
C_3	Course_3	4	very Good	Attained
C_4	Course_4	3	Good	Attained
C_5	Course_5	4	Very Good	Attained
C_6	Course_6	4	Very Good	Attained
C_7	Course_7	3	Good	Attained
C_8	Course_8	4	Very Good	Attained
C_9	Course_9	4	Very Good	Attained
C_{10}	Course_10	4	Very Good	Attained
C_{11}	Course_11	4	Very Good	Attained
C_{12}	Course_12	3	Good	Attained
C_{13}	Course_13	3	Good	Attained
C_{14}	Course_14	5	Excellent	Attained
C_{15}	Course_15	4	Very Good	Attained
C_{16}	Course_16	3	Good	Attained

Step 7: Calculation of attainment levels of PO's and PSO's.

➤ Attainment of PO's & PSO's:

The attainment of PO's & PSO's are calculated using direct method. In direct method the attainment of PO's & PSO's are calculated through the attainment levels of courses. The course attainment values (ALC_i , $i = 1, 2, 3, \dots, m$.) and the overall level of relation of course with each PO and PSO ($X_{i, \dots, l}$, $i = 1, 2, 3, \dots, m$, $l = 1, 2, 3, \dots, n$.) are used to compute direct attainment level of each PO and PSO.

Direct Assessment: Direct attainment level of the l^{th} , PO's & PSO's is calculated as follows.

$$DALP_l = \frac{\sum_{i=1}^m x_{i,l} * ALC_i}{\sum_{i=1}^m ALC_i}, l=1,2,\dots,n.$$

ID	Course name	ALC_i	$X_{i, \dots, l}$	$ALC_i * X_{i, \dots, l}$
C_1	Course_1	3	3	9
C_2	Course_2	3	3	9
C_3	Course_3	4	3	12
C_4	Course_4	3	3	9
C_5	Course_5	4	3	12
C_6	Course_6	4	3	12
C_7	Course_7	3	3	9
C_8	Course_8	4	3	12
C_9	Course_9	4	3	12
C_{10}	Course_10	4	3	12
C_{11}	Course_11	4	3	12

C_{12}	Course_12	3	3	9
C_{13}	Course_13	3	3	9
C_{14}	Course_14	5	3	15
C_{15}	Course_15	4	3	12
C_{16}	Course_16	3	3	9
Sum		58		174
$DALP_1 = 174/58$				3

Similarly, we have to find attainment levels of all PO's and PSO's.

Sr. No.	ALC _i	X _{i, .,1}	X _{i, .,2}	X _{i, .,3}	X _{i, .,4}	X _{i, .,5}	X _{i, .,6}	X _{i, .,7}	X _{i, .,8}
1	3	3	2	2	3	3	3	2	2
2	3	3	2	2	3	3	3	2	2
3	4	3	2	2	3	3	3	2	2
4	3	3	2	2	3	3	3	2	2
5	4	3	2	2	3	3	3	2	2
6	4	3	2	2	3	3	3	2	2
7	3	3	2	2	3	3	3	2	2
8	4	3	2	2	3	3	3	2	2
9	4	3	2	2	3	3	3	2	2
10	4	3	2	2	3	3	3	2	2
11	4	3	2	1	3	3	3	3	2
12	3	3	2	2	3	3	3	2	2
13	3	3	2	2	3	3	3	2	2
14	5	3	2	2	3	3	3	2	2
15	4	3	2	2	3	3	3	2	2
16	3	3	2	1	3	3	3	3	2
Sum	58	48	32	30	48	48	48	34	32

Sr. No.	ALC_i^* $X_{i, \dots, 1}$	ALC_i^* $X_{i, \dots, 2}$	ALC_i^* $X_{i, \dots, 3}$	ALC_i^* $X_{i, \dots, 4}$	ALC_i^* $X_{i, \dots, 5}$	ALC_i^* $X_{i, \dots, 6}$	ALC_i^* $X_{i, \dots, 7}$	ALC_i^* $X_{i, \dots, 8}$
1	9	6	6	9	9	9	6	6
2	9	6	6	9	9	9	6	6
3	12	8	8	12	12	12	8	8
4	9	6	6	9	9	9	6	6
5	12	8	8	12	12	12	8	8
6	12	8	8	12	12	12	8	8
7	9	6	6	9	9	9	6	6
8	12	8	8	12	12	12	8	8
9	12	8	8	12	12	12	8	8
10	12	8	8	12	12	12	8	8
11	12	8	4	12	12	12	12	8
12	9	6	6	9	9	9	6	6
13	9	6	6	9	9	9	6	6
14	15	10	10	15	15	15	10	10
15	12	8	8	12	12	12	8	8
16	9	6	3	9	9	9	9	6
Sum	174	116	109	174	174	174	123	116
$DALP_i$	3	2	1.8793	3	3	3	2.1207	2

Step 8: Comparison of target level with obtained PO attainment.

In this step the target level of PO's and PSO's attainment are compared with obtained $DALP_i$

Attainment levels are defined as stated below.

Level 1: Poor – if $0 < ALC_i \leq 1$,

Level 2: Average – if $1 < ALC_i \leq 1.5$,

Level 3: Good – if $1.5 < ALC_i \leq 2$,

Level 4: Very Good – if $2 < ALC_i \leq 2.5$,

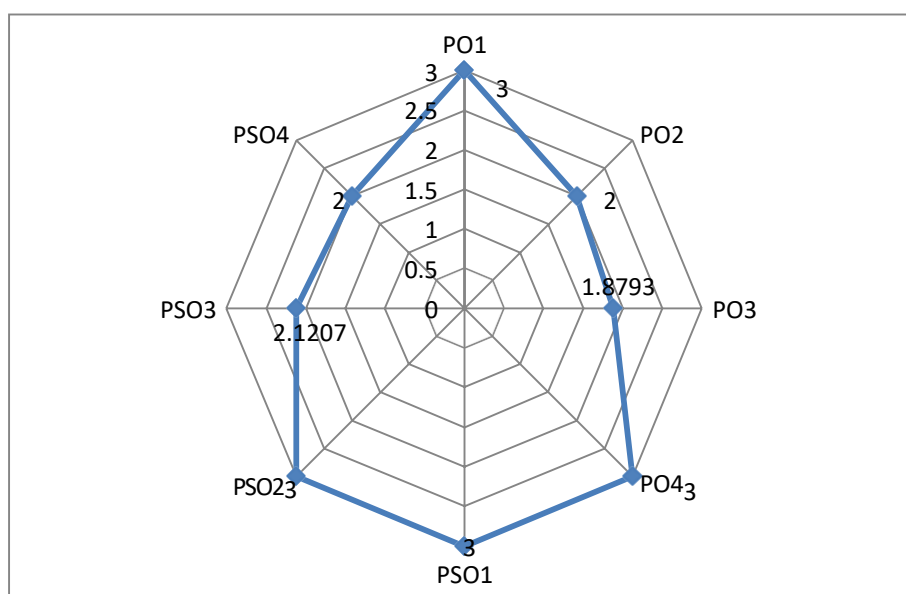
Level 5: Excellent – if $2.5 < ALC_i \leq 3$.

For every PO's and PSO's, we have set level 4 as target level that is we are aiming minimum level 4 (very good) in the performance of abilities of students.

Attainment level of all the POs and PSOs

PO's	<i>DALP_i</i>	Level	Status
PO1	3	Excellent	Attained
PO2	2	Good	Not Attained
PO3	1.8793	Good	Not Attained
PO4	3	Excellent	Attained
PSO1	3	Excellent	Attained
PSO2	3	Excellent	Attained
PSO3	2.1207	Very Good	Attained
PSO4	2	Good	Not Attained

P_i attainment target level say, 4, indicates that, the department is aiming minimum level-4(very good) in the performance of abilities of students.



Step 9: Planned actions:

Remedial Actions:

Planned actions for course attainment: Courses having course level less than level-3 are addressed by designing the different remedial measures like assignment/tutorials/remedial teaching.

Planned actions for program outcome attainment: PO's and PSO's with level attainment less than level-4 are addressed by planning remedial measures for the corresponding courses with respect to than P_i .


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