



Dr. N.G.P. ARTS AND SCIENCE COLLEGE

(An Autonomous Institution, Affiliated to Bharathiar University, Coimbatore)
Approved by Government of Tamil Nadu and Accredited by NAAC with 'A' Grade (2nd Cycle)
Dr. N.G.P. - Kalapatti Road, Coimbatore-641048, Tamil Nadu, India
Web: www.dnpgpasc.ac.in | Email: info@dnpgpasc.ac.in | Phone: +91-422-2369100

DEPARTMENT OF BIOTECHNOLOGY

M.Sc. BIOTECHNOLOGY

BATCH: 2017-29

SEMESTER :4

Sample CO Attainment Calculation

Direct Method of CO Assessment(Mark based) Weightage: 80%

Rubrics for Attainment of COs through CIA & ESE

Attainment Level - 1:

50% students scoring more than (40% for UG) and (50% for PG) marksout of the relevant maximum marks is considered to be attainment of "1"

Attainment Level - 2:

60% students scoring more than (40% for UG) and (50% for PG) marksout of the relevant maximum marks is considered to be attainment of "2"

Attainment Level - 3:

70% students scoring more than (40% for UG) and (50% for PG) marksout of the relevant maximum marks is considered to be attainment of "3"

Table: 1 Shows sample process of computing CO attainment in Direct Method for the CIA & ESE

S.No	Register No	Name	Course Code	17PBT43A			17PBT4EB		
			Cos Mapped	CO1 - CO5					
			Target	3	3	3	3	3	3
			Marks	Int (25)	Ext (75)	Total (100)	Int (25)	Ext (75)	Total (100)
1	172BT001	ALEESHA P KENNETH		18	42	60	20	46	66
2	172BT003	BAVITHRA P.S.		18	50	68	20	51	71
3	172BT004	DHANYASRI S		19	49	68	18	54	72
4	172BT005	DHARANIPRIYA P		18	52	70	20	47	67
5	172BT006	GAYATHRI .P		19	46	65	20	57	77
6	172BT007	GAYATHRI M.		17	56	73	20	57	77
7	172BT008	HARSINI .V		19	52	71	19	56	75
8	172BT009	HEMA S.		17	57	74	18	50	68
9	172BT010	INDHUMATHI E		18	58	76	17	47	64
10	172BT011	KARUPPUSAMY N.		15	56	71	15	48	63
11	172BT012	MONISHA M		19	67	86	20	56	76
12	172BT013	NANTHA VANAN P		13	57	70	15	48	63
13	172BT014	NIRANJANA.J		18	63	81	19	57	76
14	172BT015	PRIYADHARSHINI M		13	62	75	14	55	69
15	172BT016	PRIYAVADHANA .K		16	67	83	17	54	71
16	172BT017	SAFNA MARIYAM P.V.		19	71	90	19	52	71
17	172BT018	SANDHIYA R.		18	67	85	18	52	70
18	172BT019	SANTHIYA S.		13	61	74	13	46	59
19	172BT020	SWATHI G.		17	73	90	20	58	78
20	172BT021	HARITHA N M		15	52	67	17	44	61

Attainment Calculation (Direct Method)

No.of students registered for the examination	20		20	20		20
No.of students attended	20		20	20		20
No.of student got >=40%	19		19	19		19
% student got >=40%	95		95	95		95
CO Attainment in CIA & ESE	3		3	3		3
Weightage	25		75	25		75
CO attainment as weightage	0.75		2.25	0.75		2.25
CO attainment for the course	3			3		

Indirect Method of CO Assessment: (Survey Based)- Weightage:20%
Rubrics for the Attainment of COs Through Course End Survey

Attainment Level -1:50% of the students giving more than 3 is considered to attainment of "1"
Attainment Level -2:60% of the students giving more than 3 is considered to attainment of "2"
Attainment Level -3:70% of the students giving more than 3 is considered to attainment of "3"

Table: 2 Shows sample process of computing CO attainment in Indirect Method

S.No	Course Code	Course Name	CO Average from Course Exit Survey	CO target	CO Attainment through course end survey
1	17PBT43A	Research Methodology	89	3	3
2	17PBT4EA	Entrepreneurship, IPR and Biosafety	87	3	3

Table: 3 Shows sample process of computing CO attainment (Direct assessment 80% + Indirect Assessment 20%)

S.No	Course Code	Course Name	CO Attained through Direct Assessment	CO Attained through Indirect Method	Direct Assessment t (80%)	Indirect Assessment (20%)	Overall CO Attainment	Whether CO Attained / Not Attained = overall CO attainment 2 and above
1	17PBT43A	Research Methodology	3	3	2.4	0.6	3	Attained
2	17PBT4EA	Entrepreneurship, IPR and Biosafety	3	3	2.4	0.6	3	Attained

Indirect Assessment for CO : Course End Survey

Course Code & Course Name	COs	CO Attianment %	Average
17PBT43A Research Methodology	CO1	90	89
	CO2	95	
	CO3	88.7	
	CO4	84.3	
	CO5	85	
17PBT4EA Entreprenerus hip, IPR and Biosafety	CO1	86.2	87
	CO2	91.8	
	CO3	88.7	
	CO4	84.3	
	CO5	85	

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CO ATTAINMENT

Course End Survey

Degree & Branch	M.Sc. Biotechnology	Regulation	2017-18
Course Name	Research Methodology	Course Code	17PBT43A
Course Instructor	Dr. Radha Palaniswamy	Semester	IV
Designation	Assistant Professor	Academic Year	2018-19

Course Outcomes:

- | | |
|------|--|
| CO 1 | Know the process of thesis writing |
| CO 2 | Understand the result interpretation and report presentation process |
| CO 3 | Imparts knowledge on publication proces in bacis and reputed journals |
| CO 4 | In depth understanding of basic sampling methods and error calculation |
| CO 5 | Focus on basic statistical analysis related to thesis work |

Rate the understanding level of the following (Tick the appropriate box)

S. No	CO	Questions	Excellent (4)	Good (3)	Moderate (2)	Fair (1)
1	CO1.1	Did you understand the basic principles thesis writing?				
2	CO1.2	Have you understood the requirements of report presentation?				
3	CO2.1	Have you acquired the knowledge about the reputed journals?				
4	CO2.2	Did you gain an understanding on methods to error calculation?				
5	CO3.1	Did you understand the concept of publication ?				
6	CO3.2	Have you understood the aim of result interpretation?				
7	CO4.1	Have you acquired the knowledge on sampling methods?				
8	CO4.2	Did you gain the knowledge on statistics ?				
9	CO5.1	Have you acquired the knowledge on techniques on error calculation?				
10	CO5.2	Are you aware of softwares on statistics?				
Any other feedback/Suggestions						



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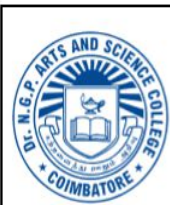
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CO AVERAGE FOR RESEARCH METHODOLOGY

S.No	Roll No	Student Name	CO1	CO2	CO3	CO4	CO5
1	172BT001	ALEESHA P KENNETH	3	3.5	3	3	4
2	172BT003	BAVITHRA P.S.	3	3.5	3.5	3.5	4
3	172BT004	DHANYASRI S	3.5	4	3.5	3.5	2.5
4	172BT005	DHARANIPRIYA P	3	4	3.5	3.5	3
5	172BT006	GAYATHRI .P	4	3.5	3.5	4	3.5
6	172BT007	GAYATHRI M.	4	4	3.5	3.5	3.5
7	172BT008	HARSINI .V	3.5	3.5	3.5	4	2.5
8	172BT009	HEMA S.	3.5	4	3.5	3	4
9	172BT010	INDHUMATHI E	4	4	4	4	3
10	172BT011	KARUPPUSAMY N.	3.5	4	3.5	4	4
11	172BT012	MONISHA M	3.5	3.5	3.5	3	3.5
12	172BT013	NANTHA VANAN P	3.5	3.5	4	4	4
13	172BT014	NIRANJANA.J	3.5	4	3.5	2.5	3.5
14	172BT015	PRIYADHARSHINI M	3.5	3.5	3.5	4	4
15	172BT016	PRIYAVADHANA .K	3.5	4	3.5	3.5	3
16	172BT017	SAFNA MARIYAM P.V.	4	3.5	3.5	3.5	2.5
17	172BT018	SANDHIYA R.	4	4	4	3	3.5
18	172BT019	SANTHIYA S.	3.5	4	3	3	3.5
19	172BT020	SWATHI G.	4	4	3.5	2.5	3.5
20	172BT021	HARITHA N M	4	4	4	2.5	4
		SUM	72	76	71	67.5	68
		AVERAGE	3.6	3.80	3.55	3.38	3.40
		PERCENTAGE OF CO ATTAINED	90	95.00	88.75	84.38	85.00



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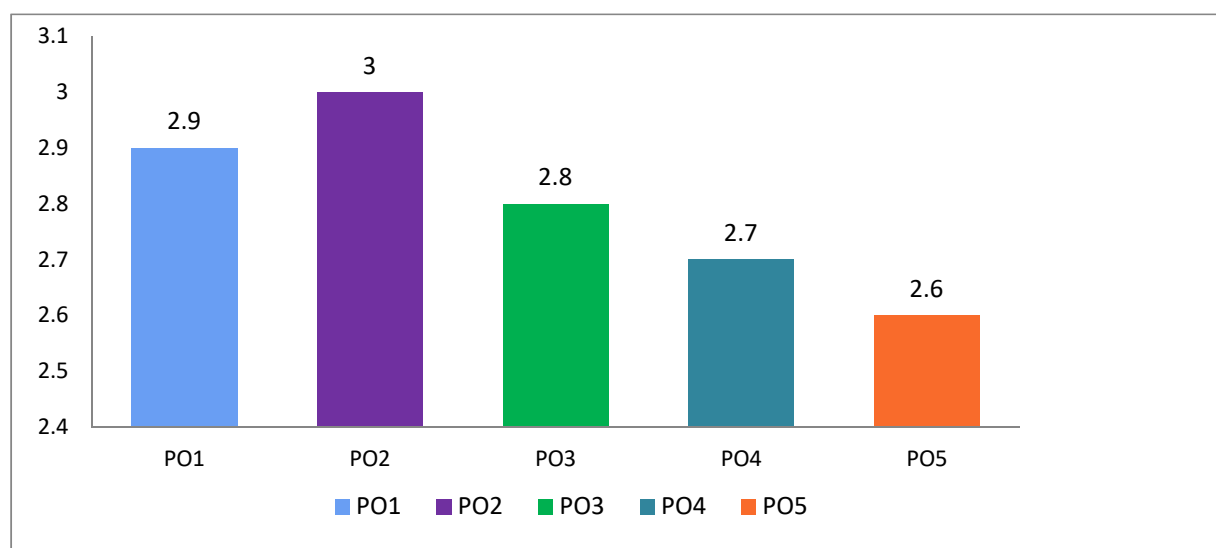
DEPARTMENT OF BIOTECHNOLOGY M.Sc. BIOTECHNOLOGY BATCH : 2017-19

Sample PO Attainment Calculations

Semester	Course Code and Name	CO Attainment from Table 3	PO1	PO2	PO3	PO4	PO5
		Target	3	3	3	3	3
I	17PBT13A Cell and Molecular Biology	3	2.01	3	3	3	3
	17PBT13B Biochemistry	3	3	3	2.01	3	2.01
	17PBT13C Genetics	3	3	3	3	2.01	3
	17PBT13D Microbiology	3	3	3	3	2.01	2.01
	17PBT1EB Biodiversity	3	3	3	3	2.01	3
11	17PBT23A Immunology	3	3	3	3	3	3
	17PBT23B Genetic Engineering	3	3	3	2.01	2.01	2.01
	17PBT23C Microbial Biotechnology	3	3	3	2.01	3	3
	17PBT23D Genomics and Proteomics	3	3	3	3	3	2.01
	17PBT2EA Bioprospecting	3	3	2.01	3	3	3
111	17PBT33A Plant Biotechnology	3	2.01	3	3	3	3
	17PBT33B Animal Biotechnology	3	3	3	3	2.01	2.01
	17PBT33C Environmental Biotechnology	3	3	3	2.01	3	3
	17PBT33D Molecular Therapeutics	3	3	3	3	3	2.01
	17PBT3EB Stem Cell Technology	3	3	3	3	3	2.01
	17PBT43A Research Methodology	3	3	3	3	3	3

IV	17PBT43A Entrepreneurship, IPR and Biosafety	3	2.01	3	3	2.01	2.01
Direct Attainment			2.83	2.94	2.77	2.65	2.53
Indirect Attainment(Program Exit Survey)			3	3	3	3	3
Overall Attainment			2.9	3.0	2.8	2.7	2.6
PO Attainment(A/NA)			A	A	A	A	A

PO Attainment for M.Sc. Biotechnology - Batch 2017-19





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PROGRAM EXIT SURVEY FORM

Student Name (optional)		Roll/Reg.No (optional)	
Program	M.Sc. Biotechnology	Batch	2017-19

Please tick(✓) Appropriately

Sl No.	To what extent do you feel have learnt and will be able to do the following (which are the POs and PSO of the Program)	Very Good (4)	Good (3)	Average (2)	Poor (1)
1	Impart quality biotechnology education to students and to develop young minds as outstanding scholars/teachers/entrepreneurs and responsible citizens.				
2	Apply their understanding of the commercialization processes to biotechnology products or services in future.				
3	Graduates of the course will have strong background in the interface of biotechnology and be able to use the tools in industry and/or institutes wherever necessary.				
4	Ability to design and carry out experiments (safely) and to interpret experimental data and apply the scientific method by developing valid hypotheses, designing experiments, gathering relevant data using current technology, and interpreting quantitative and qualitative data.				
5	Develop an awareness of ethical issues in biochemical research and careers options along with understanding of the area of biotechnology chosen.				
Any other feedback/Suggestions					

Date

Signature of the Student



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PROGRAM EXIT SURVEY- PO INDIRECT ASSESSMENT

M.Sc. Biotechnology

Batch: 2017-19

S.No	Roll No.	Name of the Student	POs				
			PO1	PO2	PO3	PO4	PO5
1	172BT001	ALEESHA P KENNETH	4	4	3	3	3
2	172BT003	BAVITHRA P.S.	3	3	3	3	3
3	172BT004	DHANYASRI S	3	4	4	4	1
4	172BT005	DHARANIPRIYA P	3	4	4	4	4
5	172BT006	GAYATHRI .P	3	4	4	3	3
6	172BT007	GAYATHRI M.	4	4	4	3	3
7	172BT008	HARSINI .V	4	1	4	1	3
8	172BT009	HEMA S.	4	1	3	4	1
9	172BT010	INDHUMATHI E	4	4	4	3	4
10	172BT011	KARUPPUSAMY N.	4	4	4	1	2
11	172BT012	MONISHA M	3	4	4	4	3
12	172BT013	NANTHA VANAN P	4	3	3	4	4
13	172BT014	NIRANJANA.J	4	4	2	2	2
14	172BT015	PRIYADHARSHINI M	2	4	4	1	1
15	172BT016	PRIYAVADHANA .K	4	4	1	4	4
16	172BT017	SAFNA MARIYAM P.V.	4	4	4	4	4
17	172BT018	SANDHIYA R.	1	2	4	4	4
18	172BT019	SANTHIYA S.	4	4	4	4	1
19	172BT020	SWATHI G.	4	4	4	2	2
20	172BT021	HARITHA N M	4	1	4	4	4
	Count of	2	1	1	1	2	3
	Survey Scale	3	5	2	4	5	7
	Values	4	13	14	14	10	6
(a) Target Values of PO			* Target Attainment level is 2 and above *Only Survey Scale values of 2, 3 and 4 will be considered.				
(b) No.of Survey scale values 2,3 and 4			19	17	19	17	16
PO Attainment value in % = (b)/Total Students			95	85	95	85	80
PO Attainment through Program Exit Survey			3	3	3	3	3



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M.Sc. BIOTECHNOLOGY

BATCH: 2017-19

ACTION TAKEN REPORT FOR PO ATTAINMENT

POs	Target Level	Attainment Level	Observations
PO1	3	2.9	PO Attained PO1 : Impart quality biotechnology education to students and to develop young minds as outstanding scholars/teachers/entrepreneurs and responsible citizens. Most of the subjects can be retained in the forthcoming years
PO2	3	3	PO Attained PO2 : Apply their understanding of the commercialization processes to biotechnology products or services in future. The subjects are pertaining to CO and PO which has been met
PO3	3	2.8	PO Attained PO3 : Graduates of the course will have strong background in the interface of biotechnology and be able to use the tools in industry and/or institutes wherever necessary. Certificate courses need to be added to enhance the course
PO4	3	2.7	PO Attained PO4 : Ability to design and carry out experiments (safely) and to interpret experimental data and apply the scientific method by developing valid hypotheses, designing experiments, gathering relevant data using current technology, and interpreting quantitative and qualitative data. Hands on training programs would develop the skills of students
PO5	3	2.6	PO Attained PO5 : Develop an awareness of ethical issues in biochemical research and careers options along with understanding of the area of biotechnology chosen. Industrial visits and projects can make the courses wholesome

HoD

Dean-Academics