

AMBEDKAR COLLEGE OF ARTS & SCIENCE, WANDOOR
 (Aided by Govt. of Kerala & Affiliated to University of Calicut)
 Wandoor (PO), Pin 679328, Ph: 04931-249666
acaswandoor@gmail.com, Website: www.ambedkarcollegewdr.in

COURSE PLAN

Course code and title	STA4C04-Statistical Inference and Quality Control		
Class	BSc Mathematics	Semester	IV
Regulation	2019	Academic year	2024-2025
Course prerequisites	Knowledge of basic probability, statistics, calculus, and linear algebra, typically covered in an introductory course on Probability and Statistics.		
Course objectives	<ul style="list-style-type: none"> • To develop a deep understanding of point estimation methods and their theoretical properties such as unbiasedness, consistency, efficiency, and sufficiency 		
	<ul style="list-style-type: none"> • To equip students with the ability to apply classical and modern techniques for parameter estimation and hypothesis testing in real-world statistical problems. 		
	<ul style="list-style-type: none"> • To enable students to analyze and implement both parametric and non-parametric statistical methods, as well as quality control tools, for data-driven decision-making and process improvement. 		

COURSE OUTCOMES

At the end of the course the student would be able to...

CO1	Explain the core concepts of estimation theory, including unbiasedness, consistency, efficiency, and sufficiency, and how they relate to point estimation.
CO2	Apply maximum likelihood and moment estimation methods to estimate parameters of probability distributions and evaluate their efficiency using Cramer-Rao inequality
CO3	Analyze various hypothesis testing procedures, such as the Neyman-Pearson Lemma and large sample tests and interpret the outcomes of these tests in practical scenarios
CO4	Evaluate non-parametric testing methods like the Mann-Whitney U test, Kruskal-Wallis test, and Median test for different types of data where parametric assumptions are violated.
CO5	Design and implement quality control charts (X-bar, R-chart, p-chart) to monitor and improve the quality of manufacturing processes, identifying causes of variation and suggesting corrective actions

MAPPING OF PROGRAM OUTCOMES

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	✓		✓		✓			✓		
CO2	✓		✓	✓	✓			✓		
CO3	✓		✓		✓	✓		✓		
CO4	✓		✓		✓	✓		✓		



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CO5	✓	✓	✓	✓	✓	✓	✓	✓			
PO1	Knowledge Acquisition					PO6	Ethics & Social Responsibility				
PO2	Communication & Leadership					PO7	Research, Innovation & Entrepreneurship				
PO3	Professional Skills					PO8	Lifelong Learning				
PO4	Digital Intelligence					PO9	Global Perspective				
PO5	Scientific awareness & Critical Thinking					PO10	Democratic Co-existence				

PROGRAM SPECIFIC OUTCOMES

PSO1	Apply statistical estimation and hypothesis testing methods to solve real-world problems in engineering, science, and industry.
PSO2	Use data-driven tools and quality control techniques to monitor, analyze, and enhance process performance.
PSO3	Demonstrate proficiency in statistical software and digital tools for data analysis, modeling, and decision-making in applied research.

MAPPING OF COURSE OUTCOMES TO PROGRAM EDUCATIONAL OUTCOMES

PROGRAM EDUCATIONAL OUTCOMES	COURSE OUTCOMES				
	CO1	CO2	CO3	CO4	CO5
PEO1 Development of leadership qualities			✓	✓	✓
PEO2 Advanced analytical and computational Techniques	✓	✓	✓	✓	✓
PEO3 Mathematical modelling and problem solving	✓	✓	✓	✓	✓

References

TEXT BOOKS:

1. Rohatgi V. K. and Saleh, A.K. Md. E. (2009): An Introduction to Probability and Statistics. 2nd Edn. (Reprint) John Wiley and Sons
2. Gupta, S.P. Statistical Methods. Sultan Chand and Sons: New Delhi.

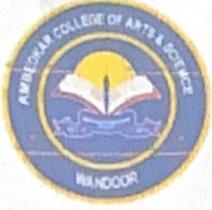
REFERENCES:



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1. John E Freund, Mathematical Statistics, Pearson Edn, NewDelhi
2. S.C.Gupta and V. K. Kapoor, Fundamentals of Mathematical Statistics, Sultan Chand and Sons
3. Mood, A.M. Graybill, F.A. and Boes, D.C. (2007): Introduction to the Theory of Statistics, 3rd Edn., (Reprint), Tata McGraw-Hill Pub. Co. Ltd.

e-learning resources	
Mode of Evaluation	Internal Examination (15 marks) End Semester Examination (60 marks)
Faculty	HIMA KC, Assistant Professor/ Department of Statistics
e-mail id	Himakc2000@gmail.com



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No of lecture hours	Planned Date	Topics to be covered	Reference/ Teaching aids and methods	Actual date	Weekly review
MODULE I - ESTIMATION THEORY					
1	10/12/2024	Introduction to Estimation Theory	T	10-12-24	<i>[Signature]</i>
2	11/12/2024	Parametric Space – Definition and Examples	T/WB	11-12-24	<i>[Signature]</i>
3	12/12/2024	Sample Space and Sampling Distributions	T/WB/PPT	12-12-24	<i>[Signature]</i>
4	13/12/2024	Point Estimation – Basics and Purpose	T/WB/PPT	13-12-24	<i>[Signature]</i>
5	13/12/2024	Desirable Properties of Estimators – Overview	T/WB	13-12-24	<i>[Signature]</i>
6	17/12/2024	Unbiasedness – Concept and Examples	T/WB	17-12-24	<i>[Signature]</i>
7	18/12/2024	Consistency – Definition and Practical Insight	T/WB	18-12-24	<i>[Signature]</i>
8	19/12/2024	Efficiency – Understanding Relative Efficiency	T/WB	19-12-24	<i>[Signature]</i>
9	20/12/2024	Sufficiency – Neyman Factorization Theorem	T/WB	20-12-24	<i>[Signature]</i>
10	20/12/2024	Completeness – Concept and Illustrations	T/WB/PPT	20-12-24	<i>[Signature]</i>
11	24/12/2024	Relationship Among Estimator Properties	T/WB/PPT	" "	<i>[Signature]</i>
12	26/12/2024	Minimum Variance Unbiased Estimator (MVUE) – Concept	T/WB/PPT	" "	<i>[Signature]</i>
13	27/12/2024	Cramer-Rao Inequality – Definition and Significance	T/WB/PPT	31-12-24	<i>[Signature]</i>
14	27/12/2024	Minimum Variance Bound (MVB) Estimators – Concept	T/WB/PPT	" "	<i>[Signature]</i>
15	31/12/2024	Introduction to Estimation Methods	T/WB/PPT	" "	<i>[Signature]</i>
16	01/01/2025	Method of Moments – Procedure	T/WB/PPT	1-1-25	<i>[Signature]</i>
17	03/01/2025	Method of Moments – Solved Problems	T/WB/PPT	3-1-25	<i>[Signature]</i>
18	03/01/2025	Maximum Likelihood Estimation (MLE) – Concept and Formula	T/WB/PPT	" "	<i>[Signature]</i>
19	07/01/2025	MLE – Step-by-step Procedure	T/WB/PPT	7-1-25	<i>[Signature]</i>
20	08/01/2025	MLE – Solved Examples (Normal, Binomial, etc.)	T/WB	4 "	<i>[Signature]</i>
21	09/01/2025	Properties of MLEs – (Without Proof)	T/WB	8-01-25	<i>[Signature]</i>
22	10/01/2025	Least Squares Estimation – Basic Concepts	T/WB	" "	<i>[Signature]</i>
23	10/01/2025	Minimum Variance Estimation – Concept	T/WB	" "	<i>[Signature]</i>
24	14/01/2025	Interval Estimation – Introduction to Confidence Intervals	T/WB	9-1-25	<i>[Signature]</i>
25	15/01/2025	CI for Mean (Normal Distribution) – Known σ	T/WB/PPT	10-1-25	<i>[Signature]</i>
26	16/01/2025	CI for Variance (Normal Distribution)	T/WB/PPT	16-1-25	<i>[Signature]</i>
27	17/01/2025	CI for Binomial Proportion	T/WB/PPT	17-1-25	<i>[Signature]</i>



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28	17/01/2025	CI for Population Correlation Coefficient		T/WB	17-1-25	gclb
29	21/01/2025	Interpretation and Application of Confidence Intervals		T/WB	21-1-25	gclb
30	22/01/2025	Summary, Concept Integration, and Review		T/WB	22-1-25	gclb
Planned hours	Actual hours	Date	Sign of Faculty	Review by HoD	Review by Principal	
30	30	22-1-25				
MODULE II – Testing of Hypothesis						
31	23/01/2025	Introduction to Hypothesis Testing		T/WB	23-1-25	gclb
32	24/01/2025	Null and Alternative Hypotheses		T/WB/PPT	24-1-25	gclb
33	24/01/2025	Simple and Composite Hypotheses		T/WB	" "	gclb
34	28/01/2025	Level of Significance – Concept and Application		T/WB/PPT	28-1-25	gclb
35	29/01/2025	Type I and Type II Errors – Explanation and Examples		T/WB/PPT	29-1-25	gclb
36	30/01/2025	Power of a Test – Concept and Importance		T/WB/PPT	30-1-25	gclb
37	31/01/2025	p-values – Interpretation and Use in Testing		T/WB/PPT	31-1-25	gclb
38	31/01/2025	Critical Region and Test Statistics		T/WB/PPT	4-2-25	gclb
39	04/02/2025	Most Powerful Tests – Introduction		T/WB/PPT	" "	gclb
40	05/02/2025	Neyman-Pearson Lemma – Concept (Without Proof)		T/WB/PPT	5-2-25	gclb
41	06/02/2025	Uniformly Most Powerful (UMP) Tests – Meaning and Examples		T/WB/PPT	6-02-25	gclb
42	07/02/2025	Large Sample Tests – Introduction and Assumptions		T/WB/PPT	7-2-25	gclb
43	07/02/2025	Z-test for Single Mean		T/WB/PPT	" "	gclb
44	11/02/2025	Z-test for Equality of Two Means		T/WB/PPT	11-02-25	gclb
45	12/02/2025	Z-test for Single Proportion		T/WB/PPT	12-2-25	gclb
46	13/02/2025	Z-test for Equality of Two Proportions			13-2-25	gclb
47	14/02/2025	Practice Problems – Large Sample Tests		T/WB	14-2-25	gclb
48	14/02/2025	t-test for a Single Mean – Concept and Conditions		T	" "	gclb
49	18/02/2025	Unpaired t-test – Theory and Procedure		T/WB/PPT	18-2-25	gclb
50	19/02/2025	Paired t-test – Application and Examples		T/WB/PPT	19-2-25	gclb
51	20/02/2025	Practice Problems – Small Sample Tests		T/WB/PPT	20-2-25	gclb
52	21/02/2025	Chi-Square Distribution – Overview		T/WB/PPT	21-2-25	gclb
53	21/02/2025	Chi-Square Test for Equality of Variances		T/WB	" "	gclb
54	25/02/2025	Chi-Square Test for Goodness of Fit		T/WB/PPT	" "	gclb
55	27/02/2025	Chi-Square Test for Independence of Attributes		T/WB	27-2-25	gclb
56	28/02/2025	Chi-Square Test for Association of Attributes		T/WB/PPT	28-2-25	gclb



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57	28/02/2025	Practice Problems – Chi-Square Tests			T/WB	28-2-25	JSL
58	04/03/2025	ANOVA – Introduction and Need			T/WB	" "	JSL
59	04/03/2025	One-Way ANOVA – Assumptions and Hypothesis			T/WB	4-3-25	JSL
60	05/03/2025	One-Way ANOVA – ANOVA Table and Interpretation			T/WB	" "	JSL
61	06/03/2025	One-Way ANOVA – Solved Problems			T/WB	5-03-25	JSL
62	07/03/2025	Two-Way ANOVA – Assumptions and Layout			T/WB	" "	JSL
63	07/03/2025	Two-Way ANOVA – Hypothesis, ANOVA Table			T/WB	" "	JSL
64	11/03/2025	Two-Way ANOVA – Solved Problems			T/WB	" "	JSL
65	12/03/2025	Summary, Comparison of Test Types, Review Session			T/WB	7-3-25	JSL
Planned hours	Actual hours	Date	Sign of Faculty	Review by HoD		Review by Principal	
35	35	12-3-25	JSL	JSL			
UNIT III - Non parametric methods							
66	13/03/2025	Introduction to Non-Parametric Methods – Need and Applications			T/WB/PPT	11-3-25	JSL
67	14/03/2025	Advantages and Drawbacks of Non-Parametric Methods			T/WB	" "	JSL
68	14/03/2025	Test for Randomness – Concept and Procedure			T/WB	12-03-25	JSL
69	18/03/2025	Median Test – Theory and Application			T/WB	" "	JSL
70	19/03/2025	Sign Test – One-sample and Paired-sample Cases			T/WB	13-3-25	JSL
71	20/03/2025	Mann-Whitney U Test – Concept and Test Statistic			T/WB/PPT	" "	JSL
72	21/03/2025	Mann-Whitney U Test – Solved Examples			T/WB/PPT	14-3-25	JSL
73	21/03/2025	Wilcoxon Signed-Rank Test – Procedure and Use			T/WB/PPT	" "	JSL
74	25/03/2025	Wilcoxon Rank-Sum Test (Alternative to Mann-Whitney)			T/WB/PPT	" "	JSL
75	26/03/2025	Kruskal-Wallis Test – Concept and Comparison with ANOVA			T/WB/PPT	" "	JSL
Planned hours	Actual hours	Date	Sign of Faculty	Review by HoD		Review by Principal	
10	10	26-3-25	JSL	JSL			
MODULE IV -Quality control							
76	27/03/2025	Introduction to Quality Control – Concept			T/WB/PPT	18-3-25	JSL



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Planned hours	Actual hours	Date	Sign of Faculty	Review by HoD	Review by Principal
					and Importance
77	28/03/2025	General Theory of Control Charts			T/WB/PPT 19-3-25 J. S. K.
78	28/03/2025	Causes of Variation in Quality – Common vs. Special Causes			T/WB " " J. S. K.
79	28/03/2025	Control Limits – Definition and Calculation			T/WB " " J. S. K.
80	28/03/2025	Sub-grouping – Concept and Significance			T/WB 20-3-25 J. S. K.
81	28/03/2025	Out-of-Control Criteria – Rules and Interpretation			T/WB 21-3-25 J. S. K.
82	28/03/2025	Overview of Control Charts – Variables vs. Attributes			T/WB 25-3-25 J. S. K.
83	28/03/2025	\bar{X} (X-bar) Chart – Construction and Interpretation			T/WB " " J. S. K.
84	28/03/2025	R Chart – Construction and Usage			T/WB 26-3-25 J. S. K.
85	28/03/2025	σ (Sigma) Chart – Concept and Calculation			T/WB " " J. S. K.
86	28/03/2025	Combined Example: X-bar and R Chart Interpretation			T/WB " " J. S. K.
87	28/03/2025	Attribute Charts – Introduction and Classification			T/WB/PPT 27-3-25 J. S. K.
88	28/03/2025	p-Chart – Concept, Calculation, and Example			T/WB/PPT " " J. S. K.
89	28/03/2025	np-Chart – Concept, Use, and Problems			T/WB " " J. S. K.
90	28/03/2025	c-Chart – When to Use and How to Construct			T/WB " " J. S. K.
15	15	28-3-25	J. S. K.	J. S. K.	

COURSE PLAN BCM4C04 QUANTITATIVE TECHNIQUES FOR BUSINESS

FACULTY

J. S. K.

HOD

S. SHAD AMEERA.U
 Asst. Professor & Head
 Department of Mathematics
 Ambedkar College of Arts & Science
 Wandoor, Malappuram Dt.

PRINCIPAL

S. SHAD AMEERA.U
 Asst. Professor
 In charge of Principal
 Ambedkar College of Arts & Science
 Wandoor



Course outcome –Program outcome Mapping Table

BCM4C04 QUANTITATIVE TECHNIQUES FOR BUSINESS		Cognitive level	Program outcomes											
			1-Low correlation 2-Moderate Correlation 3- High correlation											
			PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
DIRECT METHOD														
CO1	Explain the core concepts of estimation theory, including unbiasedness, consistency, efficiency, and sufficiency, and how they relate to point estimation.	Remember	3		2		2				1			
CO2	Apply maximum likelihood and moment estimation methods to estimate parameters of probability distributions and evaluate their efficiency using Cramer-Rao inequality	Apply	3		2	1	2				1			
CO3	Analyze various hypothesis testing procedures, such as the Neyman-Pearson Lemma and large sample tests and interpret the outcomes of these tests in practical scenarios	Apply & Analyze	3		2		3	1			1			
CO4	Evaluate non-parametric testing methods like the Mann-Whitney U test, Kruskal-Wallis test, and Median test for different types of data where parametric assumptions are violated.	Create	2		3		2	1			1			
CO5	Design and implement quality control charts (X-bar, R-chart, p-chart) to monitor and improve the quality of manufacturing processes, identifying causes of variation and suggesting corrective	Innovate	3	2	2	2	2	1	1	2				



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actions														
INDIRECT METHOD														
Class Room contests	Analyze & Create	3	2				1	2						

Course Faculty

TQAC Member

HoD

SHARSHAD AMEERA.U
 Ass. Professor & Head
 Department of Mathematics
 Ambedkar College of Arts & Science
 Wandoor, Malappuram Dt.

COURSE PRE-ANALYSIS

Dear Students,

Welcome back to class, I would like to thank all of you for sparing your time in filling up this Course Pre-Analysis survey for the effective conduct of Computer Aided Design and Manufacturing Course. As you know that this survey is meant for knowing the knowledge level of the students with respect to this course, please fill it very carefully. At this juncture, I am glad to welcome the suggestions from you all (if any).

Rate your prior knowledge about the topics mentioned below

Course Outcomes	Description	Rate your prior knowledge about the topics			
		Excellent (4)	Good (3)	Moderate (2)	Fair (1)
CO1	Explain the core concepts of estimation theory, including unbiasedness, consistency, efficiency, and sufficiency, and how they relate to point estimation.			2	
CO2	Apply maximum likelihood and moment estimation methods to estimate parameters of probability distributions and evaluate their efficiency using Cramer-Rao inequality				1
CO3	Analyze various hypothesis testing procedures, such as the Neyman-Pearson Lemma and large sample tests and interpret the outcomes of these tests in practical scenarios				1



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CO4	Evaluate non-parametric testing methods like the Mann-Whitney U test, Kruskal-Wallis test, and Median test for different types of data where parametric assumptions are violated.				1
CO5	Design and implement quality control charts (X-bar, R-chart, p-chart) to monitor and improve the quality of manufacturing processes, identifying causes of variation and suggesting corrective actions				1
	MAPPING OF PROGRAM OUTCOMES				

Name of the student:

Signature of the student

Rishwana Ek



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Course outcome –Program Specific outcome Mapping Table

Course outcomes	Program Specific outcomes		
	PSO1	PSO2	PSO3
CO1	✓		✓
CO2	✓		✓
CO3	✓	✓	✓
CO4	✓	✓	✓
CO5	✓	✓	✓

Course Faculty

J. O. Onnell

QAC Member

[Signature]

HoD

SHASHAD AMEERA.U
Asst. Professor & Head
Department of Mathematics
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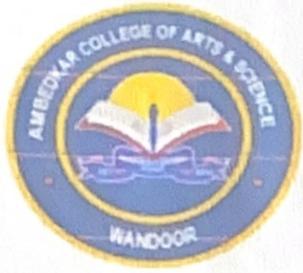
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DIRECT ASSESSMENT OF COURSE OUTCOMES

INTERNAL ASSESSMENT TESTMARKS			
()			
Objective	To Identify What Students Have Learned and also to identify students strength and weakness		
To file	Answer scripts	Frequency	2 times in a semester on dates specified by University
Format	.		
Evaluation	Based on answer given in the scripts		
ASSIGNMENT: MARKS			
Objective	To enhance students understanding of a complex structural problems		
Product	Hand written assignment sheets		
Frequency	Monthly or after completing improvement test		
Format	Questions from both question papers		
Evaluation	Based on rubrics		
Criteria	No. of assignments: 3 to 5, Submit on or before the date of submission		
END SEMESTER EXAMINATION 75 MARKS (Reduced to 60 Marks)			
Objective	To assess the each student's knowledge of the course		
Product	Result analysis		
Frequency	Semester		
Format	Part -A =20 marks, Part -B= 30 marks, Part C=10 Marks Total marks = 60, Duration : 2 hours		
Evaluation	Based on answer given in the scripts		
Marks out of 75	22.5-37.5	37.5- 52.5	52.5-75 0-37.5
Levels of attainment	1	2	3 Counseling / Coaching classes.

Attainment Levels of COs

STA4C04-Statistical inference and Quality control			Attainment
Assessment Methods	Target-Attainment Levels		
Internal Assessment	Level 1	50% of students scoring more than 35% marks in internal assessment tools	LEVEL 03
	Level 2	60% of students scoring more than 35% marks in internal assessment tools	
	Level 3	70% of students scoring more than 35% marks in internal assessment tools	
Assessment Methods	Target-Attainment Levels		Attainment
University Assessment	Level 1	50% of students scoring more than 35% marks in UE assessment tools	LEVEL 03
	Level 2	60% of students scoring more than 35% marks in UE assessment tools	
	Level 3	70% of students scoring more than 35% marks in UE assessment tools	



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DEPARTMENT OF STATISTICS

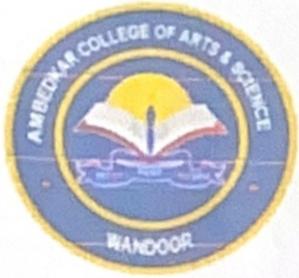
CO ATTAINMENT - IA TEST MARKS (IV SEM. 2024-2025)

SemIV

Course: STA4C04-Statistical inference and Quality control

Name of the faculty member: HIMA KC

Sl. No.	Name of the student	REG NO	IA TEST		COURSE OUTCOMES	
			Q1 TO Q14		IA TEST	
			CO1 TO CO5		CO1 TO CO5	
Max. Marks			30	%age	Y/N	
1	ANEENA.K.P	UFAXSMT001	30	100	Y	
2	ASNA SHERIN V T	UFAXSMT002	28	93	Y	
3	AYISHA HANNA C K	UFAXSMT003	26	87	Y	
4	FATHIMA FIDHA K	UFAXSMT004	25	83	Y	
5	FATHIMA MINNATH K	UFAXSMT005	30	100	Y	
6	FATHIMA NASNA V T.	UFAXSMT006	25	83	Y	
7	FATHIMA SHIFA. M.K	UFAXSMT007	26	87	Y	
8	FATHIMA THAMJEEDA	UFAXSMT008	30	100	Y	
9	FIDA PK	UFAXSMT009	29	97	Y	
10	FIDHA V	UFAXSMT010	22	73	Y	
11	HAFLA. T. K	UFAXSMT011	28	93	Y	
12	MUFEEDA SHIFA. M.P	UFAXSMT012	25	83	Y	
13	NUBLA SHANA . P	UFAXSMT013	20	67	Y	
14	RABEEBA K P	UFAXSMT014	25	83	Y	
15	RASHA JALEEL P	UFAXSMT015	20	67	Y	
16	RISHWANA E K	UFAXSMT016	20	67	Y	
17	ABOBACKER NAFIH T T	UFAXSMT017	20	67	Y	
18	JAMSHEEDALI.C.P	UFAXSMT018	25	83	Y	
19	MOHAMMED AMALSHAN T	UFAXSMT019	20	67	Y	
20	MUHAMMAD RISHWAN K	UFAXSMT020	20	67	Y	
21	MUHAMMED ANSHIF . T	UFAXSMT021	24	80	Y	
22	MUHAMMED SHAHID.V	UFAXSMT022	28	93	Y	
23	ANAYA U P	UFAXSMT023	25	83	Y	
24	ANJIMA SHAJI	UFAXSMT024	26	87	Y	



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DEPARTMENT OF STATISTICS

25	ARYA VS	UFAXSMT025	27	90	Y
26	HANEENA K	UFAXSMT026	28	93	Y
27	KRISHNENDHU K	UFAXSMT027	25	83	Y
28	RIYA . P	UFAXSMT028	24	80	Y
29	SWATHIKRISHNA A K	UFAXSMT029	22	73	Y
30	SHAMSIYA PARWEEN	UFAXSMT032	23	77	Y
31	BISLA KT		22	73	Y
				31	
				100.00	
		FOR LAL (MAT5B08)	CO1 to CO5		
		TARGET: 50% C	100.0		



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DEPARTMENT OF STATISTICS

CO ATTAINMENT - ASSIGNMENT(IV SEM. 2024-2025)

Sem.IV

Name of the faculty member: HIMA KC

Sl. No.	Name of the student	REG NO	Max. Marks	ASSIGNMENT CO1 to CO5	SEMINAR CO4 to CO5	ATTENDANCE	COURSE OUTCOMES				ATTENDANCE	
							CO1 - 5 %age	Y/N	CO4 - 5 %age	Y/N	%age	Y/N
1	ANEENA.K.P	UFAXSMT001		3	3	3	100	Y	100	Y	100	Y
2	ASNA SHERIN V T	UFAXSMT002		3	3	3	100	Y	100	Y	100	Y
3	AYISHA HANNA C K	UFAXSMT003		3	3	3	100	Y	100	Y	100	Y
4	FATHIMA FIDHA K	UFAXSMT004		3	3	3	100	Y	100	Y	100	Y
5	FATHIMA MINNATH K	UFAXSMT005		3	3	3	100	Y	100	Y	100	Y
6	FATHIMA NASNA V T.	UFAXSMT006		3	3	3	100	Y	100	Y	100	Y
7	FATHIMA SHIFA. M.K	UFAXSMT007		3	3	3	100	Y	100	Y	100	Y
8	FATHIMA THAMJEEDA	UFAXSMT008		3	3	3	100	Y	100	Y	100	Y
9	FIDA PK	UFAXSMT009		3	3	2	100	Y	100	Y	66.6667	Y
10	FIDHA V	UFAXSMT010		3	3	3	100	Y	100	Y	100	Y
11	HAFLA. T. K	UFAXSMT011		3	3	3	100	Y	100	Y	100	Y
12	MUFEEDA SHIFA. M.P	UFAXSMT012		3	3	2	100	Y	100	Y	66.6667	Y
13	NUBLA SHANA . P	UFAXSMT013		3	3	3	100	Y	100	Y	100	Y
14	RABEEBA K P	UFAXSMT014		3	3	3	100	Y	100	Y	100	Y
15	RASHA JALEEL P	UFAXSMT015		3	3	3	100	Y	100	Y	100	Y
16	RISHWANA E K	UFAXSMT016		3	3	3	100	Y	100	Y	100	Y

17	ABOBACKER NAFIH T T	UFAXSMT017	3	3	1	100	Y	100	Y	100	Y	33.3333	Y
18	JAMSHEEDALI.C.P	UFAXSMT018	3	3	3	100	Y	100	Y	100	Y	100	Y
19	MOHAMMED AMALSHAN T	UFAXSMT019	3	3	1	100	Y	100	Y	100	Y	33.3333	Y
20	MUHAMMAD RISHWAN K	UFAXSMT020	3	3	2	100	Y	100	Y	100	Y	66.6667	Y
21	MUHAMMED ANSHIF . T	UFAXSMT021	3	3	2	100	Y	100	Y	100	Y	66.6667	Y
22	MUHAMMED SHAHID.V	UFAXSMT022	3	3	3	100	Y	100	Y	100	Y	100	Y
23	ANAYA U P	UFAXSMT023	3	3	3	100	Y	100	Y	100	Y	100	Y
24	ANJIMA SHAJI	UFAXSMT024	3	3	3	100	Y	100	Y	100	Y	100	Y
25	ARYA VS	UFAXSMT025	3	3	3	100	Y	100	Y	100	Y	100	Y
26	HANEENA K	UFAXSMT026	3	3	3	100	Y	100	Y	100	Y	100	Y
27	KRISHNENDHU K	UFAXSMT027	3	3	3	100	Y	100	Y	100	Y	100	Y
28	RIYA . P	UFAXSMT028	3	3	3	100	Y	100	Y	100	Y	100	Y
29	SWATHIKRISHNA A K	UFAXSMT029	3	3	3	100	Y	100	Y	100	Y	100	Y
30	SHAMSIYA PARWEEN	UFAXSMT032	3	3	3	100	Y	100	Y	100	Y	100	Y
31	BISLA KT		3	3	3	100	Y	100	Y	100	Y	100	Y
						31		31		31			
						100.00		100.00		100.00		100.00	

FOR LAL (MTS5B08)	CO1 TO 3	CO4 TO 5	ATTENDANCE
	100.00	100.00	100.00

TARGET: 1) 90% OF STUDENTS WILL SCORE 35% OF MARKS IN ASSIGNMENT



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DEPARTMENT OF STATISTICS

DIRECT ASSESSMENT METHOD - CO ATTAINMENT (ODD SEM . 202324-25

Semester: IV

Course: STA4C04-Statistical inference and Quality control

Name of the faculty member: HIMA KC

TARGET: 60% ATTAINMENT

COs	CO1 to CO5
IA MARKS ATTAINMENT	100
ASSIGNMENT	100
SEMINAR	100
ATTENDANCE	100
AVERAGE	100





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DEPARTMENT OF STATISTICS

COURSE EXIT SURVEY RESPONSES (FOURTH SEM . 2024-2025)

Semester: IV
 Name of the faculty member: HIMA KC
 Course: STA4C04-Statistical inference and Quality control

Sl. No.	NAME OF THE STUDENT	REG NO	COURSE OUTCOMES				
			CO1	CO2	CO3	CO4	CO5
			Are you able to Understand core concepts of estimation theory, including unbiasedness, consistency, efficiency, and sufficiency, and how they relate to point estimation.	Are you able to Apply maximum likelihood and moment estimation methods to estimate parameters of probability distributions and evaluate their efficiency using Cramer-Rao inequality	Are you able to Analyze various hypothesis testing procedures, such as the Neyman-Pearson Lemma and large sample tests and interpret the outcomes of these tests in practical scenarios	Are you able to Evaluate non-parametric testing methods like the Mann-Whitney U test, Kruskal-Wallis test, and Median test for different types of data where parametric assumptions are violated.	Are you able to Design and implement quality control charts (X-bar, R-chart, p-chart) to monitor and improve the quality of manufacturing processes, identifying causes of variation and suggesting corrective actions
1	ANEENA.K.P	UFAXSMT001	5 (EXCELLENT)	5 (EXCELLENT)	5 (EXCELLENT)	4 (Very Good)	5 (Excellent)
2	ASNA SHERIN V T	UFAXSMT002	5 (EXCELLENT)	4 (Very Good)	4 (Very Good)	5 (Excellent)	4 (Very Good)
3	AYISHA HANNA C K	UFAXSMT003	5 (EXCELLENT)	4 (Very Good)	5 (EXCELLENT)	5 (EXCELLENT)	5 (EXCELLENT)
4	FATHIMA FIDHA K	UFAXSMT004	4 (Very Good)	4 (Very Good)	5 (EXCELLENT)	5 (EXCELLENT)	5 (EXCELLENT)
5	FATHIMA MINNATH K	UFAXSMT005	4 (Very Good)	5 (EXCELLENT)	4 (Very Good)	5 (EXCELLENT)	5 (EXCELLENT)
6	FATHIMA NASNA V T.	UFAXSMT006	5 (EXCELLENT)	5 (EXCELLENT)	5 (EXCELLENT)	5 (EXCELLENT)	4 (Very Good)
7	FATHIMA SHIFA. M.K	UFAXSMT007	5 (EXCELLENT)	5 (EXCELLENT)	5 (EXCELLENT)	5 (EXCELLENT)	5 (EXCELLENT)
8	FATHIMA THAMJEEDA	UFAXSMT008	5 (EXCELLENT)	5 (EXCELLENT)	5 (EXCELLENT)	4 (Very Good)	5 (EXCELLENT)
9	FIDA PK	UFAXSMT009	5 (EXCELLENT)	5 (EXCELLENT)	5 (EXCELLENT)	4 (Very Good)	5 (EXCELLENT)
10	FIDHA V	UFAXSMT010	5 (EXCELLENT)	5 (EXCELLENT)	4 (Very Good)	4 (Very Good)	4 (Very Good)
11	HAFLA. T. K	UFAXSMT011	5 (EXCELLENT)	5 (EXCELLENT)	5 (EXCELLENT)	5 (EXCELLENT)	5 (EXCELLENT)
12	MUFEEDA SHIFA. M.P	UFAXSMT012	4 (Very Good)	4 (Very Good)	4 (Very Good)	4 (Very Good)	4 (Very Good)
13	NUBLA SHANA . P	UFAXSMT013	5 (EXCELLENT)	5 (EXCELLENT)	5 (EXCELLENT)	5 (EXCELLENT)	5 (EXCELLENT)



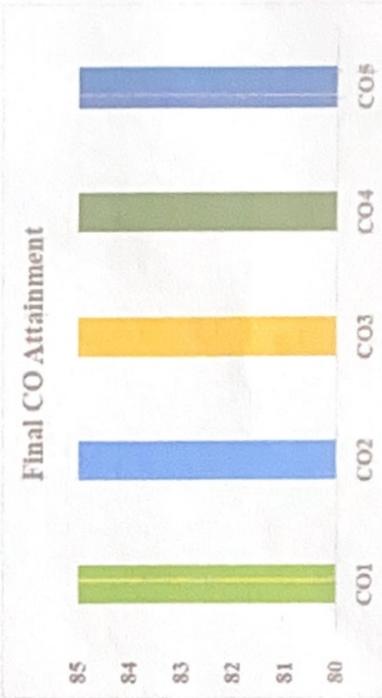
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DEPARTMENT OF STATISTICS

COURSE EXIT SURVEY RESPONSES (FOURTH SEM . 2024-2025)

Semester:IV		Course STA-4C04-Statistical inference and Quality control													
Name of the faculty member: HIMA KC															
CO No.	CO description	Course Exit Survey Questions					No. of students given the ratings					Total Responses	Weighted Average	CO Max. Count	%age CO attainment
		0	1	2	3	4	5								
CO1	Explain the core concepts of estimation theory, including unbiasedness, consistency, efficiency, and sufficiency, and how they relate to point estimation.	0	0	0	0	10	21	31	3.82	5	76.32				
CO2	Apply maximum likelihood and moment estimation methods to estimate parameters of probability distributions and evaluate their efficiency using Cramer-Rao inequality	0	0	0	0	12	19	31	3.76	5	75.26				
CO3	Analyze various hypothesis testing procedures, such as the Neyman-Pearson Lemma and large sample tests and interpret the outcomes of these tests in Evaluate non-parametric testing methods like the Mann-Whitney U test, Kruskal-Wallis test, and Median test	0	0	0	0	11	20	31	3.79	5	75.79				
CO4	Design and implement quality control charts (X-bar, R-chart, p-chart) to monitor and improve the quality of manufacturing processes, identifying causes of variation and suggesting corrective actions	0	0	0	0	12	19	31	3.76	5	75.26				
CO5	Monitor and improve the quality of manufacturing processes, identifying causes of variation and suggesting corrective actions	0	0	0	0	12	19	31	3.76	5	75.26				

CO Assessment method	CO1	CO2	CO3	CO4	CO5
Direct method (IA Test, Assignment/quiz and exam)	100	100	100	100	100
Weightage (80%)	80	80	80	80	80
Indirect method (Course Exit Survey)	76.32	75.26	75.79	75.26	75.26
Weightage (20%)	15.26	15.05	15.16	15.05	15.05
Final CO Attainment	95.26	95.05	95.16	95.05	95.05





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DEPARTMENT OF CIVIL ENGINEERING

CO-PO-PSO MAPPING (ODD SEM . 2023-2024)

Semester: IV

Course: STA4C04-Statistical inference and Quality control

Name of the faculty member: HIMA KC

(I) CO Attainment

A: Direct assessment (80%)-Tests, Assignment, Examination

B: Indirect assessment (20%)-Course end survey

COs	Mapping of POs	Mapping of PSOs	Direct Assessment (a)	Indirect Assessment (b)	Overall Attainment 0.8 (a) + 0.2(b)	Target (%)	Attainment
CO1	PO1, PO3, PO4 & PO9	PSO1, PSO2 & PSO3	100	76.32	95		
CO2	PO1, PO3, PO5 & PO7	PSO1, PSO2 & PSO3	100	75.26	95		
CO3	PO1, PO2, PO3, PO5 & PO9	PSO1, PSO2 & PSO3	100	75.79	95	75	YES
CO4	PO1, PO3, PO4, PO5 & PO8	PSO1, PSO2 & PSO3	100	75.26	95		
CO5	PO1, PO4, PO5, PO7 & PO8	PSO1, PSO2 & PSO3	100	75.26	95		

FACULTY

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PRINCIPAL

Asst. Professor
 In charge of Principal
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