

## Certificate Course 2020-2021 :: Syllabus

CODE: MESACCC202020 & CODE: MESACCC202032

### PART II MATHEMATICS

Module I (4 marks) Calculus: Relations, functions, limits, continuity, differentiation, indefinite integral and definite integral, First order differential equations.

Module II (4 marks) Number theory and Algebra. Divisibility of numbers, prime factorisation, GCD, LCM, division algorithm, Euclidean algorithm, congruences- linear congruences, Euler's totient function, Little Fermat's theorem, Euclid's theorem - its applications. Polynomials, factorisation, roots, Groups- cyclic groups, permutation groups

Module III (4 marks) Linear Algebra Linear equations, matrices and determinants, vector space, linear dependence, linear independence, basis, dimension. Linear transformations, matrix of linear transformation, rank, nullity, characteristic equation, characteristic values, diagonalization.

Module IV (4 marks) Real Analysis: Properties of real numbers, countability, sequence of real numbers and its convergence, series of real numbers and its convergence, Riemann integral, double integral and triple integral.

Module V (4 marks) Complex Analysis Complex Numbers, Analytic functions, power series, line integral, Cauchy's integral formula, Cauchy's theorem, singularities, Laurent series, harmonic function.

### PART III STATISTICS

1. Descriptive Statistics: Measures of central tendency, Absolute and relative measures of dispersion, Skewness, Kurtosis, Principle of least squares and fitting of curves, Correlation and Regression, Partial and Multiple correlation. (Marks: 2)
2. Probability theory: Definitions, Addition theorem, Multiplication theorem, Conditional probability and Bayes' theorem. Theorem of total probability – Random variables, expectation, moments, generating functions -sequences of random variables and independence of random variables. Law of large numbers, Central limit theorem and its applications. (Marks: 4)
3. Distribution Theory: (i) Discrete distributions – Binomial, Poisson, Geometric, Negative binomial, Hyper-geometric and Multinomial distributions; (ii) Continuous distributions- Uniform, Exponential, Gamma, Beta, Normal, Log-normal, Logistic, Weibull, Pareto and bivariate normal distributions; (iii) Sampling distributions: Student's t, F and Chi-square distributions. (Marks: 4)
4. (i) Estimation: Basic properties of estimators, concepts of sufficiency, UMVUE and completeness, Methods of estimation. (ii) Tests of Hypotheses – Two types of errors

.significance level, size and power of a test, Tests based on normal, t, Chi-square and F distributions. (Marks: 2)

5. Sampling Theory: Various methods of sampling – Simple random sampling, Stratified random sampling, systematic sampling, PPS Sampling, cluster sampling, adaptive sampling, Ratio and Regression methods of estimation. (Marks: 2)

6. Design of Experiments: Basic properties of experimentation, ANOVA, CRD, RBD, LSD, Factorial designs, BIBD, Split-plot designs. (Marks: 2)

7. (i) Vital Statistics: Rates and ratios of vital events, Mortality and fertility, Measurement of mortality and fertility, Central mortality rate. (ii) Time series analysis: Economic time series and its different components, Additive and multiplicative models, Determination of trend, Construction of seasonal indices. (Marks: 2)

8. (i) Economic statistics; Index numbers, its definitions, applications, price relatives, link and chain relatives. Use of averages: Simple aggregative and weighted average methods, Laspeyre's, Paasche's and Fisher index numbers, Time and factor reversal test of index numbers. (ii) Official statistics: Introduction to Indian Statistical systems, CSO, NSSO, Census, National income statistics, Methods of national income estimation. (Marks: 2)

Keerthana

KEERTHANA - S.Y  
Guest faculty  
Dept. of Statistics  
MES Asmabi College  
P. Vemballur.

Nasreen

NASREEN A.  
Assistant Professor (HOD)  
Department of Mathematics  
MES ASMABI COLLEGE  
P. Vemballur, Kodungallur

MES ASMABI COLLEGE P VEMBALLUR

CERTIFICATE COURSE - KPSC STATISTICS&MATHEMATICS(STATISTICAL ASSISTANT GRADE II  
/STATISTICAL INVESTIGATOR GRADE II IN ECONOMICS AND STATISTICS  
(Category No. 39/2020)

CODE:MESACCC202020 &CODE:MESACCC202032

LIST OF STUDENTS ENROLLED

SL No	NAME	CLASS	SIGNATURE
1	Amal Rahna E P	I MA Eco	<u>Amal Rahna</u>
2	Anakha C	I MA Eco	<u>Anakha C</u>
3	Anusha C	I MA Eco	<u>Anusha C</u>
4	Arshana P S	I MA Eco	<u>Arshana P S</u>
5	Basima Beevi	I MA Eco	<u>Basima Beevi</u>
6	Fahmitha Nasrin	I MA Eco	<u>Fahmitha Nasrin</u>
7	Farsana K K	I MA Eco	<u>Farsana K K</u>
8	Fathima Nasrin V A	I MA Eco	<u>Fathima Nasrin</u>
9	Jasna E K	I MA Eco	<u>Jasna E K</u>
10	Krishnapriya C S	I MA Eco	<u>Krishnapriya C S</u>
11	Maneesha P M	I MA Eco	<u>Maneesha P M</u>
12	Musieha N	I MA Eco	<u>Musieha N</u>
13	Neethu C	I MA Eco	<u>Neethu C</u>
14	Sahla Thasneem	I MA Eco	<u>Sahla Thasneem</u>
15	Shilja K S	I MA Eco	<u>Shilja K S</u>
16	Swathika K G	I MA Eco	<u>Swathika K G</u>
17	Thamjeeda C A	I MA Eco	<u>Thamjeeda C A</u>
18	Vaishnavi P K	I MA Eco	<u>Vaishnavi P K</u>
19	Aswath Sankar	I MA Eco	<u>Aswath Sankar</u>
20	SHAHARBAN P J	Mcom Fin	<u>Shaharban P J</u>
21	SHAJEELA V N	Mcom Fin	<u>Shajeela V N</u>
22	SOORYAGAYATHRI N S	Mcom Fin	<u>Sooryagayathri N S</u>
23	SREELAKSHMI V S	Mcom Fin	<u>Sreelakshmi V S</u>
24	SWATHI M S	Mcom Fin	<u>Swathi M S</u>

**MES ASMABI COLLEGE P VEMBALLUR**

CERTIFICATE COURSE - KPSC STATISTICS&MATHEMATICS(STATISTICAL ASSISTANT GRADE II  
/STATISTICAL INVESTIGATOR GRADE II IN ECONOMICS AND STATISTICS  
(Category No. 39/2020)

CODE: MESACCC202020 & CODE: MESACCC202032

**LIST OF STUDENTS ENROLLED**

SL No	NAME	CLASS	SIGNATURE
25	BASHEER	Mcom Mar	<i>Basheer</i>
26	MOHAMED IFAD	Mcom Mar	<i>Mohammed Ifad</i>
27	ABHIRAMI M.A	Mcom Mar	<i>Abhirami</i>
28	GAYATHRI.C.J	Mcom Mar	<i>Gayathri</i>
29	JISNA E S	Mcom Mar	<i>Jisna</i>
30	SHAFNA K M	Mcom Mar	<i>Shafna</i>
31	DILNA A. A	Mcom Mar	<i>Dilna</i>
32	FASALUDDIN	Mcom Mar	<i>Faisaluddin</i>
33	VIVEK M	Mcom Mar	<i>Vivek</i>
34	ANZIYA MALIK	Mcom Mar	<i>Anziya Malik</i>
35	SHAHEEN.K.M	Mcom Mar	<i>Shaheen</i>
36	NIZAM ABDUL RAZAK	Mcom Mar	<i>Nizam</i>
37	RAMSHA AM	Mcom Mar	<i>Ramsha</i>
38	NASRIN P T	Mcom Mar	<i>Nasrin</i>
39	MISRIN.T.A	Mcom Mar	<i>Misrin</i>
40	SNEHA O S	Mcom Mar	<i>Sneha</i>
41	ABHINAV.V.V	Mcom Mar	<i>Abhinav</i>
42	DEVIKA P T	Mcom Mar	<i>Devika</i>
43	SAFNA. PM	Mcom Mar	<i>Safna</i>
44	ABHINENDHU P A	I Mcom Fin	<i>Abhinendhu</i>
45	ADITHYA K G	I Mcom Fin	<i>Adithya</i>
46	AFEefa MIZAJ U.A	I Mcom Fin	<i>Afeefa</i>
47	AFNAN LATHEEF	I Mcom Fin	<i>Afnan</i>
48	AMEERA T M	I Mcom Fin	<i>Ameera</i>
49	ANUPAMA JOJI	I Mcom Fin	<i>Anupama</i>
50	HARIPRIYA S	I Mcom Fin	<i>Haripriya</i>
51	HARITHA P S	I Mcom Fin	<i>Haritha</i>
52	HASNA O S	I Mcom Fin	<i>Hasna</i>
53	LIMNA LATHEEF	I Mcom Fin	<i>Limna</i>
54	NASMIYA V A	I Mcom Fin	<i>Nasmiya</i>
55	RESHMA E R	I Mcom Fin	<i>Reshma</i>
56	RESMI K D	I Mcom Fin	<i>Resmi</i>
57	SALMA THASNEEM P A	I Mcom Fin	<i>Salma</i>
58	SANDHRA MOL P S	I Mcom Fin	<i>Sandhra</i>
59	SANDRA E S	I Mcom Fin	<i>Sandra</i>
60	ALBIN SEBASTIAN K N	I Mcom Fin	<i>Albin Sebastian</i>
61	ARYAN V S	I Mcom Fin	<i>Aryan</i>

**NASREEN A.**  
Assistant Professor (HOD)  
Department of Mathematics  
MES ASMABI COLLEGE  
P. Vemballur, Kodungallur

MES ASMABI COLLEGE P VEMBALLUR

CERTIFICATE COURSE - KPSC STATISTICS&MATHEMATICS(STATISTICAL ASSISTANT GRADE II/STATISTICAL
CODE:MESACCC202020 & CODE:MESACCC202032
ATTENDANCE SHEET : Shift 1

CLASS DETAILS

SL No	NAME	CLASS	20/02/2020	21/02/2020	24/02/2020	29/02/2020	4/01/2021	12/01/2021	10/01/2021	14/02/2021	17/02/2021	25/02/2021	28/02/2021	1/03/2021	05/03/2021	07/03/2021	17/03/2021	25/03/2021
1	Amal Rahna E P	I MA Eco	a	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
2	Anakha C	I MA Eco	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
3	Anusha C	I MA Eco	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
4	Arshana P S	I MA Eco	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
5	Basima Beevi	I MA Eco	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
6	Fahmitha Nasrin	I MA Eco	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
7	Farsana K K	I MA Eco	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
8	Fathima Nasrin V A	I MA Eco	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
9	Jasna E K	I MA Eco	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
10	Krishnapriya C S	I MA Eco	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
11	Maneesha P M	I MA Eco	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
12	Musleha N	I MA Eco	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
13	Neethu C	I MA Eco	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
14	Sahla Thasneem	I MA Eco	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
15	Shilja K S	I MA Eco	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
16	Swathika K G	I MA Eco	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
17	Thamjeeda C A	I MA Eco	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
18	Vaishnavi P K	I MA Eco	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
19	Aswath Sankar	I MA Eco	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
20	SHAHARBAN P J	Mcom Fin	a	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
21	SHAJEELA V N	Mcom Fin	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
22	SOORYAGAYATHRI N S	Mcom Fin	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
23	SREELAKSHMI V S	Mcom Fin	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
24	SWATHI M S	Mcom Fin	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x

Maths Module 1  
 1  
 2  
 2  
 Stat Module 1  
 1  
 2  
 2  
 Maths Module 3  
 3  
 4  
 4  
 5  
 Stat Module 7  
 8

Previous v.p (April 5, 6, 7, May 11, 12, 20 21, 26, 27, 28)

Study Material : Programmed Statistics  
 Schaum Series.

**MES ASMABI COLLEGE P VEMBALLUR**  
**CERTIFICATE COURSE - KPSC STATISTICS&MATHEMATICS(STATISTICAL ASSISTANT GRADE II/STATISTICAL**  
**CODE: MESACCC202020 & CODE: MESACCC202032**  
**ATTENDANCE SHEET : Shift 2**

CLASS DETAILS			20/12/2020	22/12/2020	23/12/2020	24/12/2020	04/01/2021	06/01/2021	12/01/2021	15/01/2021	22/02/2021	23/02/2021	26/02/2021	27/02/2021	05/03/2021	06/03/2021	07/03/2021	18/03/2021	24/03/2021	25/03/2021
SL No	NAME	CLASS																		
25	ILYAS MOHAMED BASHEER	Mcom Mar	.	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
26	MOHAMED IFAD	Mcom Mar	.	x	x	x	.	.	x	x	x	x	x	x	x	x	x	x	x	x
27	ABHIRAMI M.A	Mcom Mar	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
28	GAYATHRI.C.J	Mcom Mar	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
29	JISNA E S	Mcom Mar	x	x	x	x	x	x	.	.	x	x	x	x	x	x	x	x	x	x
30	SHAFNA K M	Mcom Mar	x	.	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
31	DILNA A. A	Mcom Mar	x	.	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
32	FASALUDDIN	Mcom Mar	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
33	VIVEK M	Mcom Mar	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
34	ANZIYA MALIK	Mcom Mar	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
35	SHAHEEN.K.M	Mcom Mar	x	x	x	x	x	x	x	x	x	x	x	x	x	x	.	.	.	.
36	NIZAM ABDUL RAZAK	Mcom Mar	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
37	RAMSHA AM	Mcom Mar	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
38	NASRIN P T	Mcom Mar	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
39	MISRIN.T.A	Mcom Mar	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
40	SNEHA O S	Mcom Mar	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
41	ABHINAV.V.V	Mcom Mar	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
42	DEVIKA P T	Mcom Mar	.	x	x	.	x	.	x	x	x	x	x	x	x	x	x	x	x	x
43	SAFNA. PM	Mcom Mar	.	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
44	ABHINENDHU P A	I Mcom Fin	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
45	ADITHYA K G	I Mcom Fin	x	x	x	.	x	x	x	x	x	x	x	x	x	x	x	x	x	x
46	AFEefa MIZAJ U.A	I Mcom Fin	x	x	x	.	x	x	x	x	x	x	x	x	x	x	x	x	x	x
47	AFNAN LATHEEF	I Mcom Fin	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
48	AMEERA T M	I Mcom Fin	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
49	ANUPAMA JOJI	I Mcom Fin	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
50	HARIPRIYA S	I Mcom Fin	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
51	HARITHA P S	I Mcom Fin	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
52	HASNA O S	I Mcom Fin	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
53	LIMNA LATHEEF	I Mcom Fin	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
54	NASMIYA V A	I Mcom Fin	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
55	RESHMA E R	I Mcom Fin	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
56	RESMI K D	I Mcom Fin	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
57	SALMA THASNEEM P A	I Mcom Fin	x	.	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
58	SANDHRA MOL P S	I Mcom Fin	x	.	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
59	SANDRA E S	I Mcom Fin	x	.	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
60	ALBIN SEBASTIAN K N	I Mcom Fin	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
61	ARYAN V S	I Mcom Fin	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x

Stat Maths 1  
 1  
 2  
 2  
 3  
 Maths Maths 1  
 1  
 2  
 2  
 Stat Maths 6  
 7  
 8  
 Maths Maths 3  
 3  
 4  
 4  
 5  
 Review a.p. (April 5, 6, 7, May 11, 12, 20, 21, 26, 27, 28)

**Certificate Course 2020-2021**

**CODE:MESACCC202020 & CODE:MESACCC202032**

**Report**

**Department of Mathematics & Statistics**

Course name : KpscSTATISTICS&MATHEMATICS(STATISTICAL ASSISTANT GRADE II/STATISTICAL INVESTIGATOR GRADE IIIN ECONOMICS AND STATISTICS(Category No. 39/2020)

No. of Students attended the class :61

Class starting date :20/12/2020

Class end date :31/03/2021

Total hours : 30

Name of coordinator : Keerthana S V (Department of Statistics )

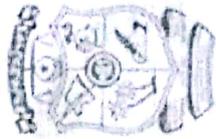
Teachers handled the class :Fahadali P H , Sabeena P A(Department of Mathematics)

Certificate distribution date :01/06/2021

(certificate distributed by Mathematics HOD Ms.Nasreen A)



**NASREEN A.**  
Assistant Professor (HOD)  
Department of Mathematics  
MES ASMABI COLLEGE  
P. Vemballur, Kodungallur



Department of Mathematics & Statistics  
Certificate program

MES ASMABI COLLEGE, P. VEMBALLUR



This is to certify that Mr/Ms..... Amal Rahana E P  
..... of ..... MA Economics  
has completed the certificate course ..... KPSC Statistics & Mathematics  
Statistical Assistant Grade II ..... conducted by Department of  
Mathematics & Statistics ..... MES Asmabi College,  
P Vemballur, Kodungallur during the academic year 2020-2021

P Vemballur  
01/06/2021

Keerthana S V  
Co ordinator

Nasreen A  
HOD Dept. of Mathematics

Principal