

e-Contents and MOOC works

Faculty members of Mahatma Gandhi College, Iritty actively participated in the development of e-contents and SWAYAM Courses produced by Educational Multimedia Research Centre (EMMRC), University of Calicut, on behalf of Consortium for Educational Communication (CEC), New Delhi, an Inter-University Center under UGC. Also faculty members contributed towards preparation of courses for SWAYAMPBHA channel and also for the translation to regional language of MOOC Courses. Details are given below.

Principal Investigators of SWAYAM Courses

Faculty members of Mahatma Gandhi College, Iritty worked as Principal Investigators of SWAYAM Course produced by Educational Multimedia Research Centre (EMMRC), University of Calicut, on behalf of Consortium for Educational Communication (CEC), New Delhi, an Inter-University Center under UGC.

Course 1

Name of the MOOC	: Algebra and Trigonometry
Name of the P.I /S.M.E	: Dr Bijumon Ramalayathil, Associate Professor, Dept. of Mathematics, Mahatma Gandhi College, Iritty
Course Level	: UG
Subject	: Mathematics
Topic	: Mathematics
No. of Credits	: 4
Month & Year of the Repurposed course developed	: July 2018
No. of Modules	: 36
Running Status	: Fresh (Repurposed course)
Semester & Year of the present running of the course	: July-December 2018
Course Start Date	: 01.07.2018
Course End Date	: 27.09.2018
Total No. of Enrollments	: 1104
Date of Examination	: 02.12.2018

Course 2

Name of the MOOC	: IT FUNDAMENTALS
Name of the P.I /S.M.E	: Dr Reshma P K, Assistant Professor, Dept. of Computer Science, Mahatma Gandhi College, Iritty
Course Level	: UG
Subject	: Computer Science & Applications
Topic	: Computer Science & Applications
No. of Credits	: 4
Month & Year of the fresh course developed	: January 2019
No. of Modules	: 36
Running Status	: Fresh
Semester & Year of the present running of the course	: January-May 2019
Course Start Date	: 20.01.2019
Course End Date	: 14.04.2019
Total No. of Enrollments	: 2498
Date of Examination	: 23.05.2019

Course 3

Name of the MOOC	: Differential Calculus
Name of the P.I /S.M.E	: Dr Bijumon Ramalayathil, Associate Professor, Dept. of Mathematics, Mahatma Gandhi College, Iritty
Course Level	: UG
Subject	: Mathematics
Topic	: Mathematics
No. of Credits	: 4
Month & Year of the fresh course developed	: July 2019
No. of Modules	: 40
Running Status	: Fresh
Semester & Year of the present running of the course	: July-December 2019
Course Start Date	: 28.07.2019
Course End Date	: 26.10.2019
Total No. of Enrollments	: 4708
Date of Examination	: 09.11.2019

Course 4

Name of the MOOC	: Probability and Statistics
Name of the P.I /S.M.E	: Dr Aneesh Kumar K, Associate Professor, Dept. of Statistics, Mahatma Gandhi College, Iritty.
Course Level	: UG
Subject	: Statistics
Topic	: Statistics
No. of Credits	: 4
Month & Year of the Repurposed course developed:	Sept 2016
No. of Modules	: 36
Running Status	: Rerun (Repurposed course)
Semester & Year of the present running of the course	: January-April 2020
Course Start Date	: 08.01.2020
Course End Date	: 11.04.2020
Total No. of Enrollments	: 2992
Date of Examination	: 25.09.2020

e-Contents

e-Content - Probability theory and Optimization

No.	Name of Module	Author	Content Editor	Presenter
1	Introduction	Dr.Aneesh kumar.K.	Dr.M.Manoharan	Dr.Aneesh kumar.K.
2	Probability-Frequency and Axiomatic Approach	“ “	“ “	“ “
3	Probability-Classical approach, Conditional Probability and Independence	“ “	“ “	“ “

No.	Name of Module	Author	Content Editor	Presenter
4	Mutual Independence of events and Bayes' Theorem	Dr.Aneesh kumar.K.	Dr.M.Manoharan	Dr.Aneesh kumar.K.
5	Random variables - Discrete type	" "	" "	" "
6	Random variables - Continuous type	" "	" "	" "
7	Mathematical Expectation	" "	" "	" "
8	Moments and Moment Generating Function	" "	" "	" "
9	Bivariate (Two-dimensional) random variables - I	" "	" "	" "
10	Bivariate (Two-dimensional) random variables - II	" "	" "	" "
11	Discrete Random variables - I	" "	" "	" "
12	Discrete Random variables - II	" "	" "	" "
13	Discrete Random variables - III	" "	" "	" "
14	Continuous Random variables - I	" "	" "	" "
15	Continuous Random variables - II	" "	" "	" "
16	Continuous Random variables - III	" "	" "	" "
17	Continuous Random variables - IV	" "	" "	" "
18	Law of Large Numbers and Central Limit Theorem	" "	" "	" "
19	Uncertainty, Entropy and Information	" "	" "	" "
20	Linear Programming Problem	" "	" "	" "
21	Convex sets and convex functions	" "	" "	" "
22	LPP in Matrix form and some Theorems on the solution of LPP	" "	" "	" "
23	Simplex Method	" "	" "	" "

No.	Name of Module	Author	Content Editor	Presenter
24	Two Phase Method and Charnes'-M Technique	" "	" "	" "
25	Duality in Linear Programming	" "	" "	" "
26	Transportation Problems -Initial Basic Feasible Solution.	" "	" "	" "
27	Transportation Problems - Optimal Solution	" "	" "	" "
28	Assignment Problem	" "	" "	" "

e-Content - Numerical Analysis

No.	Name of Module	Author	Content Editor	Presenter
1	Solution of Equations - Bisection Method and Regula-falsi method	Dr.Aneesh kumar.K.	Dr.Bijumon Ramalayathil	Dr.Aneesh kumar.K.
2	Solution of Equations - Newton's Method and Secant method	" "	" "	" "
3	Interpolation- Lagrange's and Hermite's Interpolation	" "	" "	" "
4	Divided Differences and Newton's Interpolation Formula with Divided Differences	" "	" "	" "

No	Name of Module	Author	Content Editor	Presenter
5	Finite Differences-I	" "	" "	" "
6	Finite Differences-II	" "	" "	" "
7	Central Difference Interpolation Formula	" "	" "	" "
8	Numerical Differentiation	" "	" "	" "
9	Numerical Integration	" "	" "	" "
10	Linear Equations-I	" "	" "	" "
11	Linear Equations-II	" "	" "	" "
12	Eigenvalues-I	" "	" "	" "
13	Eigenvalues-II	" "	" "	" "
14	Numerical solutions for Ordinary Differential Equations-I	" "	" "	" "
15	Numerical solutions for Ordinary Differential Equations-II	" "	" "	" "
16	Numerical solutions for Ordinary Differential Equations-III (Adams-Bashforth's and Adams-Moulton's Method, Numerov's Method, Systems of first-order linear differential equations)	" "	" "	" "
17	Numerical solutions for Ordinary Differential Equations-IV (Boundary Value Problems and Eigen Value Problems)	" "	" "	" "
18	Approximation by Least Squares Approach	" "	" "	" "
19	Approximation by Orthogonal Polynomials	" "	" "	" "
20	Approximation by Exponential, Chebychev And Rational Functions	" "	" "	" "
21	Simulation-I	" "	" "	" "
22	Simulation-II: Random variable Generation	" "	" "	" "
23	Simulation-III: Exponential, Normal, Poisson and Binomial Random variable Generation and Monte Carlo Integration	" "	" "	" "

e-Content - STATISTICAL METHODS FOR BIOINFORMATICS

No.	Name of Module	Author	Content Editor	Presenter
1	Meaning and Scope of Statistics	Dr.Aneesh kumar.K.	Dr.Radhakrishnan	Dr.Aneesh kumar.K.
2	Classification and Tabulation	" "	" "	" "
3	Diagrammatic and Graphic Representation of Data - I Diagrams	" "	" "	" "
4	Diagrammatic and Graphic Representation of Data - II - Graphs	" "	" "	" "
5	Diagrammatic and Graphic Representation of Data - III - Graphs	" "	" "	" "
6	Measures of Central Tendency - Arithmetic Mean	" "	" "	" "
7	Measures of Central Tendency - Median and Mode	" "	" "	" "
8	Partition Values	" "	" "	" "
9	Quartile Deviation and Standard Deviation	" "	" "	" "
10	Range, Mean Deviation, Relative Measures and Coefficient of Variation	" "	" "	" "
11	Skewness and Kurtosis	" "	" "	" "
12	Correlation and Regression - Part I (Correlation)	" "	" "	" "

13	Correlation and Regression - Part I (Regression)	“ ”	“ ”	“ ”
14	Random Experiment, Sample Space and Events and Probability	“ ”	“ ”	“ ”
15	Conditional Probability and Independence of events	“ ”	“ ”	“ ”
16	Statistical Estimation	“ ”	“ ”	“ ”
17	Statistical Testing	“ ”	“ ”	“ ”

e-Content - Abstract Algebra (UG Programme)

Subject Expert: Dr.Bijumon Ramalayathil
Associate :professor, Dept:of mathematics

- 1 AUTOMORPHISMS
- 2 CLASS EQUATION
- 3 SYLOWS THEOREM
- 4 SYLOWS THEOREM (PART02)
- 5 VECTOR SPACES
- 6 BASIS OF VECTOR SPACES
- 7 INNER PRODUCT SPACES
- 8 ORTHOGONAL SETS
- 9 THE FIELD OF QUOTIENTS OF AN INTEGRAL DOMAIN
- 10 LINEAR TRANSFORMATIONS
- 11 THE ALGEBRA OF LINEAR TRANSFORMATIONS
- 12 MATRIX ASSOCIATED WITH A LINEAR TRANSFORMATION
- 13 LINEAR FUNCTIONALS
- 14 FACTORIZATION OF POLYNOMIALS OVER A FIELD
- 15 RINGS OF POLYNOMIALS
- 16 RING HOMOMORPHISMS, IDEALS AND QUOTIENT RINGS
- 17 RINGS OF ENDOMORPHISMS AND QUATERNIONS

- 18 MODULES
- 19 FREE MODULES AND VECTOR SPACES OVER A DIVISION RING
- 20 QUOTIENT MODULES AND HOMOMORPHISMS
- 21 THE DOUBLE DUAL SPACE (BIDUAL SPACE) AND THE ADJOINT OF A LINEAR TRANSFORMATION
- 22 CHARACTERISTIC VALUES AND MINIMAL POLYNOMIALS
- 23 INVARIANT SUBSPACES, SIMULTANEOUS TRIANGULATION AND SIMULTANEOUS DIAGONALIZATION ,
- 24 QUADRATIC FORMS - PART ONE
- 25 QUADRATIC FORMS - PART TWO
- 26 BILINEAR FORMS
- 27 UFD, PID AND EUCLIDEAN DOMAIN

e-Content - Algebra and Trigonometry (UG Programme)

Subject Expert: Dr.Bijumon Ramalayathil
Associate :professor, Dept:of mathematics

- 1 Relations
- 2 Equivalence Relations
- 3 Functions
- 4 Congruent Modulo n
- 5 Matrices
- 6 Adjoint and Inverse of Matrices
- 7 Rank of a matrix and Elementary Transformations
- 8 Determination of Rank using transformations
- 9 Elementary Matrices
- 10 Fundamental Results Associated with Rank of Matrices and Inverse using transformations
- 11 Solution of Homogeneous System of Equations
- 12 Method to find solution of Homogeneous System of Equations
- 13 Non Homogeneous System of Equations
- 14 Characteristic Roots and Vectors
- 15 Characteristic Space

- 16 Cayley Hamilton Theorem
- 17 Theory of Equations 1
- 18 Theory of Equations Part 2
- 19 Theory of Equations Part 3
- 20 Theory of Equations Part 4
- 21 Theory of Equations Part 5
- 22 Groups
- 23 Isomorphic Binary Structures
- 24 Properties of Groups and Subgroups
- 25 Cyclic subgroups and Cyclic Groups
- 26 Permutations
- 27 Orbits and Cycles
- 28 Cosets and Theorem of Lagrange
- 29 Homomorphisms
- 30 Rings and fields
- 31 Integral Domains and Characteristic of a ring

e-Content - Vector Analysis (UG Programme)

Subject Expert: Dr.Bijumon Ramalayathil
Associate :professor, Dept:of mathematics

- 1 SURFACE INTEGRALS OF VECTOR FIELDS
- 2 GREEN'S THEOREM
- 3 VOLUME INTEGRALS AND GAUSS'S DIVERGENCE THEOREM
- 4 STOKE'S THEOREM

e-Content - IT FUNDAMENTALS- Reshma P K

MODULE 1 - INTRODUCTION
MODULE 2 – MEMORY HIERARCHY
MODULE 3- MORE ON SECONDARY STORAGE DEVICES
MODULE 4 – DATA REPRESENTATION
MODULE 5 – DATA MANIIPULATION 1
MODULE6- DATA MANIPULATION 2
MODULE 7 - COMMUNICATION AND INSTRUCTION FORMAT
MODULE 8 – OVERVIEW OF I/O DEVICES
MODULE 9- INPUT DEVICES
MODULE 10 – OUTPUT DEVICES
MODULE 11 – OPERATING SYSTEMS
MODULE 12 – FUNCTIONS OF AN OPERATING SYSTEM
MODULE 13 – PROGRAMMING LANGUAGES
MODULE 14 – INTRODUCTION TO SOFTWARE ENGINEERING
MODULE 15-SYSTEM TOOLS AND UTILITY PROGRAMS
MODULE 16 – FILE STRUCTURE
MODULE 17 – DATABASE STRUCTURE
MODULE 18-DBMS IMPLEMENTATION
MODULE 19 – OBJECT ORIENTED DATABASE
MODULE 20 – ER MODELS
MODULE 21- RELATIONAL DATA MODEL
MODULE 22 - STRUCTURED QUERY LANGUAGE
MODULE 23 – NETWORKS
MODULE 24 –GUIDED TRANSMISSION MEDIA
MODULE 25 – UNGUIDED TRANSMISSION MEDIA
MODULE 26 – INTERNET AND APPLICATIONS
MODULE 27 – ONLINE EDUCATION
MODULE 28 – INTERNET UTILITIES
MODULE 29 – USE OF COMPUTERS IN EDUCATION AND RESEARCH
MODULE 30 –ARTIFICIAL INTELLIGENCE
MODULE 31 - DATA ANALYSIS
MODULE 32 – HETEROGENEOUS DATA & STORAGE
MODULE 33 - E-LIBRARY
MODULE 34 - GOOGLE SCHOLAR
MODULE 35 – SPSS
MODULE 36 - MATHEMATICA

MOOC MODULES

MOOC Course on **Differential Calculus**

Subject Expert: Dr.Bijumon Ramalayathil
Associate :professor, Dept:of mathematics

1. Functions
2. Limit of Functions – An Intuitive Approach
3. Computing Limits – Limit Laws
4. The Precise Definition of Limit
5. Continuity
6. Tangent Lines and Rate of Change
7. The Derivative of a Function
8. Techniques of Differentiation and the Chain Rule
9. L'Hopital Rule
10. Sequences
11. Techniques for finding Limit of Sequences
12. Infinite Series
13. Tests for Convergence of Series
14. Alternating Series and Absolute Convergence of Series
15. Power Series and Radius of Convergence
16. Taylor and Maclaurin Series of Functions
17. Partial Derivatives
18. Partial Derivatives of Higher Order
19. Differentiability
20. The Chain Rule of Functions of More than One Variable and Euler's Theorem on Homogeneous Functions

Teaching Assistants of MOOC COURSES

Ms. Jimly Manuel, Assistant Professor, Mahatma Gandhi College, Iritty worked as **Teaching Assistant** on the MOOC programme titled “**Differential Calculus**” run by Dr. Bijumon Ramalayathil, in the year 2019 (July-December Semester).

Ms. Haseena C., Assistant Professor, Mahatma Gandhi College, Iritty worked as **Teaching Assistant** on the MOOC programme titled “**Differential Calculus**” run by Dr. Bijumon Ramalayathil, in the year 2019 (July-December Semester).

Translation of MOOC Courses to Regional Language (Malayalam)

The following faculty members were part of translation work of MOOC Courses to regional languages in 2019/2020.

- Ms. Priyanka P., Assistant Professor, Dept. of Mathematics, Mahatma Gandhi College, Iritty participated as Faculty for Sound Recording (translation to Malayalam work) in the development of MOOC modules (for the MOOC on “Algebra and Trigonometry”) titled as follows:

1. Relations

2. Solution of Homogeneous System of Equations

3. Method to find solution of Homogeneous System of Equations

4. Non Homogeneous System of Equations

- Ms. Priyanka P., Assistant Professor, Dept. of Mathematics, Mahatma Gandhi College, Iritty participated as Faculty for Translation to Malayalam in the development of MOOC modules (for the MOOC on “Algebra and Trigonometry”) titled as follows:

1. Relations

2. Solution of Homogeneous System of Equations

3. Method to find solution of Homogeneous System of Equations

4. Non Homogeneous System of Equations

- Ms. Haseena C., Assistant Professor, Dept. of Mathematics, Mahatma Gandhi College, Iritty participated as Faculty for Translation to Malayalam in the development of MOOC modules (for the MOOC on “Algebra and Trigonometry”) titled as follows:

1. Equivalence Relations

2. Cyclic Subgroups and Cyclic Groups

- Ms. Haseena C., Assistant Professor, Dept. of Mathematics, Mahatma Gandhi College, Iritty participated as Faculty for Sound Recording (translation to Malayalam work) in the development of MOOC modules (for the MOOC on “Algebra and Trigonometry”) titled as follows:

1. Equivalence Relations

2. Cyclic Subgroups and Cyclic Groups

- Ms. Jimly Manuel., Assistant Professor, Dept of Mathematics, Mahatma Gandhi College, Iritty participated as Faculty for Translation to Malayalam in the

development of MOOC modules (for the MOOC on “Algebra and Trigonometry”) titled as follows:

1. Functions
2. Adjoint and Inverse of Matrices
3. Rank of a matrix and Elementary Transformations
4. Determination of Rank using transformations
5. Elementary Matrices
6. Fundamental Results Associated with Rank of Matrices and Inverse using transformations

- Ms. Jimly Manuel, Assistant Professor, Dept. of Mathematics, Mahatma Gandhi College, Iritty participated as Faculty for Sound Recording (translation to Malayalam work) in the development of MOOC modules (for the MOOC on “Algebra and Trigonometry”) titled as follows:

1. Adjoint and Inverse of Matrices
2. Rank of a matrix and Elementary Transformations
3. Determination of Rank using transformations
4. Elementary Matrices
5. Fundamental Results Associated with Rank of Matrices and Inverse using transformations

- Ms. Maya P. V., Assistant Professor, Dept. of Mathematics, Mahatma Gandhi College, Iritty participated as Faculty for Translation to Malayalam in the development of MOOC modules (for the MOOC on “Algebra and Trigonometry”) titled as follows:

1. Congruent Modulo n
2. Permutations

- Ms. Maya P. V., Assistant Professor, Dept. of Mathematics, Mahatma Gandhi College, Iritty participated as Faculty for Sound Recording (translation to Malayalam work) in the development of MOOC modules (for the MOOC on “Algebra and Trigonometry”) titled as follows:
 1. Congruent Modulo n
 2. Permutations

- Ms. Vidya T. M., Assistant Professor, Dept. of Mathematics, Mahatma Gandhi College, Iritty participated as Faculty for Translation to Malayalam in the development of MOOC modules(for the MOOC on “Algebra and Trigonometry”) titled as follows:
 1. Matrices
 2. Theory of Equations – Part 5
 3. Groups

- Ms. Vidya T. M., Assistant Professor, Dept. of Mathematics, Mahatma Gandhi College, Iritty participated as Faculty for Sound Recording (translation to Malayalam work) in the development of MOOC modules (for the MOOC on “Algebra and Trigonometry”) titled as follows:
 1. Matrices
 2. Groups

Content Editor in the development of MOOC modules (2019)

Dr. Ajitha V., Principal, Mahatma Gandhi College, Iritty participated as **Content Editor** (for the MOOC on “**Differential Calculus**”) in the development of MOOC modules titled as follows:

1. The Derivative of a Function
2. Techniques of Differentiation and the Chain Rule
3. Local Linear Approximation of Functions of One Variable and Differentials

4. L'Hopital Rule
5. Sequences
6. Techniques for finding Limit of Sequences
7. Infinite Series
8. Tests for Convergence of Series
9. Alternating Series and Absolute Convergence of Series
10. Power Series and Radius of Convergence
11. Taylor and Maclaurin Series of Functions
12. Partial Derivatives
13. Partial Derivatives of Higher Order

Video Previewer in the development of MOOC modules

Dr. Ajitha V., Principal, Mahatma Gandhi College, Iritty has worked as **Video Previewer** (for the MOOC on “**Differential Calculus**”) in the development of MOOC modules titled as below:

1. Functions
2. Limit of Functions – An Intuitive Approach

Dr. Bijumon Ramalayathil., Associate Professor, Department of Mathematics, Mahatma Gandhi College, Iritty has participated as Video Previewer (for the MOOC on “**Differential Calculus**”) in the development of MOOC modules titled as follows:

1. Inverse of Functions and Inverse Trigonometric Functions
2. Increasing and Decreasing Functions and Concavity
3. Extreme Values of Functions
4. Extreme Values of Functions on Unbounded Intervals and Limit at Infinity
5. The Rolle's and Mean Value Theorems
6. Asymptotes
7. Curve Tracing in Cartesian Coordinates
8. Curvature and Circle of Curvature, Formula for Radius of Curvature of Cartesian Equations; and Centre of Curvature and Circle of Curvature of Cartesian Curves

9. Curvature and Evolutes of Curves in Parametric Equations, and Curvature in Polar Coordinates

Presenter in the development of MOOC modules

Dr. Bijumon Ramalayathil., Associate Professor, Department of Mathematics, Mahatma Gandhi College, Iritty participated as Presenter in the development of MOOC modules (for the MOOC on “**Differential Calculus**”) titled as follows:

1. Local Linear Approximation of Functions of One Variable; and Differentials
2. Parametric Equations
3. Differentiable Parametrized Curves, Second Derivative of Parametrized Curves
4. Polar Coordinates
5. Graphing Polar Curves
6. Tracing of Cardioids and Families of Roses; and Tangent Lines to Polar Curves
7. Curvature and Circle of Curvature, Formula for Radius of Curvature of Cartesian Equations; and Centre of Curvature and circle of Curvature of Cartesian Curves
8. Curvature and Evolutes of Curves in Parametric Equations; and Curvature in Polar Coordinates
9. Functions of Several Variables
10. Limits and Continuity of Functions of Several Variables
11. Partial Derivatives
12. Partial Derivatives of Higher Order
13. Differentiability
14. The Chain Rule of Functions of More than One Variable and Euler’s Theorem on Homogeneous Functions

SWAYAMPRABHA CHANNEL

Dr. Bijumon Ramalayathil, Associate Professor, Department of Mathematics, Mahatma Gandhi College, Iritty contributed as Subject Matter Expert in the development of course

entitled “Complex Analysis “ in Mathematics (30 modules) produced in the month of June 2018 and telecasted the same in the month of August 2018 for Swayamprabha DTH CHANNEL 08 PHYSICAL AND EARTH SCIENCES –Aryabhatta by EMMRC ,University of Calicut ,on behalf of CEC New Delhi, an Inter University centre under UGC.

Title of Modules:

1. Complex Numbers
2. Argand Plane and Polar and Exponential Forms
3. Complex Conjugate, Power, Root and Regions in the Complex Plane
4. Functions of a Complex Variable
5. Limit of a Function of a Complex Variable
6. Continuity and Derivatives of Functions of a Complex Variable
7. Cauchy Riemann Equations
8. Cauchy Riemann Equations in Polar Forms
9. Analytic Functions
10. Harmonic Functions
11. The Exponential Functions, Logarithmic Functions and General Powers
12. Trigonometric Functions
13. Hyperbolic Functions
14. Inverse Trigonometric and Hyperbolic Functions
15. Definite Integrals of Complex Valued Functions of Real Variables
16. Contours
17. Contour integrals
18. Anti derivatives
19. Cauchy Goursat theorem
20. Simply and multiply connected domains
21. Cauchy integral formula
22. Morera's theorem and Liouville's theorem
23. Maximum modulus principle
24. Sequence and series of complex numbers Taylor and Maclaurin series
25. Laurent series
26. Isolated singular points and residues
27. Cauchy residue theorem zeros and poles
28. Evaluation of Improper integrals

- 29. Improper integrals from Fourier analysis
- 30. Definite integrals involving sines and cosines

Home Based Recording for SWAYAMPRAKHA CHANNEL

Dr. Bijumon Ramalayathil, Associate Professor, Department of Mathematics, Mahatma Gandhi College, Iritty contributed as Subject Matter Expert in the development of course entitled "Vector Calculus " (15modules) in Mathematics as a part of Home based recordings produced in the month of June 2020 and telecasted the same in the month of November 2020 for Swayamprabha DTH CHANNEL 08 PHYSICAL AND EARTH SCIENCES–Aryabhata by EMMRC ,University of Calicut, on behalf of CEC New Delhi, an Inter University centre under UGC.

Title of Modules:

1. PARAMETRIZATION OF LINES AND LINE SEGMENTS IN SPACE VECTOR ANALYSIS
2. PLANE IN SPACE VECTOR ANALYSIS
3. PLANE IN SPACE PART B (VECTOR ANALYSIS)
4. PARAMETRIC EQUATIONS OF CURVES IN A PLANE-1
5. PARAMETRIC EQUATIONS OF CURVES IN A PLANE-2
6. POLAR COORDINATES
7. 3 DIMENSIONAL CARTESIAN COORDINATES
8. PARAMETRIC CURVES IN SPACE
9. VECTOR VALUED FUNCTIONS OF REAL VARIABLE
10. LIMIT AND CONTINUITY OF VECTOR VALUED FUNCTION - PART A
11. LIMIT AND CONTINUITY OF VECTOR VALUED FUNCTION - PART b
12. DERIVATIVE OF VECTOR VALUED FUNCTIONS
13. FUNCTIONS OF SEVERAL VARIABLES
14. LIMIT ALONG CURVES OF FUNCTIONS OF TWO VARIABLES
15. LIMIT OF FUNCTIONS OF TWO VARIABLES

Dr ANEESH KUMAR K, ASSOCIATE PROFESSOR DEPT OF STATISTICS M G COLLEGE KANNUR has contributed as Subject Matter Expert in the development of course entitled “Bivariate random variables“(6 modules) in statistics as a part of Home based recordings produced in the month of May 2020 and telecasted the same in the month of September 2020

BIVARIATE RANDOM VARIABLES PART 1
BIVARIATE RANDOM VARIABLES PART 2
BIVARIATE RANDOM VARIABLES PART 3
BIVARIATE RANDOM VARIABLES PART 4
BIVARIATE RANDOM VARIABLES PART 5
BIVARIATE RANDOM VARIABLES PART 6

for Swayamprabha DTH CHANNEL 08 PHYSICAL AND EARTH SCIENCES –Aryabhata by EMMRC ,University of Calicut ,on behalf of CEC New Delhi ,an Inter University centre under UGC.