DEPARTMENT OF MATHEMATICS

CENTRAL UNIVERSWITY OF KEREALA

PERIYE, KASARAGOD

Minutes of the Second Board of studies meeting held on Thursday, 7th February, 2019 in the Department of Mathematics in Room No. 28 at 2.30 p.m.

The following members were present:

1. *Prof. Gadadhar Misra,*

   Department of Mathematics,
   Indian Institute of Science, Bangalore – 560 012.

2. *Prof. A.K. Nandakumaran,*

   Department of Mathematics,
   Indian Institute of Science, Bangalore – 560 012.

3. *Prof. A. R. Rajan, Emeritus Professor,*

   Department of Mathematics, University of Kerala,
   Thiruvananthapuram, Kerala – 695 581.

4. *Mr. V. Kumar, Assistant Professor,*

   Department of Computer Science, CU Kerala.

5. *Dr. V. Vilfred, Associate Professor & Head,*

   Department of Mathematics, CU Kerala.

6. *Dr. K. A. Germina, Associate Professor,*

   Department of Mathematics, CU Kerala.

7. *Dr.* Ali Akbar K, Assistant Professor,

   Department of Mathematics, CU Kerala.

The Meeting started at 2.30 p.m. The Chairperson Dr. V. Vilfred welcomed the members and submitted the modified Course Structure and Syllabus approved by the Faculty Council, Department of Mathematics, CU Kerala. Then, he briefed how and what modifications were done in the communicated Course Structure and Syllabus.

With the permission of the experts in the Board of Studies, the convenor invited Dr. Shaini P, Dr. S. Gnanavel and Dr. Manikandan Rangaswamy to join the BoS Meeting. The committee commended on each and every paper and also on the course structure. The whole structure and Syllabus was thoroughly discussed. The revised version of the same was prepared and submitted for the approval. The Members of the Board of Studies approved the revised Course Structure and Syllabus. (A copy of the approved Course structure and Syllabus is attached herewith.) The committee decided to implement the revised course structure and syllabus from the academic year 2019 - 20 onwards.

The members also commented on the Method of Evaluation of M.Sc. Mathematics Programme and requested to include the same in the minutes. The experts strongly recommended that the mode of evaluation of examinations should be strictly internal.

The members of the BoS seriously noted the current strength of intake at CU Kerala to M.Sc. Maths programme that is increased to fourty seats and strongly recommend that for quality teaching the number of teaching faculty in the Department of Mathematics should be increased sufficiently since present strength of seven faculty is quiet insufficient.

The meeting was fruitful and Dr. K.A. Germina thanked the experts for their valuable suggestions and guidance.

The meeting came to a close at 5.00 p.m.

1. Prof. Gadadhar Misra,
   Department of Mathematics,
   I.I.Sc., Bangalore – 560 012.

2. Prof. A.K. Nandakumaran,
   Department of Mathematics,
   I.I.Sc., Bangalore – 560 012.

3. Prof. A. R. Rajan, Emeritus Professor,
   Department of Mathematics,
   University of Kerala, Trivandrum, Kerala – 695 581.

4. Mr. V. Kumar, Assistant Professor,
   Department of Computer Science, CU Kerala.

5. Dr. V. Vilfred, Associate Professor & Head,
   Department of Mathematics, CU Kerala. 07.02.2019

6. Dr. K. A. Germina, Associate Professor,
   Department of Mathematics, CU Kerala. 7/2/2019

7. Dr. Ali Akbar K, Assistant Professor,
   Department of Mathematics, CU Kerala. 7/02/2019

	Orthogonal matrices, Linear transformations, Solving systems of equations with matrices, Mathematical operations with matrices, Matrix inverses and determinants, Numerical Linear Algebra.
Faculty	Dr. Shaini P
Course Title	**BASIC MATHEMATICAL ANALYSIS**
Course Details	A quick review of sets and functions and planned to build a basic knowledge In the following: Mathematical induction. Finite and infinite sets. Real Numbers. The algebraic property of real numbers. Absolute value and real line. The completeness property of R. Applications of supremum property Intervals, Nested interval property and uncountability of R. Sequence of real numbers Sequence and their limits Limit theorems Monotone sequences Subsequence and Bolzano – Weirstrass theorem Cauchy criterion Properly divergent sequences. Open and closed sets. Sums and Products. Basic Algebraic properties; Further properties, Vectors and Moduli; Complex conjugates; Exponential form; Product and powers in exponential form; Arguments of products and quotients; Roots of complex numbers; Regions in the complex plane.
Faculty	Dr Ali Akbar K

Corse Code MAT 5101: Real Analysis Prerequisites: Calculus.	L	T	P	Credit
	4	1	0	4

Course Category	Core
Course Type	Theory

Course Objective	This course presents a rigorous treatment of fundamental concepts in analysis. To introduce students to the fundamentals of mathematical analysis and reading and writing mathematical proofs. The course objective is to understand the axiomatic foundation of the real number system, in particular the notion of completeness and some of its consequences; understand the concepts of limits, continuity, compactness, differentiability, and integrability, rigorously defined; Students should also have attained a basic level of competency in developing their own mathematical arguments and communicating them to others in writing.
Course Outcome(s)	Describe the fundamental properties of the real numbers that underpin the formal development of real analysis; demonstrate an understanding of the theory of sequences and series, continuity, differentiation and integration; Demonstrate skills in constructing rigorous mathematical arguments; Apply the theory in the course to solve a variety of problems at an appropriate level of difficulty.

Syllabus:

Real number system and its order completeness. Sequences and series of real numbers. Metric spaces: Basic concepts, continuous functions, Intermediate Value Theorem, Compactness, Heine-Borel Theorem.

Differentiation, Taylor's theorem, Riemann Integral, Improper integrals, Sequences and series of functions, Uniform convergence, power series, Fourier series, Weierstrass approximation theorem, equicontinuity, Arzela-Ascoli theorem.

Text books:

1. W. Rudin, Principles of Mathematical Analysis, McGraw-Hill, 1976.
2. Robert Gardner Bartle and Donald R. Sherbert, Introduction to Real Analysis, 4^{th} Edition,Wiley, 2011.

References:

1. C.C. Pugh, Real Mathematical Analysis, Springer, 2002.
2. T. M. Apostol, Mathematical Analysis, 2nd Edition, Narosa, 2002.
3. G. F. Simmons, Introduction to Topology and Modern Analysis, McGraw-Hill, 1963. 4. Stephen Abbot, Understanding Analysis, Springer, New York, NY, 2015

Code:MAT5102: Elementary Number Theory and Basic Algebra Prerequisites: Number systems.	L	T	P	Credit
	4	1	0	4