REMEDICAL COACHING

REPORT ON REMEDIAL COACHING FOR FIFTH SEMESTER B SC MATHEMATICS (2021-24 BATCH) STUDENTS ON REAL ANALYSIS

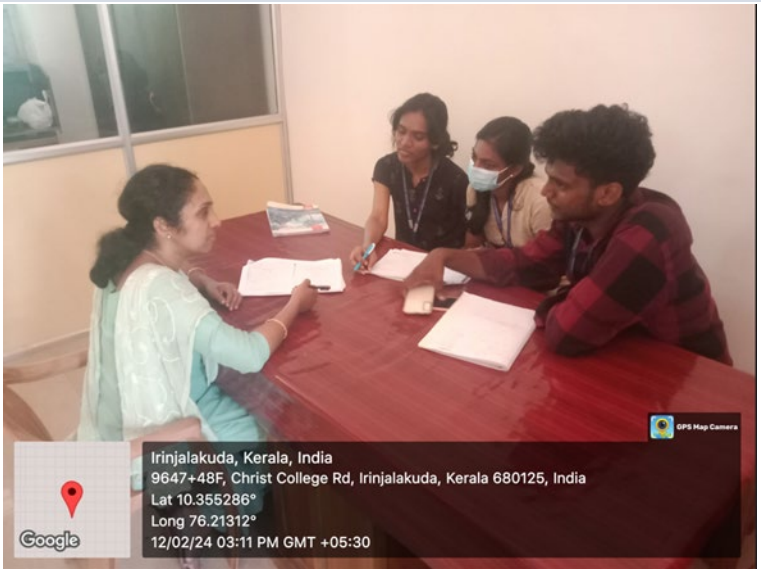
Objectives

- To improve the understanding of important concepts of Real Analysis.
- To provide additional support to students who have difficulty in grasping Real analysis.

Based on assessment scores, students were chosen for remedial coaching. Topics covered are important results from Continuity, Uniform continuity, Riemann integral, convergence of sequence and series, improper integrals, beta and gamma functions. The sessions were structured to clarify fundamental principles, provide step-by-step problem-solving techniques, and engage students in interactive exercises that encouraged deeper conceptual comprehension. Students were given additional assignments to reinforce learning, and frequent assessments were conducted to monitor progress.

Outcome

- improved student confidence
- improved performance in Real Analysis



REMEDIAL COACHING REGISTER

PROGRAM B.Sc Mathematics

YEAR 2023-24

SEMESTER V

COURSE Real Analysis

Name of teacher: Tintumol Guru

Sl. No.	Date	Topics covered	hours	Signature (Teacher)	Signature (Remedial Class rep)
1	03/01/24	Continuous function	1		
2	05/01/24	cont. fns on intervals	2		
3	16.01.24	uniform continuity	1		
4	19.1.24	Riemann integral, problems	2		
5	30.1.24	Fundamental theorem of calculus	1		
6	02.02.24	Cauchy criterion	1		
7	12/2/24	Convergence of series	2		
8	15/2/24	Improper integrals	2		
9	16-2-24	Improper integrals	1		
10	22/2/24	Cauchy principal value	2		
11	23/2/24	Beta function	1		
12	26/2/24	Gamma Function	2		
13	27/2/24	Relation between Beta and Gamma fun	1		

Signature of H.O.D:

ATTENDANCE SHEET

Sl. No.	Class No.	Name of students	Date									
			01/2/24	05/2/24	06/2/24	14/2/24	20/2/24	21/2/24	23/2/24	27/2/24	28/2/24	29/2/24
1.	003	Abishek MS	x	v	a	x	x	a	a	v	a	x
2	006	Alen Krishna TR	x	a	a	a	x	a	x	x	x	v
3	022	Athul Krishna KA	x	a	x	x	x	x	x	x	x	x
4.	023	Athul N A	x	x	x	x	x	x	x	x	x	x
5.	029	Crepi Krishnan PS	x	x	a	x	x	x	x	x	x	v
6	030	Croutham S Menon	x	x	x	a	x	x	a	a	x	x
7	035	K Mervin Dennis	x	x	x	x	x	x	x	x	x	v
8.	038	Krishna Cavish	x	x	x	x	x	x	x	x	x	v
9	041	Mary Elna Shaby	x	x	x	x	x	x	x	x	x	v
10.	044	Noyal Benny	x	x	a	x	x	a	x	x	x	v
11.	046	Sabareesh E.S.	x	x	x	x	x	a	a	x	x	v

Signature of H.O.D:

Signature of Teacher:

PROGRESS OF STUDENTS

Class No	Name of students	Test-1 Date / Max Marks 20	Test-2 Date / Max Marks 20	Test-3 Date / Max Marks ( )	Date of publishing result	Signature (Remedial Class rep)
003	Abishek MS	10	12		1/2/2024 06/2/2024	
006	Alen Krishna TR	8	11		1/2/2024 26/2/2024	
022	Athul Krishna KA	15	12		1/2/2024 26/2/2024	
023	Athul N A	12	13		1/2/2024 26/2/2024	
029	Crepi Krishnan PS	17	15		1/2/2024 26/2/2024	
030	Croutham S Menon	12	14		1/2/2024 26/2/2024	
035	K Mervin Dennis	14	13		1/2/2024 26/2/2024	
038	Krishna Cavish	16	17		1/2/2024 26/2/2024	
041	Mary Elna Shaby	15	17		1/2/2024 26/2/2024	
044	Noyal Benny	13	12		1/2/2024 26/2/2024	
046	Sabareesh E.S	8	12		1/2/2024 26/2/2024	

Signature of H.O.D

Signature of Teacher

CHRIST COLLEGE (AUTONOMOUS), IRINJALAKUDA

REAL ANALYSIS -TEST PAPER 1

REMEDIAL COACHING 2022-2023

Real Analysis- Test Paper 1

Remedial Coaching

Time: 1 Hour Maximum : 20 Marks

Part A

Students can answer 5-6 questions. Each question carries 2 marks.
Ceiling: 10 Marks.

1. State sequential criterion for continuity.
2. Prove that the Dirichlet function is not continuous at any point of $\mathbb{R}$.
3. State location of roots theorem.
4. Prove that every Lipchitz function is uniformly continuous.
5. State Weierstrass approximation theorem.
6. Give an example to show that a continuous function does not necessarily have an absolute maximum or an absolute minimum on a set.

Part B

Students can answer2-3 questions. Each question carries 5 marks.
Ceiling: 10 Marks.

7. Prove that Thomae function is continuous at every irrational number and is discontiuous at every rational number in the set of all positive real numbers.
8. State and prove uniform continuity theorem.
9. State and prove Bolzano's Intermediate value theorem.

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REAL ANALYSIS -TEST PAPER 2

REMEDIAL COACHING 2022-2023

Real Analysis- Test Paper 2

Remedial Coaching

Time: 1 Hour Maximum : 20 Marks

Part A

Students can answer 5-6 questions. Each question carries 2 marks.
Ceiling: 10 Marks.

1. Express $\int_0^1 x^m(1-x^n)^p dx$ in terms of Beta function and hence evaluate $\int_0^1 x^2(1-x^5)^3 dx$.
2. Prove that Beta function is symmetric.
3. Let $f(x) = 1/x$. Check whether $f \in \mathfrak{R}[1,2]$.
4. State Weierstras M-test.
5. Evaluate the improper integral $\int_1^\infty \frac{1}{x^2}\, dx$.

Part B

Students can answer 2-3 questions. Each question carries 5 marks.
Ceiling: 10 Marks.

6. If $f \in \mathfrak{R}[a,b]$, then prove that f is bounded on $[a,b]$.
7. State and prove squeeze theorem.
8. Examine the convergence of the integral $\int_1^\infty \frac{3}{e^x+5} dx$.