Sacred Heart College (Autonomous), Chalakudy
Minutes of the meeting of the Board of studies in Mathematics held on 15th July (Hybrid mode)

The first meeting of the constituted Board of Studies in Mathematics, Sacred Heart College (Autonomous), Chalakudy was held on 15 th July 2024 in hybrid mode, with two members joining over the Google meet on the Google link https://meet.google.com/uui-fmgb-ddd Ms. Smitha Davis, Head of the department of Mathematics and Chairperson of the board accorded a formal welcome to the members of the board.

Agenda of the Meeting

1. Review and Approval of the UG and PG Syllabi and Curriculum
2. Discussion of OBE, CO - PSO mapping which is being carried out in the college.
3. Any other relevant academic matters.

Members Present:

1.	Smitha Davis	:Chairperson	Sd/-
2.	Dr. Shine C Mathew	:Subject Expert (Outside the Parent University)	Sd/-
3.	Dr. Dhanyamol MV	:Subject Expert (Outside the Parent University)	Sd/-
4.	Dr. Athira Babu	:Industry representative	Sd/-
5.	Captain Dr. Jaison Jacob	:University Nominee	Sd/-
6.	Ms. Geethu Simon	:Alumnae Representative	Sd/-
7.	Ms. Linet Roslin Antony	:Member	Sd/-
8.	Ms. Amala Mary George	:Member	Sd/-
9.	Dr. Vijitha Mukundan	:Member	Sd/-
10.	Dr. Nidhin T J	:Member	Sd/-

Discussions on the various items in the agenda of the meeting resulted in the following suggestions and recommendations.

Item 1

The UG and PG syllabus In mathematics were reviewed and approved by the BOS. The following changes in the PG syllabus are proposed by the BIOS members as revision, The approval of the University of Calicut.

1. Optimization Techniques: As a part of the industrial need, In the second semester course Operations Research offered by the department, the following changes are recommended: Add the topics Numerical techniques in OR, Numerical gradient, KKT conditions and introduction to some software tools for optimization techniques, Bio inspired and genetic algorithms. The board suggested to include the text “Mathematics

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for Machine Learning" by Mark Peter in addition to the current text on Optimization techniques by KV Mittal.

2. Graph Theory: The branch of mathematics graph theory, which has wide applications in industry and many other fields including medical, is offered by the department in two semesters. As a part of the semester course Discrete Mathematics and fourth semester Elective course graph theory. Industrial expert and expert from outside the parent university suggested to include the following topics in the syllabus: Matrices related to graph, graph domination introduction, Menger's theorem, Algorithmic Graph Theory.
3. Functional Analysis: In the 3rd and 4th semester Core course functional analysis offered by the department board suggested that the current textbook can be replaced by the textbook on functional analysis by Erwin Kreyzig or BV Limaye. Both textbooks have a more problem oriented approach to the area than in the current textbook as examined by the board members.
4. Linear Algebra: In the first semester course Linear Algebra, the board proposed to include the topics Matrix decomposition and singular value decomposition. For the topics board proposed the book "Linear Algebra and Learning from Data" by Gilbert Strang.

Item 2 :

The Board appreciated the efforts taken by the College and the department in ensuring the vision of NEP2020: Outcome based education. The board discussed the PSO's, CO's of the UG and PG courses and found them relevant. The board has approved the program specific outcomes and course outcomes of the UG and PG courses in Mathematics.

Item 3:

The following are the suggestions and recommendations, especially by the external BOS members, related to various academic matters.

1. The board entrusted the Chairperson of the BOS to prepare the panel of external examiners for question paper settings and valuation of UG and PG semester examinations in Mathematics.
2. The board reviewed the syllabus of the ongoing add-on course "Mathematics for Competitive Examinations" and certificate course on Latex and approved the syllabus for both. The board also reviewed and approved the syllabus of the upcoming certificate course proposed by the department Mathematics for AI.
3. The board proposed the students should be encouraged to do NPTEL/swayam courses on image processing and other technical based courses.
4. The board recommended the students should be given a basic knowledge on GITHUB - storage hub for data and terminal usage.
5. The board proposed as the department recognized research center in Mathematics, The department should organize programs on research methodologies and promote students to pursue research careers.
6. The board strongly recommended that the mathematics department should have a computer lab of their own with at least 10 systems and mathematical software as MATLAB installed, as it is a mandatory requirement for the Research Center. Also, the

board examined it as being very vital for improving the technical skills of students and making them suitable for the needs of Industry.

7. The board recommended applying for BSc Mathematics with Data Analytics or AI in a self-financing stream as there is a decline in students for regular basic Mathematics courses.