



PRESIDENCY UNIVERSITY

Private University Estd. in Karnataka State by Act No. 41 of 2013

Ref. No.: PU/SoE/MAT/BOS-01/2018-19/MOM-01

Date: 12-01-2019

DEPARTMENT OF MATHEMATICS

1st BOS MINUTES OF MEETING

The 1st meeting of Board of Studies (BoS) for Department of Mathematics is held today on 12th January, 2019 in Room No. MG 10 at 11.00 AM in the presence / absence of following members of the committee.

Members Present:

Sl. No.	Name	Affiliation	Position
1	Dr. S.R. Sudheendra	Associate Professor, School of Engineering, Presidency University, Bangalore – 64	Chairperson
2	Dr. M. Sankar	Professor, School of Engineering, Presidency University, Bangalore – 64	Member
3	Dr. S. Maruthamanikandan	Associate Professor, School of Engineering, Presidency University, Bangalore – 64	Member
4	Dr. Shilpa N.	Associate Professor, School of Engineering, Presidency University, Bangalore – 64	Member
5	Dr. C.V. Rajan Chattamvelli	Associate Professor, School of Engineering, Presidency University, Bangalore – 64	Member
6	Dr. M. V. Chakradhara Rao	Assistant Professor, School of Engineering, Presidency University, Bangalore – 64	Internal Member (Nominated by VC within the Department)
7	Dr. Kavitha S Permi	Assistant Professor, School of Engineering, Presidency University, Bangalore – 64	Internal Member (Nominated by VC within the Department)
8	Mr. Raghavendra M. Deshpande	Assistant Professor, Department of Mechanical Engineering, School of Engineering, Presidency University, Bangalore – 64	Internal Member (Nominated by VC within the sister Department)

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9	Mrs. Ratna Nitin Patil	Assistant Professor, Department of Computer Science Engineering, School of Engineering, Presidency University, Bangalore – 64	Internal Member (Nominated by VC within the sister Department)
10	Dr. G. N. Sekhar	Professor & Head, BMS College of Engineering, Bangalore	External Member (Academic)
11	Dr. Aloknath Chakrabarthi	NASI-Senior Scientist Platinum Jubilee Fellow, IISc, Bangalore	External Member (Academic)
12	Dr. Sandeep Kumar	Assistant Professor, School of Engineering, Presidency University, Bangalore – 64	Member Secretary
13	Dr. Rajeshwari M	Associate Professor, School of Engineering, Presidency University, Bangalore – 64	Member (Special Invitee)

Members Absent:

S. No.	Name	Affiliation	Position
1	Dr. Vineet Dravid	Managing Director, COMSOL India Pvt. Ltd.	External Member (Industry)

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Welcome:

Dr. S. R. Sudheendra, Head, Department of Mathematics has extended warm welcome to all the members, particularly to the external members.

Introduction:

At the outset, Dr. S. R. Sudheendra, Head of Department of Mathematics introduced all the members. Dr. S. R. Sudheendra briefed the need of conducting 1st BoS meeting and requested the members to go through the existing Program Regulations and Curriculum of 2018-19 Scheme of all the four semesters meticulously as it is considered as basic structure for B.Tech. Engineering (All Branches) in Presidency University, Bengaluru. He also requested suggestions from the members of BoS to incorporate essential modifications, if required, in the Program Regulations and Curriculum of 2018-19 Scheme of all the four semesters.

Agenda MAT 1.1: Review and approval of the Minutes of 7th BoS meeting.

The Minutes of Meeting (MoM) of the previous meeting (i.e., 7th meeting of BoS held on 26th May, 2018) is unanimously approved by all the members.

Agenda MAT 1.2: Change of course title and code: The Courses Probability and statistics, and Numerical Methods merged together to Engineering Mathematics – IV (MAT 104) (4th semester Engineering Mathematics, 2017-18 scheme ONLY).

The following topics / modifications in Engineering Mathematics – IV are to be incorporated after receiving the suggestions from the external members:

1. The courses "Probability & Statistics" (Earlier offered for CSE, ECE & EEE branches) and "Numerical Methods" (Earlier offered for MEC, CIV & PET branches) are combined to frame a common subject as "Engineering Mathematics – IV (MAT 104)" to enhance our students for preparing GATE examination. The committee unanimously approved with suggested modifications.

Agenda MAT 1.3: Change of syllabus for 2nd semester Engineering Mathematics (2018-19 Scheme) and 4th semester Engineering Mathematics (2017-2018 Scheme).

The following topics/modifications In Engineering Mathematics – II are to be incorporated after receiving the suggestions from the external members:

1. Removal of topic "Volume of revolution" in Chapter – II (Integral Calculus).
2. Removal of topics "the Power series solution, Legendre Polynomials, Bessel functions of the first kind and their properties" from Chapter – IV which not necessary for B.Tech Courses.
3. Removal of Reference book "Kishore S Trivedi, "Probability and Statistics with reliability, Queuing and Computer Science Applications" John Wiley & sons, 2nd Edition" not suitable for UG students.

The total percentage changes in the syllabus compared to previous syllabus is 5%.



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The following topics/modifications In Engineering Mathematics – IV are to be incorporated after receiving the suggestions from the external members:

1. Suggested to have 08 hours for chapter I and 10 hours for chapter II.
2. Suggested to rearrange the topics of sampling theory as per Dr. G.N. Sekar, external members. Same syllabus can be taken for IV semester 2018-19 scheme given below. Chapter IV can be renamed as Solution of linear system of equations.

Sampling theory : Sampling, random sampling, sampling distributions, Review of Z distribution, student's t-distribution, F-distribution, level of significance, confidence intervals of means and variances, testing of hypothesis, test of goodness of fit using chi-square distribution.

The total percentage changes in the syllabus compared to previous syllabus is 5%.

RESOLUTION : The members unanimously accepted and approved the CDCH of I to IV semester of 18-19 scheme and IV semester of 2017-18 scheme.

Agenda MAT 1.4: Change of evaluation component [Method of Assessment for Courses with credit structure (L – T – P)] for the course of Engineering Mathematics-I, II, III and IV (2018-19 scheme) and Engineering Mathematics-IV (MAT 104, 2017-18 scheme).

RESOLUTION: New regulations 2.12.1 (REVISED) Method of Assessment for Courses with credit structure (L – T – P) has been approved by all the members of BOS.

Agenda MAT 1.5: Change of syllabus for 3rd and 4th semester Engineering Mathematics (2018-19 scheme).

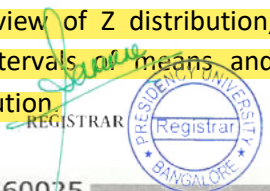
The following topics/modifications In Engineering Mathematics – III are to be incorporated after receiving the suggestions from the external members:

1. Merge of Laplace transform and Inverse Laplace transforms with applications syllabus together as chapter II,
2. Renaming of Fourier transforms as chapter III and z-transforms as chapter IV.

The following topics / modifications In Engineering Mathematics – IV are to be incorporated after receiving the suggestions from the external member:

3. Renaming chapter I as "**Functions of Complex Variables**" instead of "Complex Variables". Incorporate of "Construction of analytic function by Milne-Thompson method" and removing of "discussion of standard" in Conformal transformation.
4. Removal of "Morera's theorem" from chapter II.
5. To have the syllabus of chapter V as per External members given below

Sampling theory : Sampling, random sampling, sampling distributions, Review of Z distribution, student's t-distribution, F-distribution, level of significance, confidence intervals of means and variances, testing of hypothesis, test of goodness of fit using chi-square distribution.





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Agenda MAT 1.6: Approval of program regulations and curriculum proposed for 2019-2023.

As per the new regulations 2.12.1 this is approved unanimously.

Agenda MAT 1.7: Proposal to add new open elective courses.

Members suggested for introduction of following open electives:

1. Number theory
2. Advanced Numerical Methods with Applications
3. Graph Theory and its Applications
4. Operation research
5. Mathematical Modeling
6. Integral Equations and its Applications

Agenda MAT 1.8: Approval for introducing M. Sc (Mathematics) program.

Not Recommended for M.Sc. (Mathematics) program for the year 2019-20 & 2020-21.

Agenda MAT 1.9: Any other matter with permission from the Chair.

RESOLUTION: Before starting of open electives courses, course outlines has to be prepared and arranging Invited talks on the open elective syllabus from senior professors from the Indian institutes, so that the faculty can interact and get the useful suggestions to teach open elective subjects.

The BoS Committee has authorized Dr. S. R Sudheendra, Professor and Head, to incorporate minor corrections / edits, if required.

As per the Feedback received from Students, Alumni, Faculty and Employers, the Course Revisions as per Annexure I and New Course introduction as per Annexure II is hereby approved.

Dr. S. R Sudheendra, Professor and Head has conveyed that the decisions taken during the 1st meeting of BoS for Mathematics will be implemented for 2017-2021, 2018-2022 as early as possible wherever applicable. He has conveyed thanks to all the members and informed that the date of next BoS meeting will be notified soon.



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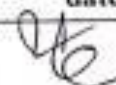
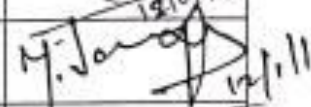

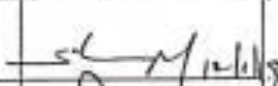
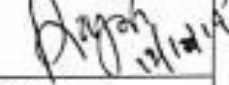
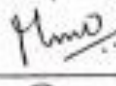
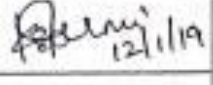
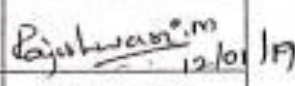
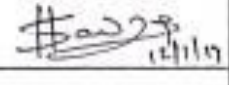
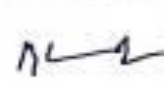
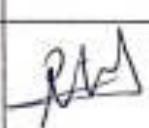
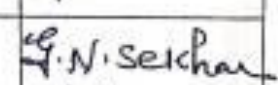
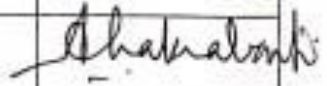
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BoS Committee:

S. No.	Name	Position	Signature with date
1	Dr. S.R. Sudheendra	Chairperson Ex-Officio	 12/10/19
2	Dr. M. Sankar	Internal Member (Nominated by VC Within the Department)	 12/1/19
3	Dr. S. Maruthamanikandan	Internal Member (Nominated by VC Within the Department)	 12/1/19
4	Dr. Shilpa N.	Internal Member (Nominated by VC Within the Department)	 12/1/19
5	Dr. C.V. Rajan Chattamvelli	Internal Member (Nominated by VC Within the Department)	 12/1/19
6	Dr. M. V. Chakradhara Rao	Internal Member (Nominated by VC Within the Department)	 12/1/19
7	Dr. Kavitha S Permi	Internal Member (Nominated by VC Within the Department)	 12/1/19
8	Dr. Rajeshwari M	Internal Member (Nominated by Chairman)	 12/1/19
9	Dr. Sandeep Kumar	Internal Member (Nominated by VC Within the Department)	 12/1/19
10	Mr. Raghavendra M. Deshpande	Internal Member (Nominated by VC from the sister Department)	 12/1/19
11	Mrs. Ratna Nitin Patil	Internal Member (Nominated by VC from the sister Department)	 12/1/19
12	Dr. G. N. Shekar	External Member (Academic)	 12/1/19
13	Dr. Alok Nath Chakrabarti	External Member (Academic)	 12/1/19
14	Dr. Vineet Dravid	External Member (Industry)	


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Ref.No. PU/SOE/MAT/BOS-02/2018-19/MOM-2

Date: 04-05-2019

SCHOOL OF ENGINEERING

DEPARTMENT OF MATHEMATICS

2nd BOS MINUTES OF MEETING

Minutes of the 2nd Meeting of Board of Studies (Mathematics – BOS – MAT)

The 2nd meeting of the Board of Studies of the Mathematics was held on 04.05.2019 at 11.00 am in MG-02, Presidency University.

Dr. C. P. Reddy, Dean-SOE, briefed the prerequisite of the BoS meeting. He presented the common agenda of the meeting.

Common Agenda's:

- 9.1 Approval of the proceedings of 8th BoS Meeting held on 12th January 2019.
- 9.2 Action taken report (ATR) of 8th BoS meeting (1st MAT-BOS).
- 9.3 Review and approval of modifications in the B.Tech program.
- 9.4 Approval of the amendments to the B.Tech. Program regulations and curriculum for the 2019-2023.
- 9.5 Approval of program regulations and curriculum for first year B.Tech in "Electronics and Computer Engineering" (2019-2023 new batch).
- 9.6 Approval of additional online courses (NPTEL / SWAYAM) - Discipline and open electives.
- 9.7 Approval of list of examiners
Internal [All faculty]
External [Stream / Group wise].
- 9.8 Approval of Advanced Engineering Mathematics for M. Tech first year program regulations and curriculum for [2019-2021 batch].
- 9.9 Incorporate NAAC requirements.


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The following members were present:

Sl. No.	Name	Designation	Status
1	Dr. S.R. Sudheendra	Professor and Head, School of Engineering, Presidency University, Bangalore – 64	Chairperson
2	Dr. M. Sankar	Professor and Deputy Dean (R &IC), School of Engineering, Presidency University, Bangalore – 64	Member
3	Dr. S. Maruthamanikandan	Associate Professor, School of Engineering, Presidency University, Bangalore – 64	Member
4	Dr. Shilpa N.	Associate Professor, School of Engineering, Presidency University, Bangalore – 64	Member
5	Dr. M. V. ChakradharaRao	Assistant Professor, School of Engineering, Presidency University, Bangalore – 64	Internal Member (Nominated by VC within the Department)
6	Dr. Kavitha S Permi	Assistant Professor, School of Engineering, Presidency University, Bangalore – 64	Internal Member (Nominated by VC within the Department)
7	Mrs. Ratna Nitin Patil	Assistant Professor, Department of Computer Science Engineering, School of Engineering, Presidency University, Bangalore – 64	Internal Member (Nominated by VC within the sister Department)
8	Dr. G. N. Sekhar	Professor & Head, BMS College of Engineering, Bangalore	External Member (Academic)
9	Dr. AloknathChakrabarthi	NASI-Senior Scientist Platinum Jubilee Fellow, IISc, Bangalore	External Member (Academic)
10	Dr. VineetDravid	Managing Director, COMSOL India Pvt. Ltd. Bangalore	External Member (Industry)
11	Dr. Rajeshwari M	Associate Professor, School of Engineering, Presidency University, Bangalore – 64	Member (Special Invitee)
12	Dr. Sandeep Kumar	Assistant Professor, School of Engineering, Presidency University, Bangalore – 64	Member Secretary

The following members were given leave of absence:

- Nil-


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The Chairman welcomed the Members and called the meeting to order.

Agenda MAT 2.1: Confirmation of Minutes.

The minutes of the 1st meeting of the Board of Studies of Mathematics held on 12th January, 2019 was placed before the members and the same was confirmed.

Agenda MAT 2.2: Action Taken Report.

The Action taken report on the previous minutes was presented by the Chairperson. The same was noted and taken on record.

Agenda MAT 2.3: Review and approve of modifications in the Course content of Engineering Mathematics

Dr. S. R. Sudheendra presented the modified syllabus of Engineering Mathematics (I-IV Semesters) after incorporating the changes suggested in the 1st BoS meeting. The syllabus was approved with suggested changes. The percentage of changes in the syllabus compared to previous syllabus is 40%.

Agenda MAT 2.4: Approval of the Program Regulations

Dr. S. R. Sudheendra, HOD, Department of Mathematics presented the detailed Syllabus of Advanced Engineering Mathematics (common for all) as a course for M.Tech program. The members discussed the same at length. After detailed deliberations, with following suggestions the syllabus was approved.

Suggestions:

1. Module –I : No changes
2. Module –II : No changes
3. Module –III : a) To include the order for Range Kutta method.
b) Suggested to have a Lab facility for the numerical methods such as MATLAB, SCI Lab, R Lab, Etc.
c) To change the order as BVP : Shooting method, Finite Difference method.
d) To include 1-D convection equations as applications .
4. Module –IV : No changes
5. Module –V: No changes
6. To remove the T5 in reference.
7. To include Advanced Numerical methods by B. S. Grewal and to remove Higher Engineering Mathematics by B. S. Grewal.





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8. To include a reference book “Linear Algebra and its Applications”, David C Lay, Pearson publication (2016).
9. Suggested to include an elective paper titled “Applied Numerical Methods”, “Number Theory”, “Advanced Graph Theory”, “Integral equation Methods”

Agenda MAT 2.5: Approval of the Program Regulations

To include external examiners from reputed institutes (like IIT, IISc, NIT etc.)

Resolution: Resolved that the Course “Advanced Engineering Mathematics” common for all M. Tech courses for the Academic Year 2019-2021 be approved.

As per the Feedback received from Students, Alumni, Faculty and Employers, the Course Revisions as per Annexure I and New Course introduction as per Annexure II is hereby approved.

The meeting ended with Vote of Thanks by the Chairperson.

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3	Dr. S. Maruthamanikandan	Associate Professor, School of Engineering, Presidency University, Bangalore - 64	Member	
4	Dr. Shilpa N.	Associate Professor, School of Engineering, Presidency University, Bangalore - 64	Member	
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8	Dr. G. N. Sekhar	Professor & Head, BMS College of Engineering, Bangalore	External Member (Academic)	 G.N. Sekhar 4/5/19
9	Dr. Alok Nath Chakrabarti	NASI-Senior Scientist Platinum Jubilee Fellow, IISc, Bangalore	External Member (Academic)	 Alok Nath Chakrabarti 4/5/19
10	Dr. Vineet David	Managing Director, COMSOL India Pvt. Ltd.	External Member (Industry)	
11	Dr. Rajeshwari M	Associate Professor, School of Engineering, Presidency University, Bangalore - 64	Member (Special Invitee)	 Rajeshwari M
12	Dr. Sandeep Kumar	Assistant Professor, School of Engineering, Presidency University, Bangalore - 64	Member Secretary	 Sandeep Kumar 4/5/19





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Ref. No. PU/SOE/MAT/BOS-03/2019-20/MOM-3

Date: 17-01-2020

SCHOOL OF ENGINEERING

DEPARTMENT OF MATHEMATICS


3rd BOS MINUTES OF MEETING

Minutes of the 3rd Meeting of Board of Studies (Mathematics – BOS – MAT)

The 3rd meeting of the Board of Studies of the Mathematics was held on 17.01.2020 at 10.00 am in MG-01, Presidency University.

Dr. C. P. Reddy, Dean-SOE, briefed the prerequisite of the BoS meeting. He presented the agenda of the meeting.

The following members were present:

Sl. No.	Name	Designation	Status	Signature
1	Dr. S.R. Sudheendra	Professor and Head, School of Engineering, Presidency University, Bangalore – 64	Chairperson	
2	Dr. S. Maruthamanikandan	Associate Professor, School of Engineering, Presidency University, Bangalore – 64	Member	
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6	Dr. G. N. Sekhar	Professor & Head, BMS College of Engineering, Bangalore	External Member (Academic)	
7	Dr. Rajeshwari M	Associate Professor, School of Engineering, Presidency University, Bangalore – 64	Member (Special Invitee)	

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8	Dr. Pradeep Kumar	Associate Professor, School of Engineering, Presidency University, Bangalore – 64	Member (Special Invitee)	
9	Dr. Sandeep Kumar	Assistant Professor, School of Engineering, Presidency University, Bangalore – 64	Member Secretary	

The following members were given leave of absence:

1	Dr. AloknathChakrabarthi	NASI-Senior Scientist Platinum Jubilee Fellow, IISc, Bangalore	External Member (Academic)	
2	Dr. VineetDravid	Managing Director, COMSOL India Pvt. Ltd. Bangalore	External Member (Industry)	
3	Dr. M. Sankar	Professor and Deputy Dean (R &IC), School of Engineering, Presidency University, Bangalore – 64	Member	

The Chairman welcomed the Members and called the meeting to order.

Agenda MAT 3.1: Approval of the proceedings of 9th BoS Meeting held on 4th May 2019.

The minutes of the 9th BoS (2nd MAT) meeting of the Board of Studies of Mathematics held on 4th May 2019 was placed before the members and the same was confirmed.

Agenda MAT 3.1: Action Taken Report.

The Action taken report on the previous minutes was presented by the Chairperson. The same was noted and taken on record.

Agenda MAT 3.2: Review and approval of modifications in the B.Tech. and M.Tech. Program Regulations and Curriculum for all the existing batches.

Dr. S. R. Sudheendra, HOD, Department of Mathematics presented the detailed Syllabus of Engineering Mathematics - IV (common for all) as a course for B.Tech program and . The members discussed the same at length. After detailed deliberations, with following suggestions the syllabus was approved.

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Suggestions for Engineering Mathematics - IV (MAT 104):

1. Module –I : To include basics of limits, continuity and differentiability
2. Module –II : Specified hours should be increased to 10-12 hrs
3. Module – III : To move Jacobi Iteration and secant method to self study topic
4. Module – IV : To move Numerical Differentiation to self study topic and to allot 8hrs.
5. Module – V : To specify continuous or discrete probability.

Also suggested to include the reference books of Arlington University for particular courses and to follow the same kind of assignments.

Suggestions for Probabilistic Graph Models for M.Tech 2nd sem

Suggested to have 3 modules for a 3 credit course.

1. Module –I : No changes.
2. Module –II : No changes.
3. Module – III : No changes.
4. Module – IV : if its really not required then to remove.

Suggested to include realistic problems as assignments according to their branch. Also to include projects and case studied as weekly assignments.

Dr. S. R. Sudheendra presented the syllabus of Engineering Mathematics (III and IV Semesters) for 2019-20 batch. The same syllabus was approved with minor changes.

5. Value added course were approved without any changes.

General Suggestion from external to introduce MATLAB in the regular course.

6. Dr. S. R. Sudheendra presented the syllabus and CDCH of Applied Mathematics (MAT110), Statistical Methods and Techniques (MAT111) for BCA 1st sem of 2019 batch and Advanced Engineering Mathematics (MAT 301) for M.Tech 1st sem of 2019. The same syllabus was approved without any changes.





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Agenda MAT 3.3: Discussion on feedback on curriculum from stakeholders.

Suggested to take the educational background of the Parent in feedback.

Agenda MAT 3.4: Approval of the list of MOOC Courses (NPTEL / SWAYAM / COURSEERA, ETC) that are offered as discipline and open elective courses.

The chairman presented list of Courses available. The same was approved.

Agenda MAT 3.5: Approval of list of Examiners for various courses in all the programs of the School of Engineering.

As per the Feedback received from Students, Alumni, Faculty and Employers, the Course Revisions as per Annexure I and New Course introduction as per Annexure II is hereby approved.

The list submitted earlier was approved without any change.

The meeting ended with Vote of Thanks to the Chair.

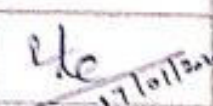
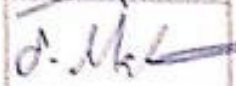
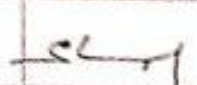
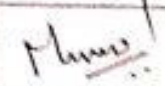
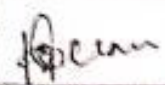
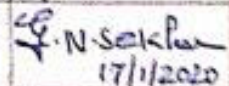

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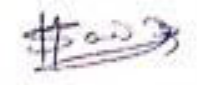



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The following members were present:

Sl. No.	Name	Designation	Status	Signature
1	Dr. S.R. Sudheendra	Professor and Head, School of Engineering, Presidency University, Bangalore - 64	Chairperson	 17/10/2020
2	Dr. S. Maruthamanikandan	Associate Professor, School of Engineering, Presidency University, Bangalore - 64	Member	
3	Dr. Shilpa N.	Associate Professor, School of Engineering, Presidency University, Bangalore - 64	Member	
4	Dr. M. V. Chakradhara Rao	Assistant Professor, School of Engineering, Presidency University, Bangalore - 64	Internal Member (Nominated by 'W' within the Department)	
5	Dr. Kavitha S Pemi	Assistant Professor, School of Engineering, Presidency University, Bangalore - 64	Internal Member (Nominated by 'W' within the Department)	
6	Dr. G. N. Sekhar	Professor & Head, BMS College of Engineering, Bangalore	External Member (Academic)	 17/10/2020
7	Dr. Rajeshwari M	Associate Professor, School of Engineering, Presidency University, Bangalore - 64	Member (Special Invitee)	

8	Dr. Pradeep Kumar	Associate Professor, School of Engineering, Presidency University, Bangalore - 64	Member (Special Invitee)	
9	Dr. Sandeep Kumar	Assistant Professor, School of Engineering, Presidency University, Bangalore - 64	Member Secretary	


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Ref. No. PU/SOE/MAT/BOS-03/2020-21/MOM-4

Date: 28-08-2020

SCHOOL OF ENGINEERING

DEPARTMENT OF MATHEMATICS

4th BOS MINUTES OF MEETING

Minutes of the 4th Meeting of Board of Studies (Mathematics – BOS – MAT)

The 4th meeting of the Board of Studies of the Mathematics was held on 28.08.2020 at 11.00 am hosted online from Presidency University Campus, Itgalpur, Rajankunte, Yelahanka, Bengaluru.

Dr. S. R. Sudheendra, HOD-Mathematics, briefed the prerequisite of the BoS meeting. He presented the agenda of the meeting.

The following members were present:

Sl. No.	Name	Designation	Status
1	Dr. S.R. Sudheendra	Professor and Head, School of Engineering, Presidency University, Bangalore – 64	Chairperson
2	Dr. M. Sankar	Professor and Deputy Dean (R &IC), School of Engineering, Presidency University, Bangalore – 64	Member
3	Dr. S. Maruthamanikandan	Associate Professor, School of Engineering, Presidency University, Bangalore – 64	Member
4	Dr. Shilpa N.	Associate Professor, School of Engineering, Presidency University, Bangalore – 64	Member
5	Dr. Rajeshwari M	Associate Professor, School of Engineering, Presidency University, Bangalore – 64	Member
6	Dr. Pradeep Kumar	Associate Professor, School of Engineering, Presidency University, Bangalore – 64	Member


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7	Dr. V Ramalatha	Assistant Professor, School of Engineering, Presidency University, Bangalore – 64	Internal Member (Nominated by VC within the Department)
8	Dr. Bijil Prakash	Assistant Professor, School of Engineering, Presidency University, Bangalore – 64	Internal Member (Nominated by VC within the Department)
9	Dr. C K Subbaraya	Registrar, ACU & Director, AIT	External Member
10	Dr. AK Nandakumaran	Professor, IISc, Bangalore	External Member
11	Mrs. Bhavya K	Assistant Professor, School of Engineering, Presidency University, Bangalore – 64	Member Secretary

The following member was given leave of absence:

1	Dr. Vineet Dravid	Managing Director, COMSOL India Pvt. Ltd. Bangalore	External Member (Industry)
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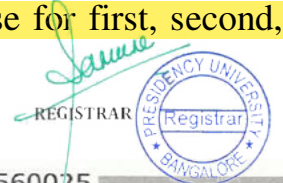
The HOD welcomed all the Members and called the meeting to order.

Agenda SOE-MATHS 4.1 : Approval of the proceedings of 3rd BoS Meeting held on 17th Jan 2020.

The minutes of the 3rd BoS meeting of the Board of Studies of Mathematics held on 17th Jan 2020 was placed before the members and the same was confirmed.

Agenda SOE-MATHS 4.2 : Approval of the Mathematics Course Content for all the Engineering Programs of 2020 batch

Dr. S. R. Sudheendra, HOD, Department of Mathematics presented the detailed Syllabus of Calculus and Linear Algebra (MAT 105), Calculus, Differential Equations and Complex Variable (MAT 106), Transform Techniques, Partial differential equations and Probability (MAT 107), Numerical methods (MAT 108) (common for all) as a course for first, second,





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third and fourth semester B.Tech program. The members discussed the same at length. After detailed deliberations, with following suggestions the syllabus was approved.

Suggestions for Calculus and Linear Algebra (MAT 105):

1. Module –I : To include basic concepts of vector space.
2. Module –II : No change.
3. Module – III : No change.
4. Module – IV : To include full range Fourier series.
5. Module – V : No change.

Also suggested to correct the weightage as 15% in the internal assessment.

Suggestions for Calculus, Differential Equations and Complex Variable (MAT 106):

1. Module –I : No changes.
2. Module –II : No changes.
3. Module – III : No changes.
4. Module – IV : No changes.
5. Module – V: No changes.

Suggestions for Transform Techniques , Partial differential equations and Probability (MAT 107):

1. Module –I : No changes.
2. Module –II : To include two dimensional Fourier series..
3. Module – III : No changes.
4. Module – IV : No changes.
5. Module – V: Change in the module name as Probability and Statistics.

Suggestions for Numerical Methods (MAT 108):

1. Module –I : No changes.
2. Module –II : No change.
3. Module – III : No changes.
4. Module – IV : No changes.
5. Module – V: To include introduction to stochastic process.





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Dr. S. R. Sudheendra presented the syllabus of Optimization Techniques CSE 226 (V Semester) for 2018-19 batch. The same syllabus was approved with a suggestion of change in subject code as MAT 226 instead of CSE 226.

Suggestions for Advanced Engineering Mathematics for M.Tech 1st sem

Dr. S. R. Sudheendra presented the syllabus of Advanced Engineering Mathematics MAT 301 (I Semester) for 2020-21 batch. The same syllabus was approved with minor change (removal of Numerical methods and introducing software).

Agenda SOE-MATHS 4.3 : Consideration and Approval of the Mathematics Course Content for all the BCA Programs of 2020 batch

Dr. S. R. Sudheendra presented the syllabus and CDCH of Applied Mathematics (MAT110) , Statistical Methods and Techniques (MAT111) for BCA 1st sem of 2020 and Optimization Techniques (BCA 201) for BCA 2nd semester of 2020 batch. The same syllabus was approved without any changes.

Suggestion was given to start bridge course for Commerce and Arts students on topics Differentiation and Integration.

Agenda SOE-MATHS 4.4 : Ratification of revised course content of Mathematics 2019 batch of Engineering and BCA Program

Agenda SOE-MATHS 4.5 : Value added Courses

The chairperson presented the list of Courses available. The same was approved.

Value added course were approved without any changes.

General Suggestion from external to introduce MATLAB in the regular course.

As per the Feedback received from Students, Alumni, Faculty and Employers, the Course Revisions as per Annexure I and New Course introduction as per Annexure II is hereby approved.

The meeting ended with Vote of Thanks by the Chair.





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The following members were present:

Sl. No.	Name	Designation	Status	Signature
1	Dr. S.R. Sudheendra	Professor and Head, School of Engineering, Presidency University, Bangalore - 64	Chairperson	
2	Dr. S. Maruthamanikandan	Associate Professor, School of Engineering, Presidency University, Bangalore - 64	Member	
3	Dr. Shilpa N.	Associate Professor, School of Engineering, Presidency University, Bangalore - 64	Member	
4	Dr. M. V. Chakradhara Rao	Assistant Professor, School of Engineering, Presidency University, Bangalore - 64	Internal Member (Nominated by VC within the Department)	
5	Dr. Kavitha S Permi	Assistant Professor, School of Engineering, Presidency University, Bangalore - 64	Internal Member (Nominated by VC within the Department)	
6	Dr. G. N. Sekhar	Professor & Head, BMS College of Engineering, Bangalore	External Member (Academic)	
7	Dr. Rajeshwari M	Associate Professor, School of Engineering, Presidency University, Bangalore - 64	Member (Special Invitee)	

8	Dr. Pradeep Kumar	Associate Professor, School of Engineering, Presidency University, Bangalore - 64	Member (Special Invitee)	
9	Dr. Sandeep Kumar	Assistant Professor, School of Engineering, Presidency University, Bangalore - 64	Member Secretary	

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Ref. No. PU/SOE/MAT/BOS-04/2021-22/MOM-5

Date: 09-08-2021

SCHOOL OF ENGINEERING

DEPARTMENT OF MATHEMATICS

5th BOS MINUTES OF MEETING

Minutes of the 5th Meeting of Board of Studies (Mathematics – BOS – MAT)

The 5th meeting of the Board of Studies of the Mathematics was held on 09.08.2021 at 10.30am hosted online from Presidency University Campus, Itgalpur, Rajankunte, Yelahanka, Bengaluru.

Dr. S. R. Sudheendra, HOD-Mathematics, briefed the prerequisite of the BoS meeting. He presented the agenda of the meeting.

The following members were present:

Sl. No.	Name	Designation	Status
1	Dr. Abdul Shareef	Dean, School of Engineering	Chairperson
2	Dr. S. Maruthamanikandan	Associate Professor, School of Engineering, Presidency University, Bangalore – 64	Member
3	Dr. M. V Chakradhar Rao	Assistant Professor, School of Engineering, Presidency University, Bangalore – 64	Member
4	Dr. Shilpa N.	Associate Professor, School of Engineering, Presidency University, Bangalore – 64	Special invitee
5	Dr. Sandeep kumar	Assistant Professor, School of Engineering, Presidency University, Bangalore – 64	Special invitee
6	Dr. AK Nandakumaran	Professor, Indian Institute of Science (IISc), Bangalore	External Member
7	Dr. Vineet Dravid	Managing Director, COMSOL India Pvt. Ltd.	External Member
8	Dr. G. Murugusundaramoorthy	Professor, SAS, VIT, Vellore	External Member


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9	Dr. S.R. Sudheendra	Professor and Head, School of Engineering, Presidency University, Bangalore – 64	Member Secretary
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The following member was given leave of absence:

1	Nil
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The HOD welcomed all the Members and called the meeting to order.

Agenda SOE-MATHS 5.1 : To approve the minutes of 4th Board of Studies Meeting held on 29th August 2020.

The minutes of the 4th BoS meeting of the Board of Studies of Mathematics held on 29th Aug 2020 was placed before the members and the same was confirmed.

Agenda SOE-MATHS 5.2 : Discussion on the Feedback obtained on curriculum from Industry, students, alumni & faculty members.

Informed the committee that feedback is obtained from all the stake holders for the academic year 2020-21. Based on the feedback, the academic committee has decided to go for CBCS for the betterment of students academics and placements.

Agenda SOE-MATHS 5.3 : Discussion on the Proposed CBCS Course grid and the Course catalogues for the 2021 admitted students

Proposed CBCS Course grid and the catalogues were presented in front of the committee. External members suggested to have the complete list of courses and the subsequent flow chart.

Agenda SOE-MATHS 5.4 : Discussion on the feedback obtained from the Industry, students, faculty members and alumni on the proposed CBCS Course grid.

Chairperson presented the feedback on proposed CBCS Course grid obtained from the stake holders.

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Agenda SOE-MATHS 5.5 : To consider and approve the Mathematics Course Content for all the Engineering Programs of 2019, 2020 and 2021 batches.

Suggestions given are listed below Course-wise

MAT2001 – Transform Techniques and Partial Differential Equations

Suggested to take z transforms after Partial differential equations and its applications.

The percentage of changes in the syllabus compared to previous syllabus is 10% as the credits reduced from 4 credits to 3 credits.

MAT2002 - Numerical Methods, Probability Distributions and Sampling Techniques

1. To include Secant method and to remove Bisection and Regular Falsi method in module 1.
2. To rename Sampling distribution as sampling theory in module 6.

The percentage of changes in the syllabus compared to previous syllabus is 5% as the credits reduced from 4 credits to 3 credits.

MAT1001 – Calculus and Linear Algebra

1. To start with Linear algebra as module 1 and change the title as Linear algebra and Calculus.
2. To have the order as Partial differentiation, Integral Calculus and Ordinary differential equation.

As per the CBCS, new syllabus is framed with Lab component.

MAT1002 – Applications of Integral transforms, Differential and Difference Equations

Suggested to rename the title as “Transform Techniques, Partial Differential Equations and their Applications”.

As per the CBCS, new syllabus is framed.

CSE 2016 – Discrete Mathematical Structures (DMS)

Approved without any changes.

CSE 2017 – Graph Theory and Combinatorics

Approved without any changes.

CSE 226 – Optimization Techniques (OT)

To include particular method such as Golden section and Roshan Method in module 6.

It's a modification. No change in the syllabus





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Agenda SOE-MATHS 5.6 : To consider and approve the Mathematics Course Content for all the BCA Programs of 2020 & 2021 batches.

MAT 1010 – Applied Mathematics

1. To include vectors (if necessary) and to restrict to 2 D Geometry in module 1.
2. To include successive differentiation

The percentage of changes in the syllabus compared to previous syllabus is 3%.

MAT 1006 – Statistical Methods and Techniques

Approved without any changes

BCA 2001 – Optimization Techniques

Approved without any changes

Agenda SOE-MATHS 5.7 : To consider and approve the Mathematics Course Content for all the B.Sc. (Data Science) Programs of 2021 batch.

BSD 1001 – Fundamentals of Statistics and Probability

As per the CBCS, new syllabus is framed.

BSD 1006 – Statistical analysis using R

As per the CBCS, new syllabus is framed.

BSD 1009 – Calculus and Linear Algebra

As per the CBCS, new syllabus is framed.

Agenda SOE-MATHS 5.8 : To consider and approve the Mathematics Course Content for all the B.Sc. (Economics) Programs of 2021 batch.

BSE 1001 – Basic Mathematics for Economics

As per the CBCS, new syllabus is framed.

BSE 1002 – Introduction to Statistics

As per the CBCS, new syllabus is framed.





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Agenda SOE-MATHS 5.9 : To consider and approve the Mathematics Course Content for all the M.Tech Programs of 2021 batch.

CSE 302– Probabilistic graph Models

Approved without any changes

MAT 4001 : Advanced Engineering Mathematics

Approved without any changes

Agenda SOE-MATHS 5.10 : To consider and approve the Mathematics Course Content for all the B.B.A Programs of 2021 batch.

OE 145 – Optimization Techniques

Approved without any changes

Agenda SOE-MATHS 5.11 : Any Other Matter with the permission of the chair.

- Nil -

As per the Feedback received from Students, Alumni, Faculty and Employers, the Course Revisions as per Annexure I and New Course introduction as per Annexure II is hereby approved.

The meeting ended with Vote of Thanks to the Chair.

BoS Committee:

S. No.	Name	Position	Signature with date
1	Dr. Abdul Shareef	Dean, School of Engineering	
2	Dr. S. Maruthamanikandan	Associate Professor, School of Engineering, Presidency University, Bangalore – 64	
3	Dr. M. V Chakradhar Rao	Assistant Professor, School of Engineering, Presidency University, Bangalore – 64	
4	Dr. Shilpa N.	Associate Professor, School of Engineering, Presidency University, Bangalore – 64	
5	Dr. Sandeep kumar	Assistant Professor, School of Engineering, Presidency University, Bangalore – 64	





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6	Dr. AK Nandakumaran	Professor, Indian Institute of Science (IISc), Bangalore	
7	Dr. Vineet Dravid	Managing Director, COMSOL India Pvt. Ltd.	
8	Dr. G. Murugusundaramoorthy	Professor, SAS, VIT, Vellore	
9	Dr. S.R. Sudheendra	Professor and Head, School of Engineering, Presidency University, Bangalore – 64	

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Ref. No. PU/SOE/MAT/BOS-06/2021-22/MOM-6

Date: 09-12-2021

SCHOOL OF ENGINEERING

DEPARTMENT OF MATHEMATICS

6th BOS MINUTES OF MEETING

Minutes of the 6th Meeting of Board of Studies (Mathematics – BOS – MAT)

The 6th meeting of the Board of Studies of the Mathematics was held on 09.12.2021 at 7.30 pm and it was hosted online.

Dr. Maruthamanikandan S, HOD-Mathematics, and Dr. S. R. Sudheendra, Professor of Mathematics briefed the prerequisite of the BOS meeting. Dr. Maruthamanikandan presented the agenda of the meeting.

The following are the members of the BOS:

Sl. No.	Name	Designation	Status
1	Dr. Abdul Shareef	Dean, School of Engineering	Chairperson
2	Dr. S. Maruthamanikandan	Associate Professor and HOD, School of Engineering, Presidency University, Bangalore – 64	Member Secretary
3	Dr. M. V Chakradhar Rao	Assistant Professor, School of Engineering, Presidency University, Bangalore – 64	Member
4	Dr. Shilpa N.	Associate Professor, School of Engineering, Presidency University, Bangalore – 64	Special invitee
5	Dr. Sandeep kumar	Assistant Professor, School of Engineering, Presidency University, Bangalore – 64	Special invitee
6	Dr. AK Nandakumaran	Professor, Indian Institute of Science (IISc), Bangalore	External Member
7	Dr. Vineet Dravid	Managing Director, COMSOL India Pvt. Ltd.	External Member
8	Dr. G. Murugusundaramoorthy	Professor, SAS, VIT, Vellore	External Member

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9	Dr. S.R. Sudheendra	Professor , School of Engineering, Presidency University, Bangalore – 64	Member
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The following members were given leave of absence:

1.	Dr. AK Nandakumaran
2.	Dr. Vineet Dravid

The HOD welcomed all the Members and called the meeting to order.

SOE-MATHS 6.1 : To approve the minutes of 5th Board of Studies Meeting held on 9th August 2021.

The minutes of the 5th BoS meeting of the Board of Studies of Mathematics held on 9th Aug 2021 was placed before the members and the same was confirmed.

Agenda SOE-MATHS 6.2 : To consider and approve the Mathematics Course Content for all the Engineering Programs of 2020 and 2021 batches as in Annexure 1.

Suggestions given are listed below Course-wise.

MAT2002 - Numerical Methods, Probability Distributions and Sampling Techniques

Approved without any changes.

MAT1002 – Transform Techniques, Partial Differential Equations and Their Applications

Approved without any changes.

CSE2016 – Discrete Mathematical Structures (DMS)

Approved without any changes.

CSE2017 – Graph Theory and Combinatorics (GTC)

Approved without any changes.


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Agenda SOE-MATHS 6.3 : To consider and approve the Mathematics Course Content for all the BCA Programs of 2021 batch as in Annexure 1.

MAT1007 – Applied Mathematics

Approved without any changes.

Agenda SOE-MATHS 6.4 : To consider and approve the Mathematics Course Content for all the B.Sc. (Data Science) Programs of 2021 batch as in Annexure 1.

MAT1008 – Probability and Inferential Statistics

Approved without any changes. As per the CBCS, new syllabus is framed.

MAT1009 – Linear Algebra and Vector Spaces

Approved without any changes. As per the CBCS, new syllabus is framed.

MAT2033 – Statistical Analysis using R

Approved without any changes. As per the CBCS, new syllabus is framed.

Agenda SOE-MATHS 6.5 : To consider and approve the Mathematics Course Content for all the B.Sc. (Economics) Programs of 2021 batch as in Annexure 1.

BSE 1003 – Advanced Mathematics for Economists

Approved without any changes. As per the CBCS, new syllabus is framed.

Agenda SOE-MATHS 6.6 : Any other matter with the permission of the chair.

- Nil -

As per the Feedback received from Students, Alumni, Faculty and Employers, the Course Revisions as per Annexure I and New Course introduction as per Annexure II is hereby approved.

The meeting ended with vote of thanks by Dr Sandeep Kumar thanking all members present.


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Annexure – 1

List of WINTER (Even) Semester Courses (Academic Year: 2021-22)

Sl. No.	Semester	Course Code	Course Name	L	P	C
School of Engineering (BTech)						
1	II Sem BTech	MAT1002	Transform Techniques, Partial Differential Equations and Their Applications	3	0	3
2	IV Sem BTech	MAT2002	Numerical Methods, Probability Distributions and Sampling Techniques	3	0	3
3	IV Sem BTech	CSE2016	Discrete Mathematical Structures	3	0	3
4	IV Sem BTech	CSE2017	Graph Theory and Combinatorics	3	0	3

Sl. No.	Semester	Course Code	Course Name	L	P	C
School of Information Science (BCA & BSc-Data Science)						
5	II Sem BCA	MAT1007	Applied Mathematics	3	0	3
6	II Sem BSc-DS	MAT1008	Probability and Inferential Statistics	3	0	3
7	II Sem BSc-DS	MAT1009	Linear Algebra and Vector Spaces	3	0	3
8	II Sem BSc-DS	MAT2033	Statistical Analysis using R	1	2	2

Sl. No.	Semester	Course Code	Course Name	L	P	C
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School of Commerce (BSc-Economics)						
9	II Sem BSc-Eco	BSE1003	Advanced Mathematics for Economists	4	0	4

BoS Committee:

S. No.	Name	Position	Signature with date
1	Dr. Abdul Shareef	Dean, School of Engineering	
2	Dr. S. Maruthamanikandan	Associate Professor and HOD, School of Engineering, Presidency University, Bangalore – 64	
3	Dr. M. V Chakradhar Rao	Assistant Professor, School of Engineering, Presidency University, Bangalore – 64	
4	Dr. Shilpa N.	Associate Professor, School of Engineering, Presidency University, Bangalore – 64	
5	Dr. Sandeep kumar	Assistant Professor, School of Engineering, Presidency University, Bangalore – 64	
6	Dr. AK Nandakumaran	Professor, Indian Institute of Science (IISc), Bangalore	
7	Dr. Vineet Dravid	Managing Director, COMSOL India Pvt. Ltd.	
8	Dr. G. Murugusundaramoorthy	Professor, SAS, VIT, Vellore	
9	Dr. S.R. Sudheendra	Professor, School of Engineering, Presidency University, Bangalore – 64	


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Ref. No. PU/SOE/MAT/BOS-07/2021-22/MOM-7

Date: 24-02-2022

SCHOOL OF ENGINEERING

DEPARTMENT OF MATHEMATICS

7th BOS MINUTES OF MEETING

Minutes of the 7th Meeting of Board of Studies (Mathematics-BOS-MAT)

The 7th meeting of the Board of Studies of the Mathematics was held on 24.02.2022 at 11.00 am and it was conducted online. Dr. Maruthamanikandan, Professor & HOD, welcomed all the members and commenced the meeting in time.

The following are the members of the BOS:

Sl. No.	Name	Designation	Status
1	Dr. Abdul Sharief	Dean, School of Engineering Presidency University, Bangalore – 64	Chairperson
2	Dr. S. Maruthamanikandan	Professor and HOD School of Engineering Presidency University, Bangalore – 64	Member Secretary
3	Dr. M. V Chakradhar Rao	Associate Professor, School of Engineering Presidency University, Bangalore – 64	Member
4	Dr. Shilpa N.	Associate Professor School of Engineering Presidency University, Bangalore – 64	Special invitee
5	Dr. Sandeep kumar	Assistant Professor School of Engineering Presidency University, Bangalore – 64	Special invitee
6	Dr. A K Nandakumaran	Professor Indian Institute of Science (IISc), Bangalore	External Member
7	Dr. Vineet Dravid	Managing Director, COMSOL India Pvt. Ltd., Bangalore	External Member
8	Dr. G. Murugusundaramoorthy	Professor, SAS, VIT, Vellore.	External Member
9	Dr. S.R. Sudheendra	Professor , School of Engineering, Presidency University, Bangalore – 64	Member

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The following members were given leave of absence:

1.	Dr. A. K. Nandakumaran
2.	Dr. Vineet Dravid

HOD briefed the prerequisites and presented the agenda of the BOS meeting.

Agenda SOE-MATHS 7.1 : To approve the minutes of 6th BOS Meeting held on 9th December 2021.

The minutes of the 6th BoS meeting of the Board of Studies of Mathematics held on 9th December 2021 was placed before the members and the same was confirmed.

Agenda SOE-MATHS 7.2 : To consider and approve the Mathematics Course Content concerning the Engineering Programs of 2019, 2020 and 2021 batches as in Annexure 1.

Suggestions given are listed below Course-wise.

MAT1002 – Transform Techniques, Partial Differential Equations and Their Applications

Approved without any changes.

MAT1003 – Applied Statistics

Approved without any changes.

MAT2002 - Numerical Methods, Probability Distributions and Sampling Techniques

Approved without any changes.

CSE2016 – Discrete Mathematical Structures

Approved without any changes.

CSE2017 – Graph Theory and Combinatorics

Approved without any changes.

CSE226 – Optimization Techniques

To include PERT & CPM techniques and to remove integer, goal and dynamic programming as well as convex optimization.

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Agenda SOE-MATHS 7.3 : To consider and approve the Mathematics Course Content for all the BCA Programs of 2021 batch as in Annexure 1.

MAT1007 – Applied Mathematics

Approved without any changes.

Agenda SOE-MATHS 7.4 : To consider and approve the Mathematics Course Content for all the B.Sc. (Data Science) Programs of 2021 batch as in Annexure 1.

MAT1007 – Applied Mathematics

Approved without any changes.

MAT1008 – Probability and Inferential Statistics

Approved without any changes.

Agenda SOE-MATHS 7.5: To consider and approve the Mathematics Course Content for all the B.Sc. (Economics) Programs of 2021 batch as in Annexure 1.

BSE1003 – Advanced Mathematics for Economists

Approved without any changes.

BSE2006 – Operations Research

Approved without any changes.

BSE2011 – Applied Statistics

Approved without any changes.

Agenda SOE-MATHS 7.6: To consider and approve the Mathematics Course Content for all the BBA Programs of 2020 batch as in Annexure 1.

OE145 – Optimization Techniques

Approved without any changes.

Agenda SOE-MATHS 7.7 : Any other matter with the permission of the chair.

- Nil -

As per the Feedback received from Students, Alumni, Faculty and Employers, the Course Revisions as per Annexure I and New Course introduction as per Annexure II is hereby approved.

The meeting ended with vote of thanks by Dr. S. Maruthamanikandan.





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Annexure – 1

List of WINTER (Even) Semester Courses (Academic Year: 2021-22)

Sl. No.	Semester	Course Code	Course Name	L	P	C
School of Engineering (BTech)						
1	II Sem BTech	MAT1002	Transform Techniques, Partial Differential Equations and Their Applications	3	0	3
2	II Sem BTech	MAT1003	Applied Statistics	1	2	2
3	IV Sem BTech	MAT2002	Numerical Methods, Probability Distributions and Sampling Techniques	3	0	3
4	IV Sem BTech	CSE2016	Discrete Mathematical Structures	3	0	3
5	IV Sem BTech	CSE2017	Graph Theory and Combinatorics	3	0	3
6	VI Sem BTech	CSE226	Optimization Techniques	3	0	3

Sl. No.	Semester	Course Code	Course Name	L	P	C
School of Information Science (BCA & BSc-Data Science)						
7	II Sem BCA	MAT1007	Applied Mathematics	3	0	3
8	II Sem BSc-DS	MAT1007	Applied Mathematics	3	0	3
9	II Sem BSc-DS	MAT1008	Probability and Inferential Statistics	3	0	3

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Sl. No.	Semester	Course Code	Course Name	L	P	C
School of Commerce (BBA & BSc-Economics)						
10	IV Sem BBA	OE145	Optimization Techniques	3	0	3
11	II Sem BSc-Eco	BSE1003	Advanced Mathematics for Economists	4	0	4
12	II Sem BSc-ECO	BSE2006	Operations Research	3	0	3
13	II Sem BSc-ECO	BSE2011	Applied Statistics	3	0	3

BoS Committee:

S. No.	Name	Position	Signature with date
1	Dr. Abdul Sharief	Dean, School of Engineering Presidency University, Bangalore – 64	
2	Dr. S. Maruthamanikandan	Professor and HOD School of Engineering Presidency University, Bangalore – 64	
3	Dr. M. V Chakradhar Rao	Associate Professor, School of Engineering Presidency University, Bangalore – 64	
4	Dr. Shilpa N.	Associate Professor School of Engineering Presidency University, Bangalore – 64	
5	Dr. Sandeep kumar	Assistant Professor School of Engineering Presidency University, Bangalore – 64	
6	Dr. A K Nandakumaran	Professor Indian Institute of Science (IISc), Bangalore	
7	Dr. Vineet Dravid	Managing Director, COMSOL India Pvt. Ltd., Bangalore	

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8	Dr. G. Murugusundaramoorthy	Professor, SAS, VIT, Vellore.	
9	Dr. S.R. Sudheendra	Professor , School of Engineering, Presidency University, Bangalore – 64	

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Ref. No. PU/SOE/MAT/BOS-08/2022-23/MOM-2

Date: 23-07-2022

SCHOOL OF ENGINEERING

DEPARTMENT OF MATHEMATICS

8th BOS MINUTES OF MEETING

Minutes of the 8th Meeting of Board of Studies (Mathematics-BOS-MAT)

The 8th meeting of the Board of Studies of the Mathematics was held on 23.07.2022 (Saturday) at 10.00 am and it was conducted through hybrid mode. Dr. Maruthamanikandan, Professor & HOD, welcomed all the members and commenced the meeting in time.

The following are the members of the BOS:

Sl. No.	Name	Affiliation	Position
1	Dr. Abdul Sharief	Dean, School of Engineering, PU	Chairperson
2	Dr. Maruthamanikandan S	Professor & HOD, Math Dept., PU	Member Secretary
3	Dr. S. R. Sudheendra	Professor of Math and Deputy-COE, PU	Member
4	Dr. M. V. Chakradhara Rao	Associate Professor, Math Dept., PU	Member
5	Dr. Shilpa N	Associate Professor, Math Dept., PU	Special Invitee
6	Dr. Sandeep Kumar	Assistant Professor, Math Dept., PU	Special Invitee
7	Dr. A. K. Nandakumaran	Professor of Mathematics, Indian Institute of Science, Bangalore	External Member
8	Dr. G. Murugusundaramoorthy	Professor, School of Advanced Studies, VIT, Vellore.	External Member
9	Dr. Vineet Dravid	Founder and CEO, oorja.energy, Bangalore	External Member
10.	Dr. Shilpa Mehta	Dean Academics, PU	Special Invitee

The following members were given leave of absence:

1.	Nil
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HOD briefed the agenda of the meeting and requested the members to take part in the discussion.

Agenda SOE-MATHS 8.1:

To approve the minutes of 7th BOS Meeting held on 24th February 2022.

The minutes of the 7th BoS meeting of the Board of Studies of Mathematics held on 24th February 2022 was placed before the members and the same was approved.

Agenda SOE-MATHS 8.2 :

To consider and approve the Mathematics Course Content concerning the B.Tech Programs of 2021 and 2022 batches as in Annexure 1.

Suggestions given are listed below Course-wise.

MAT1001 – Calculus and Linear Algebra

Applications of the concepts are to be included in modules 2, 3 and 4. Some of them could be made self-study topics and some of them could be part of the assignments.

MAT1002 – Transform techniques, Partial Differential Equations and Their Applications

The content of this course is retained as it already contains the application related topics.

MAT1003 – Applied Statistics

The syllabus may have 3 modules (as the course has 1 credit for theory) and the module on sampling techniques could be ignored. There could be an open elective on Advanced Statistical Methods to be introduced in the future meant for the engineering group.

MAT2003 – Numerical Methods for Engineers

It is a new course with lab component. The lab sessions are to be conducted using MATLAB. It is approved without any changes.

MAT2004 – Discrete Mathematical Structures

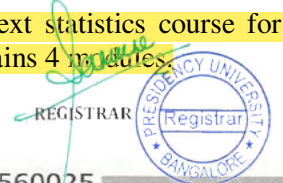
It is a new course (introduced with MAT code instead of CSE) and it is approved without any changes.

Agenda SOE-MATHS 8.3 :

To consider and approve the Mathematics Course Content concerning the BCA and BSc-Data Science Programs of 2021 and 2022 batches as in Annexure 1.

MAT1006 – Statistical Methods and Techniques

Module 4 on random variables may be ignored for BCA and it could be moved to the next statistics course for BSc-Data science. Accordingly changes must be made in the syllabus so that the syllabus contains 4 modules.





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MAT1010 – Fundamental Calculus

This existing course is meant for BSc-Data Science. Rearrangement of the modules may be considered. Applications of the concepts are to be included.

MAT2007 – Applied Mathematics

Certain topics could be treated as review topics. Applications of the concepts are to be included in modules 2 and 3.

MAT2023 – Matrix Computations for Data Science

It is a new course on linear algebra meant for BSc-Data Science and it is approved without any changes.

MAT2028 – Graph Theory

It is a new course meant for BSc-Data Science and it is approved without any changes.

Agenda SOE-MATHS 8.4 :

To consider and approve the Mathematics Course Content concerning the B.Com program of 2020 Batch and BSc-Economics Programs of 2021 and 2022 batches as in Annexure 1.

MAT1011 – Basic Mathematics for Economists

The syllabus may have 4 modules as the total credit is 3. Changes in the syllabus must be made accordingly.

MAT1012 – Introduction to Statistics

Module 4 on random variables may be moved to the next statistics course. Accordingly changes must be made in the syllabus so that the syllabus contains 4 modules.

MAT2051 – Advanced Mathematics for Economists

The syllabus may have 5 modules as the total credit is 4. Changes in the syllabus must be made accordingly. Applications to economics must be stated explicitly.

MAT2052 – Operations Research

The syllabus may have 4 modules as the total credit is 3. The module on inventory models may be ignored. There could be an open elective on Advanced Optimization Techniques to be introduced in the future meant for all the students who have already been exposed to the classical optimization techniques.

MAT2053 – Applied Statistics

Module 1 is to include the concept of random variables and probability distributions. Concept of maximum likelihood estimates is to be included in module 2.

MAT2054 – Optimization Techniques

It is a new course meant for B.Com program and it is approved without any changes.





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Agenda SOE-MATHS 8.5 :

To consider and approve the Mathematics Course Content concerning the M.Tech Program of 2022 batch as in Annexure 1.

MAT6001 – Advanced Engineering Mathematics

The course content is to be revised drastically as many topics of the existing syllabus are already taught at UG level. The members suggested several topics in order to help prepare the revised syllabus. The HOD informed the members that an internal committee would be formed for the development and the revised syllabus would be communicated for approval before the next BOS meeting.

Agenda SOE-MATHS 8.6:

To approve the previous semester course handouts approved by Department Academic Committee.

The previous semester course handouts approved by Department Academic Committee were placed before the members and the same have been approved.

Agenda SOE-MATHS 8.7:

To discuss the Feedback obtained on curriculum from Industry, students, alumni & faculty members.

The feedbacks obtained from industry, students, alumni and faculty were shown to the members. The members appreciated the entire process.

Agenda SOE-MATHS 8.8 :

Any other matter with the permission of the chair.

1. List of open electives was placed before the members and the same was approved.
2. The examiners list and the NPTEL list for OE transfer were presented and the same was approved.
3. The course content of value added courses was placed before the members and the same was approved. The members appreciated the coverage of classical, technical and modern mathematical topics being implemented through the valued added courses.
4. The list of new and revised courses was presented by the Chairperson and the same was approved by the committee.

As per the Feedback received from Students, Alumni, Faculty, and Employers, the Course Revisions as per Annexure I and New Course introduction as per Annexure-II are hereby approved.





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The meeting ended with vote of thanks by Dr. S. Maruthamanikandan.

List of Odd Semester Courses (Academic Year: 2022-23)

Sl. No.	Semester	Course Code	Course Name	L	P	C
School of Engineering (BTech & MTech)						
1	I Sem BTech	MAT1001	Calculus and Linear Algebra	3	2	4
2	III Sem BTech	MAT2004	Discrete Mathematical Structures	3	0	3
3	I Sem MTech	MAT6001	Advanced Engineering Mathematics	3	0	3

Sl. No.	Semester	Course Code	Course Name	L	P	C
School of Information Science (BCA & BSc-Data Science)						
4	I Sem BCA & BSc-DS	MAT2007	Applied Mathematics	3	0	3
5	III Sem BSc-DS	MAT2023	Matrix Computations for Data Science	3	0	3

Sl. No.	Semester	Course Code	Course Name	L	P	C
School of Commerce (BSc-Economics & BCom)						
6	I Sem BSc-Eco	MAT1011	Basic Mathematics for Economists	3	0	3
7	I Sem BSc-Eco	MAT1012	Introduction to Statistics	3	0	3
8	V Sem BCom	MAT2054	Optimization Techniques	3	0	3

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List of Even Semester Courses (Academic Year: 2022-23)

Sl. No.	Semester	Course Code	Course Name	L	P	C
School of Engineering (BTech)						
1	II Sem BTech	MAT1003	Applied Statistics	1	2	2
2	IV Sem BTech	MAT2003	Numerical Methods for Engineers	1	2	2

Sl. No.	Semester	Course Code	Course Name	L	P	C
School of Information Science (BCA & BSc-Data Science)						
3	II Sem BCA & BSc-DS	MAT1006	Statistical Methods and Techniques	3	0	3
4	II Sem BSc-DS	MAT1010	Fundamental Calculus	3	0	3
5	IV Sem BSc-DS	MAT2028	Graph Theory	3	0	3

Sl. No.	Semester	Course Code	Course Name	L	P	C
School of Commerce (BSc-Economics)						
6	II Sem BSc-Eco	MAT2051	Advanced Mathematics for Economists	4	0	4
7	II Sem BSc-ECO	MAT2052	Operations Research	3	0	3
8	II Sem BSc-ECO	MAT2053	Applied Statistics	3	0	3

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List of Open Electives (AY: 2022-23)

Sl. No.	Course Code	Course Name	L	P	C
1	MAT2008	Mathematical Reasoning	3	0	3
2	MAT2014	Advanced Business Mathematics	3	0	3
3	MAT2041	Functions of Complex Variables	3	0	3
4	MAT2042	Probability and Random Processes	3	0	3
5	MAT2043	Elements of Number Theory	3	0	3
6	MAT2044	Mathematical Modelling and Applications	3	0	3

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List of New Courses

Sl. No.	Semester	Course Code	Course Name	L	P	C
1	III Sem BTech	MAT2004	Discrete Mathematical Structures	3	0	3
2	IV Sem BTech	MAT2003	Numerical Methods for Engineers	1	2	2
3	III Sem BSc-DS	MAT2023	Matrix Computations for Data Science	3	0	3
4	IV Sem BSc-DS	MAT2028	Graph Theory	3	0	3
5	V Sem BCom	MAT2054	Optimization Techniques	3	0	3
6	OE	MAT2041	Functions of Complex Variables	3	0	3
7	OE	MAT2042	Probability and Random Processes	3	0	3
8	OE	MAT2043	Elements of Number Theory	3	0	3
9	OE	MAT2044	Mathematical Modelling and Applications	3	0	3

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List of Revised Courses

Sl. No.	Semester	Course Code	Course Name	L	P	C
1	I Sem BTech	MAT1001	Calculus and Linear Algebra	3	2	4
2	II Sem BTech	MAT1003	Applied Statistics	1	2	2
3	I Sem MTech	MAT6001	Advanced Engineering Mathematics	3	0	3
4	I Sem BCA & BSc-DS	MAT2007	Applied Mathematics	3	0	3
5	I Sem BSc- Eco	MAT1011	Basic Mathematics for Economists	3	0	3
6	I Sem BSc- Eco	MAT1012	Introduction to Statistics	3	0	3
7	II Sem BCA & BSc-DS	MAT1006	Statistical Methods and Techniques	3	0	3
8	II Sem BSc- DS	MAT1010	Fundamental Calculus	3	0	3
9	II Sem BSc- Eco	MAT2051	Advanced Mathematics for Economists	4	0	4
10	II Sem BSc- ECo	MAT2052	Operations Research	3	0	3
11	II Sem BSc- ECo	MAT2053	Applied Statistics	3	0	3

S. No.	Name	Position	Signature with date
1	Dr. Abdul Sharief	Dean, School of Engineering, PU	
2	Dr. Maruthamanikandan S	Professor & HOD, Math Dept., PU	

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3	Dr. S. R. Sudheendra	Professor of Math and Deputy-COE, PU	
4	Dr. M. V. Chakradhara Rao	Associate Professor, Math Dept., PU	
5	Dr. Shilpa N	Associate Professor, Math Dept., PU	
6	Dr. Sandeep Kumar	Assistant Professor, Math Dept., PU	
7	Dr. A. K. Nandakumaran	Professor of Mathematics, Indian Institute of Science, Bangalore	
8	Dr. G. Murugusundaramoorthy	Professor, School of Advanced Studies, VIT, Vellore.	
9	Dr. Vineet Dravid	Founder and CEO, oorja.energy, Bangalore	
10.	Dr. Shilpa Mehta	Dean Academics, PU	


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SCHOOL OF ENGINEERING Department of Mathematics

14.02.2023

The 9th Meeting of the Board of Studies (BoS) for Department of Mathematics, School of Engineering, Presidency University, Bengaluru was held on 20th January, 2023 at 2:00 PM. The meeting was held in hybrid mode from the Presidency University Campus, Bengaluru. The internal members attended in person while external members joined in Online mode.

The Agenda points which were discussed and recommended to the Academic Council for approval, are listed below for consideration by the Academic Council to be held on 15.2.2023:

Agenda

SOE - MATHS 9.1	To approve the minutes of 8th Board of Studies Meeting held on 23rd July 2022.
SOE - MATHS 9.2	Approval of previous semester course handouts approved by Department Academic Committee.
SOE - MATHS 9.3	Discussion and approval of the Mathematics course catalogue for the M.Tech. program of 2022-23 batch.
SOE - MATHS 9.4	Discussion and approval of the Mathematics course catalogue for the lateral entry (diploma) students.
SOE - MATHS 9.5	Any other discussion with the permission of the chair.

Recommended for Approval to the Academic Council:

Vice Chancellor	
Pro-Vice Chancellor	
Dean - Academics	
Dean SOE	
Associate Dean SOE	
HOD - Mathematics	

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SCHOOL OF ENGINEERING

DEPARTMENT OF MATHEMATICS

Ref. No. PU/SOE-MAT/BOS-9/2022-2023/NOTICE-01

Date: 19th January 2023

9th BoS Meeting Notice

The 9th Meeting of the Board of Studies of the Presidency University School of Engineering, Department of Mathematics is convened on **20th January 2023, Friday** at 2.00 p.m. through hybrid mode from QB04, Presidency University campus and external members are invited to join through on **MS Teams** hosted by Presidency University, Itgalpur, Rajankunte, Yelahanka, Bengaluru.

Your gracious presence at the meeting is anticipated in connection with the enhancement and enrichment of the curriculum following fruitful discussion.

Kindly make it convenient to attend the meeting using the link below.

https://teams.microsoft.com/l/meetup-join/19%3a4aMxRibThCliEby5HrRJRYxf3IIRK_avNEsnMY682Qw1%40thread.tacv2/1674122681287?context=%7b%22Tid%22%3a%22bf93bb5e-ecf0-4e3d-be0e-79b5cc527a48%22%2c%22Oid%22%3a%22679606f2-1d47-4ac4-9580-51a4b91f4f8b%22%7d

AGENDA

Agenda SOE-MAT 9.1	Approval of the minutes of 8 th Board of Studies Meeting held on 23 rd July 2022. (Annexure SOE-MAT 9.1)
Agenda SOE-MAT 9.2	Approval of previous semester course handouts approved by Department Academic Committee.
Agenda SOE-MAT 9.3	Discussion and approval of the Mathematics course catalogue for the M.Tech. program of 2022-23 batch. (Annexure SOE-MAT 9.3)
Agenda SOE-MAT 9.4	Discussion and approval of the Mathematics course catalogue for the lateral entry (diploma) students. (Annexure SOE-MAT 9.4)
Agenda SOE-MAT 9.5	Any other discussion with the permission of the chair.



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Members & Invitees

Sl. No.	Name	Affiliation	Position
1	Dr. Abdul Sharief	Dean, School of Engineering, PU	Chairperson
2	Dr. M. V. Chakradhara Rao	Professor & HOD, Math Dept., PU	Member Secretary
3	Dr. S. R. Sudheendra	Professor, Math Dept., PU	Member
4	Dr. Maruthamanikandan S	Professor, Math Dept., PU	Member
5	Dr. Shilpa N	Professor, Math Dept., PU	Special Invitee
6	Dr. Sandeep Kumar	Assoc. Professor, Math Dept., PU	Special Invitee
7	Dr. A. K. Nandakumaran	Professor of Mathematics, IISc, Bangalore	External Member
8	Dr. G. Murugusundaramoorthy	Professor, School of Advanced Studies, VIT, Vellore.	External Member
9	Dr. Vineet Dravid	Founder and CEO, oorja.energy, Bangalore	External Member
10.	Dr. Shilpa Mehta	Dean Academics, PU	Special Invitee


Member Secretary


Chairperson

Copy To

- Honorable Chancellor, Presidency University.
- Honorable Vice President, PGI.
- Honorable Vice Chancellor, Presidency University.
- Honorable Pro Vice Chancellor, Presidency University.
- Dean Academics, PU
- Office of the Registrar, PU
- Members of the BOS-MATHS Committee
- Special Invitees



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SCHOOL OF ENGINEERING

DEPARTMENT OF MATHEMATICS

Ref. No. PU/SOE-MAT/BOS-09/2022-23/MOM-01

Date: 20th January 2023

Minutes of the 9th Meeting of Board of Studies (Mathematics)

The 9th meeting of the Board of Studies of the Mathematics was held on 20.01.2023 (Friday) at 2.00 p.m. and it was conducted through hybrid mode. Dr. M. V. Chakradhara Rao, Professor & HOD, welcomed all the members and commenced the meeting in time.

The following are the members of the BOS:

Sl. No.	Name	Affiliation	Position
1	Dr. Abdul Sharief	Dean, School of Engineering, PU	Chairperson
2	Dr. M. V. Chakradhara Rao	Professor, Math Dept., PU	Member Secretary
3	Dr. S. R. Sudheendra	Professor & HOD, Math Dept., PU	Member
4	Dr. Maruthamanikandan S	Professor & HOD, Math Dept., PU	Member
5	Dr. Shilpa N	Professor, Math Dept., PU	Special Invitee
6	Dr. Sandeep Kumar	Associate Professor, Math Dept., PU	Special Invitee
7	Dr. A. K. Nandakumaran	Professor of Mathematics, Indian Institute of Science, Bangalore	External Member
8	Dr. G. Murugusundaramoorthy	Professor, School of Advanced Studies, VIT, Vellore.	External Member
9	Dr. Vineet David	Founder and CEO, oorja.energy, Bangalore	External Member
10.	Dr. Shilpa Mehta	Dean Academics, PU	Special Invitee


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The following members were given leave of absence:

1.	Dr. A. K. Nandakumaran
2.	Dr. Vineet Dravid

HOD briefed the agenda of the meeting and requested the members to take part in the discussion.

Agenda SOE-MAT 9.1: Approval of the minutes of 8th Board of Studies Meeting held on 23rd July 2022.

The Minutes of the previous BOS meeting were presented and discussed. (Annexure SOE-MAT 9.1)

Resolution: The minutes of the 8th BoS meeting of the Board of Studies of Mathematics held on 23rd July 2022 was placed before the members and the same was approved.

Agenda SOE-MAT 9.2: Approval of previous semester course handouts approved by Department Academic Committee.

The previous semester course handouts approved by Department Academic Committee were placed before the members.

Resolution: The same was discussed and approved.

Agenda SOE-MAT 9.3 : Discussion and approval of the Mathematics course catalogue for the M.Tech. program of 2022-23 batch.

Course content of the course “MAT5001 - Advanced Engineering Mathematics” was displayed and discussed. (Annexure SOE-MAT 9.3)

Resolution: The same was discussed and approved.

Agenda SOE-MAT 9.4: Discussion and approval of the Mathematics course catalogue for the lateral entry (diploma) students.

Course content of the course “MAT2071 - Mathematics for Engineers” was placed before the members. (Annexure SOE-MAT 9.4)

Resolution: The same was approved.

Agenda SOE-MAT 9.5: Any other matter with the permission of the chair.

The meeting ended with vote of thanks by Dr. M. V. Chakradhara Rao.


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As per the Feedback received from Students, Alumni, Faculty and Employers, the Course Revisions as per Annexure I and New Course introduction as per Annexure II is hereby approved.

BoS Committee Members attended:

Sl. No.	Name	Affiliation	Posi	
1	Dr. Abdul Sharief	Dean, School of Engineering, Presidency University	Chairperson	
2	Dr. M. V. Chakradhara Rao	Professor, Math Dept., Presidency University	Member Secretary	
3	Dr. S. R. Sudheendra	Professor & HOD, Math Dept., Presidency University	Member	
4	Dr. Maruthamanikandan S	Professor & HOD, Math Dept., Presidency University	Member	
5	Dr. Shilpa N	Professor, Math Dept., Presidency University	Special Invitee	
6	Dr. Sandeep Kumar	Associate Professor, Math Dept., Presidency University	Special Invitee	
7	Dr. Shilpa Mehta	Dean Academics, Presidency University	Special Invitee	
8	Dr. A. K. Nandakumaran	Professor of Mathematics, Indian Institute of Science, Bangalore	External Member	Absent
9	Dr. G. Murugusundaramoorthy	Professor, School of Advanced Studies, VIT, Vellore.	External Member	
10	Dr. Vineet Dravid	Founder and CEO, oorja.energy, Bangalore	External Member	Absent


Member Secretary


Chairperson



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Annexure SOE-MAT 9.1

Ref. No. PU/SOE/MAT/BOS-08/2022-23/MOM-2

Date: 23-07-2022

SCHOOL OF ENGINEERING

DEPARTMENT OF MATHEMATICS

8th BOS MINUTES OF MEETING

Minutes of the 8th Meeting of Board of Studies (Mathematics-BOS-MAT)

The 8th meeting of the Board of Studies of the Mathematics was held on 23.07.2022 (Saturday) at 10.00 am and it was conducted through hybrid mode. Dr. Maruthamanikandan, Professor & HOD, welcomed all the members and commenced the meeting in time.

The following are the members of the BOS:

Sl. No.	Name	Affiliation	Position
1	Dr. Abdul Sharief	Dean, School of Engineering, PU	Chairperson
2	Dr. Maruthamanikandan S	Professor & HOD, Math Dept., PU	Member Secretary
3	Dr. S. R. Sudheendra	Professor of Math and Deputy-COE, PU	Member
4	Dr. M. V. Chakradhara Rao	Associate Professor, Math Dept., PU	Member
5	Dr. Shilpa N	Associate Professor, Math Dept., PU	Special Invitee
6	Dr. Sandeep Kumar	Assistant Professor, Math Dept., PU	Special Invitee
7	Dr. A. K. Nandakumaran	Professor of Mathematics, Indian Institute of Science, Bangalore	External Member
8	Dr. G. Murugusundaramoorthy	Professor, School of Advanced Studies, VIT, Vellore.	External Member
9	Dr. Vineet Dravid	Founder and CEO, oorja.energy, Bangalore	External Member
10.	Dr. Shilpa Mehta	Dean Academics, PU	Special Invitee

The following members were given leave of absence:


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1.	Nil
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HOD briefed the agenda of the meeting and requested the members to take part in the discussion.

Agenda SOE-MATHS 8.1:

To approve the minutes of 7th BOS Meeting held on 24th February 2022.

The minutes of the 7th BoS meeting of the Board of Studies of Mathematics held on 24th February 2022 was placed before the members and the same was approved.

Agenda SOE-MATHS 8.2 :

To consider and approve the Mathematics Course Content concerning the B.Tech Programs of 2021 and 2022 batches as in Annexure 1.

Suggestions given are listed below Course-wise.

MAT1001 - Calculus and Linear Algebra

Applications of the concepts are to be included in modules 2, 3 and 4. Some of them could be made self-study topics and some of them could be part of the assignments.

MAT1003 - Applied Statistics

The syllabus may have 3 modules (as the course has 1 credit for theory) and the module on sampling techniques could be ignored. There could be an open elective on Advanced Statistical Methods to be introduced in the future meant for the engineering group.

MAT2003 - Numerical Methods for Engineers

It is a new course with lab component. The lab sessions are to be conducted using MATLAB. It is approved without any changes.

MAT2004 - Discrete Mathematical Structures

It is a new course (introduced with MAT code instead of CSE) and it is approved without any changes.

Agenda SOE-MATHS 8.3 :

To consider and approve the Mathematics Course Content concerning the BCA and BSc-Data Science Programs of 2021 and 2022 batches as in Annexure 1.

MAT1006 - Statistical Methods and Techniques





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Module 4 on random variables may be ignored for BCA and it could be moved to the next statistics course for BSc-Data science. Accordingly changes must be made in the syllabus so that the syllabus contains 4 modules.

MAT1010 - Fundamental Calculus

This existing course is meant for BSc-Data Science. Rearrangement of the modules may be considered. Applications of the concepts are to be included.

MAT2007 - Applied Mathematics

Certain topics could be treated as review topics. Applications of the concepts are to be included in modules 2 and 3.

MAT2023 - Matrix Computations for Data Science

It is a new course on linear algebra meant for BSc-Data Science and it is approved without any changes.

MAT2028 - Graph Theory

It is a new course meant for BSc-Data Science and it is approved without any changes.

Agenda SOE-MATHS 8.4 :

To consider and approve the Mathematics Course Content concerning the B.Com program of 2020 Batch and BSc-Economics Programs of 2021 and 2022 batches as in Annexure 1.

MAT1011 - Basic Mathematics for Economists

The syllabus may have 4 modules as the total credit is 3. Changes in the syllabus must be made accordingly.

MAT1012 - Introduction to Statistics

Module 4 on random variables may be moved to the next statistics course. Accordingly changes must be made in the syllabus so that the syllabus contains 4 modules.

MAT2051 - Advanced Mathematics for Economists

The syllabus may have 5 modules as the total credit is 4. Changes in the syllabus must be made accordingly. Applications to economics must be stated explicitly.

MAT2052 - Operations Research

The syllabus may have 4 modules as the total credit is 3. The module on inventory models may be ignored. There could be an open elective on Advanced Optimization Techniques to be introduced in the future meant for all the students who have already been exposed to the classical optimization techniques.

MAT2053 - Applied Statistics

Module 1 is to include the concept of random variables and probability distributions. Concept of maximum likelihood estimates is to be included in module 2.

MAT2054 - Optimization Techniques





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It is a new course meant for B.Com program and it is approved without any changes.

Agenda SOE-MATHS 8.5 :

To consider and approve the Mathematics Course Content concerning the M.Tech Program of 2022 batch as in Annexure 1.

MAT6001 - Advanced Engineering Mathematics

The course content is to be revised drastically as many topics of the existing syllabus are already taught at UG level. The experienced faculty are supposed to finalize the revision to be made.

Agenda SOE-MATHS 8.6:

To approve the previous semester course handouts approved by Department Academic Committee.

The previous semester course handouts approved by Department Academic Committee were placed before the members and the same have been approved.

Agenda SOE-MATHS 8.7:

To discuss the Feedback obtained on curriculum from Industry, students, alumni & faculty members.

The feedbacks obtained from industry, students, alumni and faculty were shown to the members. The members appreciated the entire process.

Agenda SOE-MATHS 8.8 :

Any other matter with the permission of the chair.

1. The course content of open electives was placed before the members and the same was approved.
2. The course content of value added courses was placed before the members and the same was approved. The members appreciated the coverage of classical, technical and modern mathematical topics being implemented through the valued added courses.

The meeting ended with vote of thanks by Dr. S. Maruthamanikandan.





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Annexure - 1

List of Odd Semester Courses (Academic Year: 2022-23)

Sl. No.	Semester	Course Code	Course Name	L	P	C
School of Engineering (BTech & MTech)						
1	I Sem BTech	MAT1001	Calculus and Linear Algebra	3	2	4
2	III Sem BTech	MAT2004	Discrete Mathematical Structures	3	0	3
3	I Sem MTech	MAT6001	Advanced Engineering Mathematics	3	0	3

Sl. No.	Semester	Course Code	Course Name	L	P	C
School of Information Science (BCA & BSc-Data Science)						
4	I Sem BCA & BSc-DS	MAT2007	Applied Mathematics	3	0	3
5	III Sem BSc-DS	MAT2023	Matrix Computations for Data Science	3	0	3

Sl. No.	Semester	Course Code	Course Name	L	P	C
School of Commerce (BSc-Economics & BCom)						
6	I Sem BSc-Eco	MAT1011	Basic Mathematics for Economists	3	0	3
7	I Sem BSc-Eco	MAT1012	Introduction to Statistics	3	0	3
8	V Sem BCom	MAT2054	Optimization Techniques	3	0	3

List of Even Semester Courses (Academic Year: 2022-23)

Sl. No.	Semester	Course Code	Course Name	L	P	C
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School of Engineering (BTech)						
1	II Sem BTech	MAT1003	Applied Statistics	1	2	2
2	IV Sem BTech	MAT2003	Numerical Methods for Engineers	1	2	2

Sl. No.	Semester	Course Code	Course Name	L	P	C
School of Information Science (BCA & BSc-Data Science)						
3	II Sem BCA & BSc-DS	MAT1006	Statistical Methods and Techniques	3	0	3
4	II Sem BSc- DS	MAT1010	Fundamental Calculus	3	0	3
5	IV Sem BSc- DS	MAT2028	Graph Theory	3	0	3

Sl. No.	Semester	Course Code	Course Name	L	P	C
School of Commerce (BSc-Economics)						
6	II Sem BSc- Eco	MAT2051	Advanced Mathematics for Economists	4	0	4
7	II Sem BSc- ECo	MAT2052	Operations Research	3	0	3
8	II Sem BSc- ECo	MAT2053	Applied Statistics	3	0	3

List of Open Electives (AY: 2022-23)

Sl. No.	Course Code	Course Name	L	P	C
1	MAT2008	Mathematical Reasoning	3	0	3
2	MAT2014	Advanced Business Mathematics	3	0	3
3	MAT2041	Functions of Complex Variables	3	0	3
4	MAT2042	Probability and Random Processes	3	0	3
5	MAT2043	Elements of Number Theory	3	0	3

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6	MAT2044	Mathematical Modelling and Applications	3	0	3
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Annexure SOE-MAT 9.3

Course Code: MAT5001	Course Title: Advanced Engineering Mathematics	L- P- C	3	0	3
	Type of Course: School Core				
Version No.	2.0				
Course Pre-requisites	Basic Engineering Mathematics				
Anti-requisites	None				
Course Description	This course is intended to provide an in-depth theoretical background and mathematical skills that are imperative for the effective understanding of engineering problems. The topics introduced will serve as basic tools for specialized studies in many engineering fields. The course focuses on various mathematical techniques with a strong focus on modelling, simulation and solving problems relevant to the industry. The course covers topics such as linear algebra, numerical methods and optimization techniques.				
Course Objective	The objective of the course is Skill Development of student by using Participative Learning techniques.				
Course Outcomes:	<p>On successful completion of this course, the students will be in a position to</p> <p>CO-1: comprehend the concepts of vector spaces and linear transformations. CO-2: apply various numerical methods to solve linear and nonlinear equations. CO-3: adopt various optimization techniques to optimize real-life problems. CO-4: employ PERT and CPM techniques to solve network problems.</p>				
Module 1	Linear Algebra				10 classes
Introduction to vector spaces and sub-spaces - definitions and illustrative examples, linearly independent and dependent vectors, basis and dimension - definitions and problems, linear transformations -definitions and examples, matrix form of linear transformations - Illustrative examples.					
Module 2	Numerical Methods				12 classes

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Introduction, Newton-Raphson method for system of nonlinear equations, Runge-Kutta Method system of first order ODEs and for second order ODEs, finite difference method for boundary value problems, shooting method.

Module 3	OR and LPP			15 classes
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Review of OR: Definition and basics of OR, characteristics of OR, OR and decision making, scope and limitations of OR, linear programming problem, formulation of LPP, graphical solution of LPP, transportation problem, assignment problem, travelling salesman problem.

Module 4	PERT & CPM			8 classes
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PERT and CPM: Basic components, logical sequencing, rules of network construction, shortest-route problem, critical path analysis, PERT networks.

Targeted Applications & Tools that can be used:

The objective of the course is to familiarize students with the concepts of advanced engineering mathematics.

Tools used: R Software / MS-Excel / Matlab / Mathematica / Maple

Text Books

- T1: Erwin Kreyszig, Advanced Engineering Mathematics, 10th Edition, Wilely India, 2016.
T2: C. Ray Wylie and Louis C Barrett, "Advanced Engineering Mathematics", 6th Edition, McGraw-Hill, 2012.
T3: M K Jain, S.R.K Iyengar, R K. Jain, Numerical methods for Scientific and Engg. Computations, New Age International, 2003.
T4: H.A. Taha, Operations Research: An Introduction, Pearson Education, 9th Edn., 2012.

References

- R1: Steven C Chapra and Raymond P Canale, Numerical Methods for Engineers, McGraw-Hill, 2018.
R2: B.S. Grewal, Higher Engineering Mathematics, Khanna Publishers, 2019.
R3: I. N. Herstein, Topics in Algebra, 3rd addition, Wilely India, 1996.
R4: F.S. Hillier and G.J. Lieberman, Introduction to Operations Research, 9th Edn., McGraw Hill-Higher Education, 2010.
R5: Kanti Swarup, P.K. Gupta and Man Mohan, Operations Research, Sultan Chand & Sons, New Delhi, 2015.

Catalogue prepared by	Dr S Maruthamanikandan
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Recommended by the Board of Studies on	9 th BOS Meeting on 20/01/2023
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Date of Approval by the Academic Council	20 th Academic council on 15/02/2023
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Annexure SOE-MAT 9.4

Course Code: MAT2071	Course Title: Mathematics for Engineers Type of Course: School Core (Lateral Entry)	L- P- C	4	0	4
Version No.	2.0				
Course Pre-requisites	Basic Mathematics				
Anti-requisites	NIL				
Course Description	This course focuses on concepts of calculus, linear algebra and descriptive statistics with reference to specific engineering problems. The course also aims to introduce various transform techniques such as Laplace, Fourier and Z transforms. The course covers applications of Laplace transform to LCR circuits and solution of difference equations using z-transform. Further, the course deals with the analytical methods for solving differential equations and engineering applications of differential equations.				
Course Objective	The objective of the course is Skill Development of student by using Participative Learning techniques.				
Course Outcomes	On successful completion of this course the students shall be able to: CO-1: Comprehend the knowledge of matrix principles and descriptive statistics. CO-2: Adopt the principles of calculus to deal with real-world problems. CO-3: Apply the Laplace transform technique to solve initial value problems. CO-4: Employ the Z transform technique to solve difference equations. CO-5: Solve ordinary and partial differential equations analytically.				
Course Content:					
Module 1	Linear Algebra and Descriptive Statistics				14 Classes

Types of matrices, elementary transformations, rank of a matrix, solution of systems of linear equations (Homogenous and non-homogenous systems) using Gauss elimination and Gauss-Jordan method. Eigenvalues and eigenvectors of a real matrix, characteristic equation, properties of eigenvalues and eigenvectors, Cayley-Hamilton theorem.

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<p>Statistics, data and statistical thinking, basic statistical parameters: arithmetic mean, quartiles, mode standard deviation and variance for unclassified data, correlation, Karl Pearson's correlation coefficient, linear regression analysis: regression coefficients and regression equations.</p>				
Module 2	Differential and Integral Calculus			12 Classes
<p>Homogeneous functions and Euler's theorem, total derivative, change of variables, Jacobian, partial differentiation of implicit functions, Taylor's series for functions of two variables, Maxima and minima of functions of two variables, Lagrange's method of undetermined multipliers.</p> <p>Multiple Integrals: Double integrals, change of order of integration, double integrals in polar coordinates, area enclosed by plane curves, evaluation of triple integrals, change of variables between Cartesian and cylindrical and spherical polar co-ordinates.</p>				
Module 3	Integral Transforms			13 Classes
<p>Laplace Transform: Definition of Laplace transform and Laplace transform of elementary functions, properties of Laplace transform, inverse Laplace transform of standard functions and problems, convolution theorem, solution of linear ordinary differential equations, LCR circuit problems.</p> <p>Fourier Transform: Integral transforms, infinite Fourier transforms, Fourier sine and cosine transforms, inverse Fourier transforms.</p>				
Module 4	Z Transform and Difference Equations			7 Classes
<p>Definition of Z transform, Z transform of standard functions, properties of Z transform, standard inverse Z transforms and problems, computation of inverse Z-transform by partial fraction method, solution of difference equations using Z-transforms.</p>				
Module 5	Differential Equations			14 Classes
<p>Ordinary Differential Equations: First order and first-degree ordinary differential equations, method of separation of variables, homogeneous differential equations, linear differential equation, Bernoulli's differential equation, exact and non-exact differential equations, higher order differential equation with constant coefficients and with right hand side of the form e^{ax}, $\sin ax$, $\cos ax$, $e^{ax}f(x)$, $x^n f(x)$ etc., engineering applications of ODEs.</p>				





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Partial Differential Equations: Formation of PDEs, solution of non-homogeneous PDEs by direct integration, solution of homogeneous PDEs involving derivatives with respect to only one independent variable, method of separation of variables, solution of the Lagrange's PDE of the type $Pp + Qq = R$, engineering applications of PDEs.

Targeted Applications & Tools that can be used:

Applications to electrical engineering, vibrational analysis, acoustics, optics, signal processing, image processing, quantum mechanics, econometrics and shell theory by means of linear algebra, calculus, transform techniques and differential equations.

Software Tools: Matlab, Mathematica, Python, Maple, MS-Excel and R software.

Assignment: Mention the Type of Project/Assignment proposed for this course

Two Assignments based on the applications of the concepts leading to a minimum of 5 engineering problems from a common pool of problems.

Text Book

1. Erwin Kreyszig, 2017: "Advanced Engineering Mathematics", 10th Edition, John Wiley.

References:

1. B. S. Grewal, 2017: "Higher Engineering Mathematics" 45th Edition, Khanna Publishers.
2. Peter V O'Neil, 2015: "Advanced Engineering Mathematics", 7th Edition, Cengage Learning.
3. Glyn James, 2016: "Advanced Modern Engineering Mathematics", 4th Edition, Pearson Education.
4. Michael D. Greenberg, 2018: "Advanced Engineering Mathematics", 2nd Edition, Pearson Education.
5. David R. Anderson, Dennis J. Sweeney, Thomas A. Williams, Essentials of Modern Business Statistics with Microsoft Excel, 2020.
6. Ronald E Walpole, Raymond H Myers, Sharon L Myers, and Keying E Ye, Probability and Statistics for Engineers and Scientists, Pearson Education, 2016.
7. Richard A. Johnson, Miller and Freund's Probability and Statistics for Engineers, 2018.

Topics relevant to the development of Foundation Skills: All the solution methods.

Topics relevant to development of Employability skills: Use of relevant scientific application packages.



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Catalogue prepared by	Dr S Maruthamanikandan
Recommended by the Board of Studies on	9 th BOS Meeting on 20/01/2023
Date of Approval by the Academic Council	20 th Academic council on 15/02/2023

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