PRESIDENCY UNIVERSITY

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

School of Engineering

Department of Mechanical Engineering

6th BOS

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PRESIDENCY UNIVERSITY

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

EF. No. PU/SoE/MEC/BOS-06/2017-18/Note02 November 11, 2017

NOTICE

he 6th meeting of the Board of Studies (BoS) for the B. Tech. Program in Mechanical ngineering is scheduled at 10:00 AM on December 2, 2017, in the Department of Mechanical ngineering, Presidency University, Bengaluru. All the esteemed members of the BoS mmittee are cordially invited to attend the meeting.

ote: The Coordinator, BoS, sent an invitation email regarding the 6th meeting of the BoS to all the teemed members on November 8, 2017.

ıe agenda for the meeting is:

1. Approval of the minutes of the 5th BoS meeting.
2. Program structures and curriculum for the 2015-2019, 2016-2020 and 2017-2021 batches.
3. Inclusion of two elective courses.
4. Review of the even semester courses.
5. Any other matter with the permission of the Chair.

M. N. Ravi 4/11/17

Dr. Udaya Ravi M.
Chairman, BoS-MEC

ɔpy to:
ıe Pro-Chancellor, PU
ıe ean (SoE), PU
ıe Registrar, PU
embers of the Board of Studies:

1	Dr. Udaya Ravi M.	8	Mr. Aravinda T.
2	Dr. B. S. Nagendra Parashar	9	Mr. Madhusudhan M.
3	Dr. C. Prabhakar Reddy	10	Mr. Kiran B.
4	Dr. Surendra Kumar A. M.	11	Mr. Yarlagadda Dheeraj Kumar
5	Dr. B. V. Prabhu	12	Dr. Ramesh S. Sharma
6	Dr. Mallikarjun R. Vaggar	13	Dr. A. T. Venkatesh
7	Dr. Akshay Nanjangud	14	Mr. R. M. Bhat

REGISTRAR

PRESIDENCY UNIVERSITY Registrar BANGALORE

Members Present

Sl. No.	Name	Affiliation	Designation	Signature
1	Dr. Udaya Ravi M.	Professor SoE, Presidency University Bengaluru	Chairman Ex-Officio	2/12/17
2	Dr. B. S. Nagendra Parashar	Vice Chancellor and Professor SoE, Presidency University Bengaluru	Member	2/12
3	Dr. C. Prabhakar Reddy	Dean and Professor SoE, Presidency University Bengaluru	Member	2/12/17
4	Dr. Surendra Kumar A. M.	CoE and Professor SoE, Presidency University Bengaluru	Member	02/12/17
5	Dr. B. V. Prabhu	Professor SoE, Presidency University Bengaluru	Member	Permitted absence
6	Dr. Mallikarjun R. Vaggar	Associate Professor SoE, Presidency University Bengaluru	Member	2/12
7	Dr. Akshay Nanjangud	Associate Professor SoE, Presidency University Bengaluru	Member Secretary	02-12-17
8	Mr. Aravinda T.	Assistant Professor SoE, Presidency University Bengaluru	Internal Member (Nominated by the VC)	2/12/17
9	Mr. Madhusudhan M.	Assistant Professor SoE, Presidency University Bengaluru	Internal Member (Nominated by the VC)	02/12/17

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Sl. No.	Name	Affiliation	Designation	Signature
10	Mr. Kiran B.	Assistant Professor Civil Engineering SoE, Presidency University Bengaluru	Internal Member (Nominated by the VC)	02/12/17
11	Mr. Yarlagadda Dheeraj Kumar	Assistant Professor Petroleum Engineering SoE, Presidency University Bengaluru	Internal Member (Nominated by the VC)	Permitted absence
12	Dr. Ramesh S. Sharma	Professor Mechanical Engineering R. V. College of Engineering Bengaluru rameshssharma@rvce.edu.in Phone: +91 9880702543	External Member (Academic)	02/12/17
13	Dr. A. T. Venkatesh	Professor Mechanical Engineering M. S. Ramaiah Institute of Technology, Bengaluru atvmsrit84@yahoo.co.in Phone: +91 9986638159	External Member (Academic)	2/12/17
14	Mr. R. M. Bhat	Sr. Executive – HR, L & T Construction Equipment Limited, Sy. No. 27 & 28, Thammshettihalli Village, Doddaballapur bhat.rm@larsentoubro.com Phone: +91 9986504029	External Member (Industry)	

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December 2, 2017

The 6th BoS Meeting in Mechanical Engineering

MINUTES OF THE MEETING

Members Present

Sl. No.	Name	Affiliation	Designation
1	Dr. Udaya Ravi M.	Professor SoE, Presidency University Bengaluru	Chairman Ex-Officio
2	Dr. B. S. Nagendra Parashar	Vice Chancellor and Professor SoE, Presidency University Bengaluru	Member
3	Dr. C. Prabhakar Reddy	Dean and Professor SoE, Presidency University Bengaluru	Member
4	Dr. Surendra Kumar A. M.	CoE and Professor SoE, Presidency University Bengaluru	Member
5	Dr. Mallikarjun R. Vaggar	Associate Professor SoE, Presidency University Bengaluru	Member
6	Dr. Akshay Nanjangud	Associate Professor SoE, Presidency University Bengaluru	Member Secretary
7	Mr. Aravinda T.	Assistant Professor SoE, Presidency University Bengaluru	Internal Member (Nominated by the VC)
8	Mr. Madhusudhan M.	Assistant Professor SoE, Presidency University Bengaluru	Internal Member (Nominated by the VC)

REGISTRAR
PRESIDENCY UNIVERSITY Registrar BANGALORE

Sl. No.	Name	Affiliation	Designation
9	Mr. Kiran B.	Assistant Professor Civil Engineering SoE, Presidency University Bengaluru	Internal Member (Nominated by the VC)
10	Dr. Ramesh S. Sharma	Professor Mechanical Engineering R. V. College of Engineering Bengaluru	External Member (Academic)
11	Dr. A. T. Venkatesh	Professor Mechanical Engineering M. S. Ramaiah Institute of Technology Bengaluru	External Member (Academic)
12	Mr. R. M. Bhat	Sr. Executive – HR, L & T Construction Equipment Limited, Sy. No. 27 & 28, Thammshettihalli Village, Doddaballapur	External Member (Industry)

Members Absent with Permission

Sl. No.	Name	Affiliation	Designation
1	Dr. B. V. Prabhu	Professor SoE, Presidency University Bengaluru	Member
2	Mr. Yarlagadda Dheeraj Kumar	Assistant Professor Petroleum Engineering SoE, Presidency University Bengaluru	Internal Member (Nominated by the VC)

REGISTRAR

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Welcome by the Chairman

Dr. Udaya Ravi M., the Head of the Department of Mechanical Engineering and the Chairman of the Board of Studies for Mechanical Engineering, welcomed the members. He requested all the members to introduce themselves. After the introductions he gave an overview of the department.

Agenda MEC 6.1: Approval of the Minutes of the 5th BoS Meeting

The minutes of the previous Board of Studies meeting held on April 22, 2017, were read and unanimously approved.

Agenda MEC 6.2: Program Structures and Curriculum of Different Batches

Comment: The Chair presented a summary of the Program Structures and Curriculum for the 2015-2019, 2016-2020 and 2017-2021 batches.

Resolution: These were approved by the members.

Agenda MEC 6.3: Inclusion of Two Elective Courses

Comment: The inclusion of two Discipline Elective Courses, which are to be titled Industrial Engineering Techniques and Fundamentals of Aerospace Engineering, were proposed. Professor B. S. Nagendra Parashar presented the Course Objectives, Course Outcomes, Syllabus, Textbook and Reference Books for Industrial Engineering Techniques. Mr. Bhat appreciated the inclusion of this course. Dr. Vaggar enquired about the prerequisites for this course; Professor Nagendra Parashar said that Production Techniques would be the only prerequisite.

Dr. Vaggar presented the contents of the course Fundaments of Aerospace Engineering. The Dean, SoE, suggested that based on the course contents and the prerequisites being Thermodynamics and Fluid Mechanics the course should be offered as a Discipline Elective and not as an Open Elective. Dr. Surendra Kumar suggested that Unit III which contains the basic principles of flight and compressible fluid flow may be covered in Unit II as a foundation for the later portion of the course. Dr. Ramesh S. Sharma suggested that the course include composite materials used in aircraft manufacturing to form a more complete course.

Resolution: The committee approved the inclusion of both courses as Discipline Electives in the Program Structures of all batches.

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Agenda MEC 6.4: Review of Even Semester Courses

The chair presented the courses of the sixth, fourth and second semesters for discussion. The following are the deliberations by the members.

- **Comment 1:** Professor Nagendra Parashar suggested that if Advanced Mechanics of Solids is a continuation of Mechanics of Solids then it may be better to retitle these two courses as Mechanics of Solids I and Mechanics of Solids II. He then added that if Advanced Mechanics of Solids is indeed an advanced course then it should be offered as a Discipline Elective.

  Resolution 1: The Chairman responded by saying that there was no requirement for Mechanics of Solids to be taught over two semesters. He also accepted that Advanced Mechanics of Solids is an advanced course which is a core course only for the 2015-2019 batch and may be considered for inclusion as a Discipline Elective for the 2016-2020 and 2017-2021 batches.

- **Comment 2:** Professor Sharma was of the opinion that the course on Finite Element Methods should have a laboratory component where students can validate experimental results on FEM software packages.

  Resolution 2: The committee decided to consider this suggestion.

- **Comment 3:** Professor Venkatesh suggested the inclusion of PERT and CPM in the course Operations Research. He also suggested the inclusion of the book *Turbomachines* by Govinde Gowda and A. M. Nagraj as a reference book for the course Turbomachines.

  Resolution 3: The committee accepted the suggestions and agreed to incorporate these suggestions.

- **Comment 4:** Professor Venkatesh suggested that Development of Surfaces can be excluded from the course Engineering Graphics because it is being done in the Workshop Practice Lab. He also opined that in Sections of Solids the problems only ask for sectional view in the front view.

  Resolution 4: The committee decided to keep the syllabus as it is for now since the university is in the middle of an academic year and Engineering Graphics is a common course for the first and second semesters. However, these suggestions will be considered in the next academic year.

- **Comment 5:** The Dean, SoE, and Professor Sharma were of the opinion that the course Fluid Mechanics and Machines should include Dimensional Analysis.

  Resolution 5: The Chairman accepted this suggestion and agreed to the inclusion of this topic in the Curriculum for the 2015-2019, 2016-2020 and 2017-2021 batches.

- **Comment 6:** Dr. Vaggar proposed the inclusion of *Industrial Safety* by L. M. Deshmukh and *Electrical Safety, Fire Safety & Safety Management* by S. Rao as references for the course Industrial Safety.

  Resolution 6: The committee approved Dr. Vaggar's proposal.

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6 (vi) Agenda MEC 6.5 Any Other Points with Permission of the Chair

* The Chairman briefed the committee about the pilot study Technology Enabled Learning for Life (TELL) being conducted in the university. Dr. Akshay Nanjangud, who is a member of the TELL committee, gave a presentation to the committee on how technology enabled learning was incorporated in the course Mechanics of Solids in the current semester.
* The Chairman also briefed the external members about the SoE National Conference on Green Energy, Environment and Sustainable Development (NCGEESD) being organised by the Department of Mechanical Engineering on March 9th and 10th, 2018. He requested the members to support the event by contributing some research papers. The members congratulated the initiative by the department and agreed to be a part of the event.

6 (vii) Closure

The Chairman concluded the meeting by thanking the members of participating and valuable contributions to the meeting.

Signatures of Members

Dr. Udaya Ravi M. 2/12/17

Mr. Aravinda T. 02/12/17

Dr. B. S. Nagendra Parashar

Mr. Madhusudhan M.

Dr. C. Prabhakar Reddy 2/12/17

Mr. Kiran B. 06/12/17

Dr. Surendra Kumar A. M. 02/12/17.

Dr. Ramesh S. Sharma 02/12/17

Dr. Mallikarjun R. Vaggar 02/12/17

Dr. A. T. Venkatesh 02-12-2017.

Dr. Akshay Nanjangud 02-12-17

Mr. R. M. Bhat

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

School of Engineering

Department of Mechanical Engineering

7th BOS

REGISTRAR

PRESIDENCY UNIVERSITY Registrar BANGALORE

PRESIDENCY UNIVERSITY

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

REF. No. PU/SoE/MEC/BOS-07/2017-18/CIR-03 Date: 17th May, 2018

7th BoS MEETING NOTICE

The 7th meeting of the Board of Studies (BoS) for the B. Tech. Program in Mechanical Engineering is scheduled at 10:00 AM on Saturday, 26th May, 2018, in the Department of Mechanical Engineering, Presidency University, Bengaluru. All the esteemed members of the BoS committee are cordially invited to attend the meeting.

Note: Invitation for the 7th BoS meeting has been communicated through e-mail on May 8th by Dr. K. G. Mohan, Coordinator, 7th BoS.

The agenda for the meeting is:

7.1 Approval of the minutes of the 6th BoS meeting held on December 2, 2017

7.2 Approval of the revised Program Structure in the B. Tech. Program Regulations and Curriculum 2017-2021

7.3 Approval of the revised Program Structure in the B. Tech. Program Regulations and Curriculum 2016-2020

7.4 Approval of changes in Discipline and Open Elective courses in the B. Tech. Program Regulations and Curriculum for all ongoing batches

7.5 Approval of the B. Tech. Program Regulations and Curriculum 2018-2022

7.6 Any other matter with the permission of the Chairman

M. N. Ravi
Chairman 17/5/18
BoS Committee

Copy to:
The Offices of the Pro-Chancellor, Dean (SoE), Registrar, and
Members of the Board of Studies:

1	Dr. Udaya Ravi M.	8	Mr. Aravinda T.
2	Dr. C. Prabhakar Reddy	9	Mr. Madhusudhan M.
3	Dr. A. M. Surendra Kumar	10	Mr. Kiran B.
4	Dr. B. V. Prabhu	11	Mr. Yarlagadda Dheeraj Kumar
5	Dr. D. Ramesh Rao	12	Dr. Ramesh S. Sharma
6	Dr. Mallikarjun R. Vaggar	13	Dr. A. T. Venkatesh
7	Dr. Akshay Nanjangud	14	Mr. R. M. Bhat

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PRESIDENCY UNIVERSITY

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

REF. No. PU/SoE/MEC/BOS-07/2017-18/MoM-03 Date: 26th May, 2018

7th BoS MINUTES OF MEETING

The 7th meeting of the Board of Studies (BoS) for Mechanical Engineering is held today, 26th May, 2018, in Room No. HF-02 at 10:00 AM in the presence/absence of following members of the committee.

Members Present:

Sl. No.	Name	Affiliation	Position
1	Dr. Udaya Ravi M.	Professor and HoD-MEC SoE, PU, Bengaluru	Chairman Ex-Officio
2	Dr. C. Prabhakar Reddy	Dean and Professor SoE, PU, Bengaluru	Member
3	Dr. Surendra Kumar A. M.	CoE and Professor SoE, PU, Bengaluru	Member
4	Dr. B. V. Prabhu	Associate Dean and Professor SoE, PU, Bengaluru	Member
5	Dr. D. Ramesh Rao	Professor SoE, PU, Bengaluru	Member
6	Dr. Mallikarjun R. Vaggar	Associate Professor SoE, PU, Bengaluru	Member
7	Dr. Akshay Nanjangud	Associate Professor SoE, PU, Bengaluru	Member Secretary
8	Mr. Aravinda T.	Assistant Professor SoE, PU, Bengaluru	Internal Member (Nominated by the VC with the Department)
9	Mr. Madhusudhan M.	Assistant Professor SoE, PU, Bengaluru	Internal Member (Nominated by the VC with the Department)

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No.	Name	Affiliation	Position
0	Mr. Yarlagadda Dheeraj Kumar	Assistant Professor Petroleum Engineering SoE, PU, Bengaluru	Internal Member (Nominated by the VC within the sister Department)
11	Dr. Ramesh S. Sharma	Professor Mechanical Engineering R. V. College of Engineering Bengaluru	External Member (Academic)
12	Mr. R. M. Bhat	Sr. Executive – HR, L & T Construction Equipment Limited, Sy. No. 27 & 28, Thammshettihalli Village, Doddaballapur	External Member (Industry)

mbers Absent:

l. No.	Name	Affiliation	Designation
1	Mr. Kiran B.	Assistant Professor Civil Engineering SoE, PU, Bengaluru	Internal Member (Nominated by the VC within the sister Department)
2	Dr. A. T. Venkatesh	Professor Mechanical Engineering Rajiv Gandhi Institute of Technology Bengaluru	External Member (Academic)

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

REF. No. PU/SoE/MEC/BOS-07/2017-18/Attendance

Date: 26th May, 2018

ATTENDANCE SHEET

The 7th meeting of the Board of Studies (BoS) for Mechanical Engineering is held today, 26th May, 2018, in Presidency University, Bengaluru, at 10:00 AM in the presence of following members of the BoS committee.

Sl. No.	Name	Affiliation	Position	Signature with date
1	Dr. Udaya Ravi M.	Professor and HoD-MEC SoE, PU, Bengaluru	Chairman Ex-Officio	26/5/18
2	Dr. C. Prabhakar Reddy	Dean and Professor SoE, PU, Bengaluru	Member	26/5/18
3	Dr. Surendra Kumar A. M.	CoE and Professor SoE, PU, Bengaluru	Member	
4	Dr. B. V. Prabhu	Assoc. Dean and Prof. SoE, PU, Bengaluru	Member	26/5/18
5	Dr. D. Ramesh Rao	Professor SoE, PU, Bengaluru	Member	26/5/18
6	Dr. Mallikarjun R. Vaggar	Associate Professor SoE, PU, Bengaluru	Member	
7	Dr. Akshay Nanjangud	Associate Professor SoE, PU, Bengaluru	Member Secretary	26-5-18
8	Mr. Aravinda T.	Assistant Professor SoE, PU, Bengaluru	Internal Member (Nominated by the VC within the Department)	26/5/18
9	Mr. Madhusudhan M.	Assistant Professor SoE, PU, Bengaluru	Internal Member (Nominated by the VC within the Department)	26/5/18

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Sl. No.	Name	Affiliation	Position	Signature with date
10	Mr. Kiran B.	Assistant Professor Civil Engineering SoE, PU, Bengaluru	Internal Member (Nominated by the VC within the sister Department)	— ABSENT —
11	Mr. Yarlagadda Dheeraj Kumar	Assistant Professor Petroleum Engineering SoE, PU, Bengaluru	Internal Member (Nominated by the VC within the sister Department)	26-5-18
12	Dr. Ramesh S. Sharma	Professor Mechanical Engineering R. V. College of Engineering Bengaluru rameshssharma@rvce.edu.in Phone: +91 9880702543	External Member (Academic)	RSSharma 26/05/18
13	Dr. A. T. Venkatesh	Professor Mechanical Engineering Rajiv Gandhi Institute of Technology, Bengaluru atvmsrit84@yahoo.co.in Phone: +91 9986638159	External Member (Academic)	— ABSENT —
14	Mr. R. M. Bhat	Sr. Executive – HR, L & T Construction Equipment Limited, Sy. No. 27 & 28, Thammshettihalli Village, Doddaballapur bhat.rm@larsentoubro.com Phone: +91 9986504029	External Member (Industry)	26/5/2018

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PRESIDENCY UNIVERSITY

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

REF. No. PU/SoE/MEC/BOS-07/2017-18/MoM-03 Date: 26th May, 2018

MINUTES OF THE 7th BoS MEETING

The 7th meeting of the Board of Studies (BoS) for Mechanical Engineering was held today, 26th May, 2018, in Room No. HF-02 at 10:00 AM.

Welcome

Dr. Udaya Ravi M., the Chairman of the BoS for Mechanical Engineering and the Head of the Department of Mechanical Engineering, welcomed and introduced the members. He then gave an overview of Presidency University, the Department of Mechanical Engineering and the structure of its BoS.

Agenda 7.1: Approval of the minutes of the 6th BoS meeting held on December 2, 2017

Resolution 7.1: The minutes of the 6th BoS Meeting held on December 2, 2017, were read and unanimously approved by the members.

Agenda 7.2: Approval of the revised Program Structure in the B. Tech. Program Regulations and Curriculum 2017-2021

Resolution 7.2: The BoS deliberated and approved the proposed changes in the Program Structure in the Program Regulations and Curriculum 2017-2021 as in Annexure 7.2.

Agenda 7.3: Approval of the revised Program Structure in the B. Tech. Program Regulations and Curriculum 2016-2020

Resolution 7.3: The BoS discussed the changes proposed and approved the rearranged Program Structure in the Program Regulations and Curriculum 2016-2020 as in Annexure 7.3.

Agenda 7.4: Approval of changes in Discipline and Open Elective courses in the B. Tech. Program Regulations and Curriculum for all ongoing batches

Resolution 7.4: The BoS approved all changes in Discipline and Open Elective courses as in Annexure 7.4.

Agenda 7.5 Approval of the B. Tech. Program Regulations and Curriculum 2018-2022

Resolution 7.5: The BoS approved the B. Tech. Program Regulations and Curriculum 2018-2022, with the modifications in the first year courses offered by the department, as in Annexure 7.5.

Agenda 7.6: Any other matter with the permission of the Chair

Resolution 7.6: The BoS appreciated the variety of elective courses that were proposed. It also placed on record the contributions and suggestions of Dr. Ramesh S. Sharma.

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The BoS Committee authorised Dr. Udaya Ravi, the Chairman of the BoS for Mechanical Engineering, to incorporate minor corrections or edits if ever required.

Dr. Udaya Ravi conveyed that the decisions taken during the 7th meeting of BoS for Mechanical Engineering will be implemented for 2018-2022, 2017-2021, 2016-2020 and 2015-2019 as early as possible wherever applicable. He conveyed thanks to all the members and informed that the date of next BoS meeting will be notified soon.

BoS Committee:

Sl. No.	Name	Position	Signature with date
1	Dr. Udaya Ravi M.	Chairman Ex-Officio	Ravi 26/5/18
2	Dr. C. Prabhakar Reddy	Member	26/5/18
3	Dr. Surendra Kumar A. M.	Member	
4	Dr. B. V. Prabhu	Member	
5	Dr. D. Ramesh Rao	Member	26/5/18
6	Dr. Mallikarjun R. Vaggar	Member	
7	Dr. Akshay Nanjangud	Member Secretary	26-5-18
8	Mr. Aravinda T.	Internal Member (Nominated by VC)	26/5/18
9	Mr. Madhusudhan M.	Internal Member (Nominated by VC)	26/5/18
10	Mr. Kiran B.	Internal Member (Nominated by VC)	— ABSENT —
11	Mr. Yarlagadda Dheeraj Kumar	Internal Member (Nominated by VC)	26-5-18
12	Dr. Ramesh S. Sharma	External Member (Academic)	Rsharma 26.05.18
13	Dr. A. T. Venkatesh	External Member (Academic)	— ABSENT —
14	Mr. R. M. Bhat	External Member (Industry)	26/5/2018

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School of Engineering

Department of Mechanical Engineering

8th BOS

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PRESIDENCY UNIVERSITY Registrar BANGALORE

approved by Registrar

PRESIDENCY UNIVERSITY

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

Revised List of BOS members in Mechanical Engineering for Academic Session 2017-2019

Date :- 19-11-2018

S. No	Name	Affiliation	Position
1	Dr. Udaya Ravi M	Professor and HOD - MEC	Chairperson
2	Dr. C. Prabhakar Reddy	Dean and Professor - MEC	Member
3	Dr. A. M. Surendra Kumar	COE and Professor - MEC	Member
4	Dr. C. S. Ramesh	Dean R & I C and Professor - MEC	Member
5	Dr. Joel Hemanth	Assoc. Dean and Professor - MEC	Member
6	Dr. B. V. Prabhu	Assoc. Dean and Professor - MEC	Member
7	Dr. D. Ramesh Rao	Professor - MEC	Member
8	Dr. Bhaskar Pal	Professor - MEC	Member
9	Dr. Akshay Nanjangud	Associate Professor - MEC	Member
10	Dr. Ramesh S. P	Associate Professor - MEC	Member
11	Dr. G. N. Lokesh	Associate Professor - MEC	Member
12	Dr. Ramachandra C. G	Associate Professor - MEC	Member
13	Dr. Satish Babu Boppana	Associate Professor - MEC	Member

PTO

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PRESIDENCY UNIVERSITY Registrar BANGALORE

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www.presidencyuniversity.in

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14	Dr. Sadashiva Prabhu	Assistant Professor - MEC	Internal Member (Nominated by the VC within the Department)
15	Dr. B. S. Praveen Kumar	Assistant Professor - MEC	Internal Member (Nominated by the VC within the Department)
16	Mr. Santosh M. B	Assistant Professor - CIV	Internal Member (Nominated by VC from the Sister Department)
17	Dr. Deepjyoti Mech	Assistant Professor - PET	Internal Member (Nominated by VC from the Sister Department)
18	Mr. Aravinda T	Assistant Professor - MEC	Member Secretary
19	Dr. Ramesh S. Sharma	Professor Mechanical Engineering R. V. College of Engineering Bengaluru rameshssharma@rvce.edu.in Phone: +91 9880702543	External Member (Academic)
20*	Dr. Ashitava Ghosal	Professor Mechanical Engineering, IISc. Bangalore asitava@mecheng.iisc.ernet.in Phone: +919740395571	External Member (Academic)
21	Mr. R. M. Bhat	Sr. Executive – HR, L & T Construction Equipment Limited, Sy. No. 27 & 28, Thammshettihalli Village, Doddaballapur bhat.rm@larsentoubro.com Phone: +91 9986504029	External Member (Industry)

Dean SoE 20/11/18

Vice Chancellor

Registrar

REGISTRAR

PRESIDENCY UNIVERSITY Registrar BANGALORE

PRESIDENCY UNIVERSITY

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

REF. No. PU/SoE/MEC/BOS-08/2018-19/CIR01 Date: 4th January, 2019

8th BoS MEETING NOTICE

The 8th meeting of the Board of Studies (BoS) of the Department of Mechanical Engineering is scheduled at 10:00 AM on Saturday, 12th January, 2019, in the university campus, Bengaluru. All the esteemed members of the BoS committee are cordially invited to attend the meeting.

The agenda for the meeting is:

MEC 8.1 Approval of the minutes of the 7th BoS meeting

MEC 8.2 Review and approve modifications in the B.Tech. Program Regulations and Curriculum for the 2018-2022, 2017-2021, 2016-2020 and 2015-2019 batches

MEC 8.3 Changes in courses for the 2018-2022 and 2017-2021 batches

MEC 8.3.1 New course description for Engineering Mathematics-IV

MEC 8.3.2 Introduction of the new laboratory course 'Simulation Lab'

MEC 8.3.3 Changes in credits and names of some of the existing laboratory courses

MEC 8.4 Approve Open Elective Courses offered by other Departments

MEC 8.5 Approval of online courses, like NPTEL, as Discipline Elective and Open Elective Courses that are recommended by Departments for the 2018-2022, 2017-2021 and 2016-2020 batches

MEC 8.6 Introduction of the M. Tech. Program titled 'Product Design and Development'

MEC 8.7 Any other matter with the permission of the Chairperson

M. n. Rao 4/1/19

Chairperson
(Dr. Udaya Ravi M.)
BoS-MEC Committee

Copy to:

- Pro-Chancellor, PU
- Vice-Chancellor, PU
- Registrar, PU
- Pro-Vice-Chancellor, PU
- Dean-SoE, PU
- Dean-Academics, PU
- Members of the Board of Studies listed in the table below.

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1	Dr. Udaya Ravi M.	12	Dr. Ramachandra C. G.
2	Dr. C. Prabhakar Reddy	13	Dr. Satish Babu Boppana
3	Dr. A. M. Surendra Kumar	14	Dr. Sadashiva Prabhu
4	Dr. C. S. Ramesh	15	Dr. B. S. Praveen Kumar
5	Dr. Joel Hemanth	16	Mr. Santosh M. B.
6	Dr. B. V. Prabhu	17	Dr. Deepjyoti Mech
7	Dr. D. Ramesh Rao	18	Dr. Ramesh S. Sharma
8	Dr. Bhaskar Pal	19	Dr. Ashitava Ghosal
9	Dr. Akshay Nanjangud	20	Mr. R. M. Bhat
10	Dr. Ramesh S. P.	21	Mr. Aravinda T.
11	Dr. G. N. Lokesh		

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5

1	Dr. Udaya Ravi M.	4/1/19	12	Dr. Ramachandra C. G.
2	Dr. C. Prabhakar Reddy	12/1/19	13	Dr. Satish Babu Boppana
3	Dr. A. M. Surendra Kumar		14	Dr. Sadashiva Prabhu S
4	Dr. C. S. Ramesh		15	Dr. B. S. Praveen Kumar
5	Dr. Joel Hemanth	7/2/2019	16	Mr. Santosh M. B.
6	Dr. B. V. Prabhu		17	Dr. Deepjyoti Mech
7	Dr. D. Ramesh Rao		18	Dr. Ramesh S. Sharma
8	Dr. Bhaskar Pal		19	Dr. Ashitava Ghosal
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REF. No. PU/SoE/MEC/BOS-08/2018-19/Attendance

Date: 12th January, 2019

ATTENDANCE SHEET

The 8th meeting of the Board of Studies (BOS) for Mechanical Engineering was held today, 12th January, 2019, in Presidency University, Bengaluru, at 10:00 AM in the presence of following members.

Sl. No.	Name	Affiliation	Position	Signature With Date
1	Dr. Udaya Ravi M.	Professor and HoD-MEC SoE, PU, Bengaluru	Chairperson Ex-Officio	12/1/19
2	Dr. C. Prabhakar Reddy	Dean and Professor SoE, PU, Bengaluru	Member	12/1/19
3	Dr. A. M. Surendra Kumar	CoE and Professor SoE, PU, Bengaluru	Member	12.01.19
4	Dr. C. S. Ramesh	Dean R & I C and Professor SoE, PU, Bengaluru	Member	12/01/2019
5	Dr. Joel Hemanth	Assoc. Dean and Prof. SoE, PU, Bengaluru	Member	12/01/19
6	Dr. B. V. Prabhu	Assoc. Dean and Prof. SoE, PU, Bengaluru	Member	12/01/19
7	Dr. D. Ramesh Rao	Professor SoE, PU, Bengaluru	Member	
8	Dr. Bhaskar Pal	Professor SoE, PU, Bengaluru	Member	
9	Dr. Akshay Nanjangud	Associate Professor SoE, PU, Bengaluru	Member	12/01/19
10	Dr. Ramesh S. P.	Associate Professor SoE, PU, Bengaluru	Member	
11	Dr. G. N. Lokesh	Associate Professor SoE, PU, Bengaluru	Member	12/01/19

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Sl. No.	Name	Affiliation	Position	Signature With Date
12	Dr. Ramachandra C. G.	Associate Professor SoE, PU, Bengaluru	Member	12/01/19
13	Dr. Satish Babu Boppana	Associate Professor SoE, PU, Bengaluru	Member	12/01/19
14	Dr. Sadashiva Prabhu S	Assistant Professor SoE, PU, Bengaluru	Internal Member (Nominated by the VC within the Department)	12/01/19
15	Dr. B. S. Praveen Kumar	Assistant Professor SoE, PU, Bengaluru	Internal Member (Nominated by the VC within the Department)	
16	Mr. Santosh M. B.	Assistant Professor Civil Engineering SoE, PU, Bengaluru	Internal Member (Nominated by the VC from a Sister Department)	12/01/19
17	Dr. Deepjyoti Mech	Assistant Professor Petroleum Engineering SoE, PU, Bengaluru	Internal Member (Nominated by the VC from a Sister Department)	12/01/19

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Agenda MEC 8.3.2: Introduction of the new laboratory course 'Simulation Lab'

Resolution 8.3.2: The Chairperson informed the BoS that the Department would initiate a new one-credit laboratory course titled 'Simulation Lab' from the 2017-2021 batch onwards by reducing the two-credit lab course MEC 252 Machine Shop Practice by one credit. Dr. D. Ramesh Rao suggested that the course be titled 'Modelling, Simulation and Analysis Lab.' The BoS accepted this suggestion. The details of this course are in Annexure 8.3. The BoS approved this new laboratory course.

Agenda MEC 8.3.3: Changes in credits and names of some of the existing laboratory courses

Resolution 8.3.3: The Chairperson proposed that the laboratory course MEC 255 Metrology and Measurement Lab' be renamed as 'Metrology and Mechanical Measurements Lab' to match the theory course titled MEC 211 Metrology and Mechanical Measurements for the 2017-2021 batch onwards.

The lab course 'Machine Shop Practice' would become a one-credit course for the batches from the 2017-2021 batch as discussed in the MEC 8.3.2.

The Chairperson also proposed that the four-credit course MEC 211 Metrology and Mechanical Measurements be reduced to three credits and the course MEC 253 Computer Aided Machine Drawing be made a two-credit course from a one-credit course for the 2018-2022 batch onwards.

The BoS approved all these changes.

Agenda MEC 8.4: Approve Open Elective Courses offered by other Departments

Resolution 8.4: The Chairperson asked the BoS to permit the inclusion of the Open Elective Courses 'Elements of Nuclear Radiation and Technology,' 'Amorphous Semiconductors for Technological Applications' and 'Nano Structured Materials' from the Department of Physics in the Program Regulations and Curriculum of all batches. The details of these courses are in Annexure 8.4. The BoS approved the inclusion of these Open Elective Courses.

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Agenda MEC 8.5: Approval of online courses, like NPTEL, as Discipline Elective and Open Elective Courses recommended by Departments for the 2018-2022, 2017-2021 and 2016-2020 batches

Resolution 8.5: The Chairperson informed the BoS the desire of the university to allow students accrue credits from NPTEL courses in place of Discipline and Open Elective Courses. He put forth Section 2.14 which gives the guidelines for transfer of credits to the committee for discussion. He also presented the list of Discipline Elective courses approved by the Department of Mechanical Engineering and the list of Open Elective courses approved by all Departments. These guidelines and lists are in Annexure 8.5. The BoS approved them.

Agenda MEC 8.6: Introduction of the M. Tech. Program titled 'Product Design and Development'

Resolution 8.6: The Chairperson presented the structure of this M. Tech. Program to the BoS. This structure is in Annexure 8.6. The committee accepted the structure with the following recommendations.

Dr. C. S. Ramesh suggested that lab courses which are a part of the theory courses be made as separate lab courses if possible. Dr. Sadashiva Prabhu suggested that Research Methodology be reduced from a three credit course to a two credit course to use the one credit elsewhere. Then Dr. C. S. Ramesh and Dr. Ramesh S. Sharma suggested the inclusion of an advanced CAE lab. Finally, Dr. Ramesh S. Sharma asked the Chairperson to explore the possibility of including an internship program.

The Chairperson said that the suggestions will be deliberated, incorporated and presented in the next BoS meeting for approval.

Agenda MEC 8.7: Any other matter with the permission of the Chairperson

Resolution 8.7: Dr. Joel Hemanth suggested renaming the course MEC 205 Structure and Properties of Materials as Material Science and Metallurgy. The committee approved this suggestion.

Dr. C. S. Ramesh suggested that Control Engineering, which is currently a three-credit Discipline Elective Course, be made a core course with four credits. The Chairperson said that the suggestion will be deliberated, incorporated and presented in the next BoS meeting.

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The BoS Committee authorised Dr. Udaya Ravi M., the Chairperson of the BoS for Mechanical Engineering, to incorporate minor corrections or edits if required.

Dr. Udaya Ravi conveyed that the decisions taken during the 8th meeting of BoS for Mechanical Engineering will be implemented for 2018-2022, 2017-2021, 2016-2020 and 2015-2019 batches as early as possible wherever applicable. He appreciated the committee for their involvement in the deliberations and conveyed his thanks to all the members.

BoS Committee:

Sl. No.	Name	Position	Signature With Date
1	Dr. Udaya Ravi M.	Chairperson Ex-Officio	12/1/19
2	Dr. C. Prabhakar Reddy	Member	12/1/19
3	Dr. A. M. Surendra Kumar	Member	12.01.19
4	Dr. C. S. Ramesh	Member	12/01/2019
5	Dr. Joel Hemanth	Member	12/1/2019
6	Dr. B. V. Prabhu	Member	12/01/19
7	Dr. D. Ramesh Rao	Member	12/1/19
8	Dr. Bhaskar Pal	Member	
9	Dr. Akshay Nanjangud	Member	12/01/2019
10	Dr. Ramesh S. P.	Member	12/01/2019
11	Dr. G. N. Lokesh	Member	12/1/19

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Sl. No.	Name	Position	Signature With Date
12	Dr. Ramachandra C. G.	Member	12/01/19
13	Dr. Satish Babu Boppana	Member	12/1/19
14	Dr. Sadashiva Prabhu	Internal Member (Nominated by VC)	12/01/19
15	Dr. B. S. Praveen Kumar	Internal Member (Nominated by VC)	12/01/19
16	Mr. Santosh M. B.	Internal Member (Nominated by VC)	12/1/19
17	Dr. Deepjyoti Mech	Internal Member (Nominated by VC)	12/01/19
18	Dr. Ramesh S. Sharma	External Member (Academic)	12/01/19
19	Dr. Ashitava Ghosal	External Member (Academic)	
20	Mr. R. M. Bhat	External Member (Industry)	12/1/2019
21	Mr. Aravinda T.	Member Secretary	12/01/19

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Annexure 8.1

Minutes of the 7th BoS Meeting

The 7th meeting of the Board of Studies (BoS) for Mechanical Engineering was held today, 26th May, 2018, in Room No. HF-02 at 10:00 AM.

Welcome

Dr. Udaya Ravi M., the Chairman of the BoS for Mechanical Engineering and the Head of the Department of Mechanical Engineering, welcomed and introduced the members. He then gave an overview of Presidency University, the Department of Mechanical Engineering and the structure of its BoS.

Agenda 7.1: Approval of the minutes of the 6th BoS meeting held on December 2, 2017

Resolution 7.1: The minutes of the 6th BoS Meeting held on December 2, 2017, were read and unanimously approved by the members.

Agenda 7.2: Approval of the revised Program Structure in the B. Tech. Program Regulations and Curriculum 2017-2021

Resolution 7.2: The BoS deliberated and approved the proposed changes in the Program Structure in the Program Regulations and Curriculum 2017-2021 as in Annexure 7.2.

Agenda 7.3: Approval of the revised Program Structure in the B. Tech. Program Regulations and Curriculum 2016-2020

Resolution 7.3: The BoS discussed the changes proposed and approved the rearranged Program Structure in the Program Regulations and Curriculum 2016-2020 as in Annexure 7.3.

Agenda 7.4: Approval of changes in Discipline and Open Elective courses in the B. Tech. Program Regulations and Curriculum for all ongoing batches

Resolution 7.4: The BoS approved all changes in Discipline and Open Elective courses as in Annexure 7.4.

Agenda 7.5 Approval of the B. Tech. Program Regulations and Curriculum 2018-2022

Resolution 7.5: The BoS approved the B. Tech. Program Regulations and Curriculum 2018-2022, with the modifications in the first year courses offered by the department, as in Annexure 7.5.

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Agenda 7.6: Any other matter with the permission of the Chairperson

Resolution 7.6: The BoS appreciated the variety of elective courses that were proposed. It also placed on record the contributions and suggestions of Dr. Ramesh S. Sharma.The BoS Committee authorised Dr. Udaya Ravi, the Chairperson of the BoS for Mechanical Engineering, to incorporate minor corrections or edits if ever required.

Dr. Udaya Ravi M. conveyed that the decisions taken during the 8th meeting of BoS for Mechanical Engineering will be implemented for the 2018-2022, 2017-2021, 2016-2020 and 2015-2019 batches as early as possible wherever applicable. He conveyed his thanks to all the members and informed them that the date of next BoS meeting will be notified in due course.

BoS Committee:

Sl. No.	Name	Position
1	Dr. Udaya Ravi M.	Chairperson Ex-Officio
2	Dr. C. Prabhakar Reddy	Member
3	Dr. Surendra Kumar A. M.	Member
4	Dr. B. V. Prabhu	Member
5	Dr. D. Ramesh Rao	Member
6	Dr. Mallikarjun R. Vaggar	Member
7	Dr. Akshay Nanjangud	Member Secretary
8	Mr. Aravinda T.	Internal Member (Nominated by VC)
9	Mr. Madhusudhan M.	Internal Member (Nominated by VC)
10	Mr. Kiran B.	Internal Member (Nominated by VC)
11	Mr. Yarlagadda Dheeraj Kumar	Internal Member (Nominated by VC)
12	Dr. Ramesh S. Sharma	External Member (Academic)
13	Dr. A. T. Venkatesh	External Member (Academic)
14	Mr. R. M. Bhat	External Member (Industry)

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Annexure 8.2

Modifications in the Program Regulations and Curriculum for All Batches

Table 2.12.1 Method of Assessment
for Courses with the Credit Structure L – T – 0 and L – 0 – 0

	Components of Continuous Assessments	Weightage (% of Total Marks)	Duration of Assessment
1	Test 1	20%	1 hour
2	Test 2	20%	1 hour
3	This component of continuous assessment shall consist of at least TWO (02) of the following: (1) Assignment(s) (2) Quiz (3) Technical Seminar / Report (4) Attendance / Class participation (5) Assessment on self-learning topic(s), or (6) Any other type of assessment as prescribed in the concerned Course Handout.	20%	NA
4	End Term Final Examinations	40%	2 or 3 hours
	Total	**100%**	

Note: An additional Test 3 may be conducted as an optional test to allow for improvement. If a student opts for Test 3, then the higher marks obtained in any two tests shall be considered for evaluation.

Table 2.12.2 Method of Assessment
for Practical Courses with Credit Structure 0 –0 – P and L – 0 – P

	Components of Continuous Assessments	Weightage (% of Total Marks)	Duration of Assessment
1	Laboratory/ Practical Exercise conducted in every Practical Class and Laboratory Records, Practical/ Project Reports as prescribed by the Course Handout.	50%	NA
2	Practical Test/ Viva/ Quiz/ Assignments as prescribed by the Course Handout.	20%	NA
3	End Term Final Practical Examinations	30%	2 or 3 hours
	Total	**100%**	

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Annexure 8.3

New Course Description for Engineering Mathematics-IV

Course Name:	Engineering Mathematics - IV					
Course Code:	MAT 105	Credit Structure :	L	T	P	C
			3	1	0	4

Course Description: The course aims at introducing students to quantitative uncertainty analysis and risk assessment for engineering applications. Probability theory is of great use in understanding and modeling phenomena that exhibit random behavior and the emphasis is on real-world applications to engineering problems. The topic covered include basic concepts of probability and conditionai probability, Baye's rule, discrete and continuous probability distributions covering binomial, Poisson, geometric, exponential, uniform, normal distributions and their applications, functions of random variable, random sampling and its properties, sampling distributions of means and variances, chi-squared, t and F distributions, methods of estimation, estimating means, proportions and variances, maximum likelihood estimation, tests of hypothesis on means, proportions and variances, chi-squared test of goodness of fit, correlations analysis, linear regression and method of least squares.

To explore complex systems, physicists, engineers and mathematicians require computational methods since mathematical models are rarely solvable analytically. This course provides an introduction to basic numerical methods such as fitting of various curves, interpolation, differentiation, integration. This course also provides an introduction to numerical solution of algebraic and transcendental equations, ordinary differential equations such as Taylor's series method, modified Euler's method and Runge-Kutta Methods.

Course Details for the Lab Course 'Modelling, Simulation and Analysis Lab'

Course Name:	Modelling, Simulation and Analysis Lab					
Course Code:	MEC 261	Credit Structure :	L	T	P	C
			0	0	2	1

Course Description: It is a practical oriented Course detailing the implementation of information and communication technologies (ICTs) in manufacturing. Computer integrated manufacturing and

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Simulation implies that there are at least two computers exchanging information, e. g. the controller of an arm robot and a micro-controller of a CNC machine. Also analysis softwares can help the students to have better understanding of the modelling and analysis of different structures.

Books:

1. CsAD/CAM/CIM – P. Radhakrishna, New Age International.
2. M. P. Grover, Automation, Production Systems & Computer Aided manufacturing, Prentice Hall.
3. Finite Elements in Engineering, T.R.Chandrupatla, A.D Belegunde, 3 rd Ed PHI.
4. Engineering Analysis with ANSYS Software- Tadeusz Stolarski Y. Nakasone S. Yoshimoto

Reference Books:

1. "Computer Automation in Manufacturing", Boucher, T. O., Chapman & Hall, London, UK, 1996.
2. "Introduction to Robotics: Mechanics And Control", Craig, J. J., 2nd Ed., Addison-Wesley Publishing Company, Readong, MA, 1989.
3. Finite Element Methods, Daryl. L. Logon, Thomson Learning 3rd edition, 2001.

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Annexure 8.4

Course Descriptions for the Open Elective Courses from the Department of Physics

Course Name:	Elements of Nuclear Radiation and Technology					
Course Code:	PHY 401	Credit Structure :	L	T	P	C
			3	0	0	3

Course Description

In view of the rapidly expanding nuclear energy programme in India and the growing need for qualified engineers, an inter-disciplinary subject: Nuclear Radiation and Technology floated as an open elective subject for 4th year B.Tech Students. The topic of the syllabus is to introduce the students about various basic concepts in nuclear radiation and nuclear reactors.

The objective of this course is to make students familiar with the concepts of radioactivity, nuclear reactions, Interaction of radiation with matter and reactor physics.

Module 1: BASIC CONCEPTS IN NUCLEAR PHYSICS

Nuclear constituents – charge, mass, shape, and size of nucleus, Binding energy, packing fraction, nuclear magnetic moment, saturation and short range nuclear forces, Radioactivity – Laws of radioactive decay, half life, mean life, specific activity, Nuclear models – single particle shell model, evidence and limitations of shell model, liquid drop model : Introduction, assumptions, semi-empirical mass formula — **10 hrs**

Module 2: NUCLEAR FISSION AND FUSSION

Nuclear reactions, Conservation laws, Q-value equation, Principle of Controller Nuclear fission, explanation on the basis of liquid drop model, energy available from fission, nuclear chain reaction, nuclear fusion. — **8 hrs**

Module 3: NUCLEAR DECAY AND NUCLEAR HAZARD

Source of Radiation, Radioactive decay, successive disintegration, α decay: Barrier penetration, β decay: Fermi theory, selection rules, parity non-conservation, γ decay of excited states. Nuclear hazard on health and environment. Radiation dosimeter and standardization — **8 hrs**

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Module 4: NUCLEAR REACTORS AND ACCELERATORS

Scope of Nuclear Reactor – Basic principle, classification, constituent parts, Control of Nuclear reactors. Radiation shielding and safety. Fuel Cycle from Uranium mining to Waste Disposal. Integration of Nuclear Energy to Energy system. Accelerators: classification of accelerators, Cyclotron and Microtron. **10 hrs**

Module 5: INTERACTION OF RADIATION WITH MATTER

Interaction of Radiation with matter and detection Technology: Interaction of charged particles with matter and photons with material medium, their energy loss characteristics. Types of detectors, G.M. counter, Scintillation counter, Silicon Surface barrier detector **9 hrs**

REFERENCE BOOKS

1. Irving Kaplan, "Nuclear Physics", Narosa Book Distributors, 2002.
2. R.D. Evans, "*The atomc Nucleus", McGraw-Hill, 1955.*
3. J.H.Horlock ,"Combined Power Plants", Pergamon Press, 1992.
4. S. Glasstone, and A Sesonske "Nuclear reactor Engineering" Van Nost.Reinhold,U.S. 1981-02
5. D.C.Tayal, Nuclear Physics, Himalayan Publication house, Bombay, 1980.

Proposed By: Dr. Khadke Udaykumar **Reviewed by**: Dr. U M Pasha

Course Name:	**Amorphous Semiconductors for Technological Applications**					
Course Code:	**PHY 402**	**Credit Structure :**	**L**	**T**	**P**	**C**
			3	**0**	**0**	**3**

Learning Objectives and Outcomes of the Course

The course aims at an application oriented approach which will provide a basic understanding of amorphous materials, glasses, semiconducting glasses and Chalcogenide glasses and its application in Non-Volatile Random Access Memorys. On successful completion of the course the students shall be able to understand (a) the structure, property and application of amorphous materials, glasses, semiconducting glasses and Chalcogenide glasses and its application in Non- Volatile Random Access Memorys, (b) List and analyse different applications of amorphous semiconductors (c) Identify the Challenges of Current Phase Change Memory Technology and Future Phase Change Memory Trends.

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Objectives of the Course

The main objective of this course is to study the structure, property and applications of amorphous materials, glasses, semiconducting glasses and Chalcogenide glasses, its application in Non- Volatile Random Access Memorys, Challenges, Advantages, Current Technology Phase Change Memory and Future Phase Change Memory Trends

Syllabus

1. Properties of Amorphous Solids and Glasses (5 Hours)

Freezing into the Solid State: Glass Formation versus Crystallization, Structure, Applications of Amorphous Solids, Glass transition, Kauzmann's paradox, Theories of glass transition, Factors that determines the glass transition temperature, Glass forming systems and ease of glass transition.

2. Preparation of Amorphous Solids (3 Hours)

Thermal evaporation, Sputtering, glow discharge decomposition, Chemical Vapor Deposition, Melt quenching, Gel desiccation, Chemical reaction, Reaction amorphisation, Irradiation, Shock wave transformation.

3. Application of Amorphous Solids (5 Hours)

Window glass, Fiber optic waveguides, Structural materials, Plastics, Xerography, Computer Memory Element, Solar cells, Transformer cores, Special glasses for Nuclear Waste Confinement.

4. Amorphous Semiconductors and Their Properties (5 Hours)

Classification of Amorphous Semiconductors (a-SC). Atomic Structure of Amorphous Semiconductors, Microscopic Structure, Short Range Order (SRO), Medium Range Order (MRO), Energy Band Structure of Amorphous Semiconductors, The Davis-Mott (DM) Model, Defects in Amorphous semiconductors, Street & Mott Model.

5. Chalcogenide Glasses and Organic Polymers (10 Hours)

Introduction, Compositional Freedom in Chalcogenide Glasses and in Oxides, The 8 - n Rule and the "Ideal Glass", Topological Defects and Valence Alternation, Applications of Chalcogenide Glasses- Electric Switches, Xerographic and thermoplastic media, photo-resist and holographic media, Optical filters, Optical Sensors, Thin film waveguides, Non-linear elements, Photo- voltaics.

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6. Chalcogenide Glasses for PCMs (10 Hours)

Introduction, Preparation techniques, Thin Films, Characterization Techniques, History of Chalcogenide Phase Change Memory Technology, Electrical Switching in Chalcogenides, Threshold Switching, Memory Switching, SET-RESET in PCMs, PCM devices, Current status, PCM memory Vs Flash Memory, - Phase Change Material Parameters and the Influenced Characteristics, Scalability, Challenges, Advantages, Current Technology Phase Change Memory, Future Phase Change Memory Trends.

References

- [1]. D. Adler, B. B. Schwartz and M. C. Steele, "Physical Properties of Amorphous Materials" (New York and London Plenum Press, 1985).
- [2]. R. Zallen, "Physics of Amorphous Solids" (John Wiley and Sons, New York, 1983).
- [3]. Z. U. Borisova, "Glassy Semiconductors" (Plenum Press, New York and London, 1981).
- [4]. S. R. Elliot, "Physics of Amorphous Materials" (Longman Inc, New York, 1983).
- [5]. K. J. Rao, "Structural Chemistry of Glasses" (Elsevier, Holland, 2002).
- [6]. E. R. Meinders, A. V. Mijiritskii, L.V. Pieterson and M. Wuttig, "Optical Data Storage Phase-Change Media and Recording", ed. F. Toolenaar (Springer, Netherlands, 2006).
- [7]. A. V. Kolobov and K. Tanaka, in "Handbook of Advanced Electronic and Photonic Materials and Devices" edited by Hari Singh Nalwa (Academic, New York, 2000).
- [8]. Simone Raoux and Matthias Wuttig, "Phase Change Materials - Science and Applications" (Springer, New York, 2008).

Proposed by: Dr. Sreevidya Varma

Reviewed by: Dr. Sivasankara Reddy

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Course Name:		Nano Structured Materials				
Course Code:	PHY 403	Credit Structure :	L	T	P	C
			3	0	0	3

Learning Objectives and Course Outline: Nanotechnology is considered as the base of next technological revolution. In this course the overview on nanomaterials, different synthesis techniques, characterization techniques, and applications of nanostructured materials in different fields are discussed.

Instructional Objectives: The objective of the course is to make student familiar with the concept of the cutting edge technology nanotechnology , the various ways to prepare nanostructured materials, their structures, characterization techniques and applications. After attending the course student should be able to synthesize, characterize nanostructured materials and use them for different applications.

Syllabus

- Introduction: Introduction to nanomaterials, effects of nanosize, mesoscopic state, Effect of size on material properties: scaling effect on the properties of materials, Different nanostructures : nanofilm, nanowire, quantum dot
- Synthesis: Top down and bottom up methodologies, different synthesis techniques:Ball milling, dip and spin coating, chemical methods: sol-gel, template based synthesis, synthesis using microemulsion.VLS and SLS growth, Spray pyrolysis, nanolithography , CVD, PVD
- Different nanostructures: Fullerenes and CNT, metal and metal oxide nanowires, core shell structure, nanocomposites
- Characterization techniques: X ray diffraction, Transmission electron microscope (TEM), Scanning electron microscope (SEM), UV visible spectrophotometer
- Properties and applications: Mechanical, Electrical, Magnetic, Optical, Chemical Properties
- Research methodology in nanoscience: Research methodology, Problem selection, experiments, journal study, self study of two published papers
- Lab/ Project: Synthesis of nanomaterial: any chemical method

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Lecture plan:

Module	Topic	No. of Lectures
1. Introduction	Introduction to nanomaterials, effects of nanosize, mesoscopic state, Effect of size on material properties: scaling effect on the properties of materials, Different nanostructures : nanofilm, nanowire, quantum dot	06
2. Synthesis	Top down and bottom up methodologies Different synthesis techniques: Ball milling, dip and spin coating, chemical methods: sol-gel, template based synthesis, synthesis using microemulsion. VLS and SLS growth, Spray pyrolysis, nanolithography , CVD, PVD	12
3. Different nanostructures	Fullerenes and CNT, metal and metal oxide nanowires, core shell structure, nanocomposites	05
4. Characterization techniques	X ray diffraction, Transmission electron microscope (TEM), Scanning electron microscope (SEM), UV visible spectrophotometer	10
5. Properties and applications	Mechanical, Electrical, Magnetic, Optical, Chemical Properties Application in various fields	10
6. Research methodology in nanoscience	Research methodology, Problem selection, experiments, journal study, self study of two published papers	02
7. Lab/ Project (If permitted)	Synthesis of nanomaterial: any chemical method	
		Total 45

Course Outcome: After completing the course student should have a clear idea about different nano structured materials, their synthesis and characterization techniques, effect of nanosize in material properties and various applications of nanotechnology.

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Annexure 8.5

List of Elective Courses Approved for Transfer of Credit from NPTEL

Discipline Elective Courses Approved by the Department of Mechanical Engineering

Sl. No.	Course Code	Course Name	Link to Course Details and Registration
1	MEC 328	Industrial Automation and Control	https://onlinecourses.nptel.ac.in/noc19_me04/
2	MEC 329	Rapid Manufacturing	https://onlinecourses.nptel.ac.in/noc19_me24/
3	MEC 330	Introduction to Mechanical Micro Machining	https://onlinecourses.nptel.ac.in/noc19_me26/
4	MEC 331	Machinery Fault Diagnosis and Signal Processing	https://onlinecourses.nptel.ac.in/noc19_me27/
5	MEC 332	Satellite Attitude Dynamics and Control	https://onlinecourses.nptel.ac.in/noc19_ae04/

Open Elective Courses Approved by the Department of Civil Engineering

Sl. No.	Course Code	Course Name	Link to Course Details and Registration
1	CIV 405	Applied Environmental Microbiology	https://onlinecourses.nptel.ac.in/noc19_ce04/
2	CIV 406	Energy Efficiency, Acoustics and Day Lighting in Building	https://onlinecourses.nptel.ac.in/noc19_ce13/

Open Elective Courses Approved by the Department of Computer Science and Engineering

Sl. No.	Course Code	Course Name	Link to Course Details and Registration
1	CSE 408	Joy of computing using Python	https://onlinecourses.nptel.ac.in/noc19_cs09/
2	CSE 409	AI:Knowledge Representation and Reasoning	https://onlinecourses.nptel.ac.in/noc19_cs19/
3	CSE 410	Social networks	https://onlinecourses.nptel.ac.in/noc19_cs30/
4	CSE 411	Machine Learning for Engineering and Science Applications	https://onlinecourses.nptel.ac.in/noc19_cs14/
5	CSE 412	Block chain Architecture and Use Cases	https://onlinecourses.nptel.ac.in/noc19_cs26/

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Open Elective Courses Approved by the Department of Electrical and Electronics Engineering			
Sl. No.	**Course Code**	**Course Name**	**Link to Course Details and Registration**
1	EEE 409	Principles of Digital Communications	https://onlinecourses.nptel.ac.in/noc19_ee05/
2	EEE 410	Electronic Systems for Cancer Diagnosis	https://onlinecourses.nptel.ac.in/noc19_ee12/
3	EEE 411	Biomedical Signal Processing	https://onlinecourses.nptel.ac.in/noc19_ee23/

Open Elective Courses Approved by the Department of Electronics and Communication Engineering			
Sl. No.	**Course Code**	**Course Name**	**Link to Course Details and Registration**
1	ECE 409	Programming, Data Structures and Algorithms using Python (2 Credits)	https://onlinecourses.nptel.ac.in/noc19_cs08/
2	ECE 410	Machine Learning for Engineering and Science Applications (3 Credits)	https://onlinecourses.nptel.ac.in/noc19_cs14/
3	ECE 411	Data Base Management System (2 Credits)	https://onlinecourses.nptel.ac.in/noc19_cs12/
4	ECE 412	Programming in Java (3 Credits)	https://onlinecourses.nptel.ac.in/noc19_cs07/
5	ECE 413	Introduction to Soft Computing (2 Credits)	https://onlinecourses.nptel.ac.in/noc19_cs23/

Open Elective Courses Approved by the Department of Mechanical Engineering			
Sl. No.	**Course Code**	**Course Name**	**Link to Course Details and Registration**
1	MEC 412	Material Characterization	https://onlinecourses.nptel.ac.in/noc19_mm08/
2	MEC 413	Welding Processes	https://onlinecourses.nptel.ac.in/noc19_mm12/
3	MEC 414	Six Sigma	https://onlinecourses.nptel.ac.in/noc19_mg17/
4	MEC 415	Quality Design and Control	https://onlinecourses.nptel.ac.in/noc19_mg18/
5	MEC 416	English Language for Competitive Exams	https://onlinecourses.nptel.ac.in/noc19_hs18/

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Open Elective Courses Approved by the Department of Petroleum Engineering

Sl. No.	Course Code	Course Name	Link to Course Details and Registration
1	PET 409	Waste to Energy Conversion (2 Credits)	https://onlinecourses.nptel.ac.in/noc19_ch13/
2	PET 410	Computational Fluid Dynamics	https://onlinecourses.nptel.ac.in/noc19_ch04/
3	PET 411	Health Research Fundamentals (2 Credits)	https://onlinecourses.nptel.ac.in/noc19_ge01/
4	PET 412	Business analyticss and data mining Modeling using R (3 Credits)	https://onlinecourses.nptel.ac.in/noc19_mg26/
5	PET 413	Patent Law For Engineers And Scientists	https://onlinecourses.nptel.ac.in/noc19_hs02/

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Annexure 8.6

Structure of the M. Tech. Program in Product Design and Development

I SEMESTER

S. NO.	COURSE NAME	CREDIT STRUCTURE				CONTACT HOURS
		L	T	P	CREDITS	
1	Advanced Numerical Methods	3	0	0	3	3
2	Introduction to Product Development	4	0	0	4	4
3	Computer Applications in Design	3	0	2	4	5
4	Quality Concepts in Product Development	4	0	0	4	4
5	Industrial Design	3	0	2	4	5
6	Research Methodology	3	0	0	3	3
7	Seminar	-	-	-	1	-
	TOTAL	**20**	**0**	**6**	**23**	**24**

II SEMESTER

S. NO.	COURSE NAME	CREDIT STRUCTURE				CONTACT HOURS
		L	T	P	CREDITS	
1	Finite Element Methods in Mechanical Design	3	0	0	3	3
2	Integrated Product Design and Process Development	3	1	0	4	4
3	Product and Process Engineering Tools	3	0	2	4	5
4	Materials for Product Design	3	0	2	4	5
5	Discipline Elective-I	3	0	0	3	3
6	Open Elective-I	3	0	0	3	3
7	Seminar	-	-	-	1	-
	TOTAL	**18**	**1**	**6**	**22**	**23**

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III SEMESTER

S. NO.	COURSE NAME	CREDIT STRUCTURE				CONTACT HOURS
		L	T	P	CREDITS	
1	Marketing Research	4	0	0	4	4
2	Discipline Elective-II	3	0	0	3	3
3	Discipline Elective-III	3	0	0	3	3
4	Open Elective-I	3	0	0	3	3
5	Project Work (Phase I)	-	-	-	5	-
	TOTAL	**13**	**0**	**0**	**18**	**13**

IV SEMESTER

S. NO.	COURSE NAME	CREDIT STRUCTURE				CONTACT HOURS
		L	T	P	CREDITS	
1	Project Work (Phase II)	-	-	-	15	-
	TOTAL	**-**	**-**	**-**	**15**	**-**

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Ref. No. PU/SoE/MEC/BOS-09/2018-19/CIR01 Date: 22nd April, 2019

9th BOS MEETING NOTICE

The 9th Board of Studies (BOS) meeting of the Department of Mechanical Engineering is scheduled on Saturday, 4th May, 2019, at 10:00 AM in the University campus, Bengaluru. You are hereby requested to attend the meeting.

The agenda for the meeting is:

MEC 9.1 Approval of the minutes of the 8th Board of Studies meeting

MEC 9.2 Approval of the Action Taken Report, if any

MEC 9.3 Review and approval of the modifications in the B. Tech. Program Regulations and Curriculum for the 2018-2022, 2017-2021 and 2016-2020 batches

MEC 9.4 Introduction and approval of the B. Tech. Program Regulations and Curriculum for the 2019-2023 batch

MEC 9.5 Deliberation and approval of changes in the list of Discipline and Open Elective Courses

MEC 9.6 Introduction and approval of the Program Regulations and Curriculum for the New M. Tech. Program in 'Product Design and Development'

MEC 9.7 Approval of the list of MOOC Courses-NPTEL/SWAYAM that are offered as Discipline Elective and Open Elective Courses for the 2018-2022, 2017-2021 and 2016-2020 batches

MEC 9.8 Approval of the list of Examiners

MEC 9.9 Any other matter with the permission of the Chairperson

M. M. Ravi 22/4/19

Chairperson

(Dr. Udaya Ravi M.)

BOS-MEC Committee

Copy to:

- Pro-Chancellor, PU
- Vice-Chancellor, PU
- Registrar, PU
- Pro-Vice-Chancellor, PU
- Dean-SoE, PU
- Dean-Academics, PU
- Members of the Board of Studies listed in the table below.

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1	Dr. Udaya Ravi M.	13	Dr. Satish Babu Boppana
2	Dr. C. Prabhakar Reddy	14	Dr. Sadashiva Prabhu
3	Dr. A. M. Surendra Kumar	15	Dr. B. S. Praveen Kumar
4	Dr. C. S. Ramesh	16	Mr. Santosh M. B.
5	Dr. Joel Hemanth	17	Dr. Deepjyoti Mech
6	Dr. B. V. Prabhu	18	Dr. Mahesha K.
7	Dr. D. Ramesh Rao	19	Dr. Rajendrakumar Savanur
8	Dr. Bhaskar Pal	20	Dr. Ramesh S. Sharma 04/05/19.
9	Dr. Akshay Nanjangud	21	Dr. Ashitava Ghosal 04-05-2019
10	Dr. Ramesh S. P.	22	Mr. R. M. Bhat 4/5/2019
11	Dr. G. N. Lokesh	23	Mr. Aravinda T.
12	Dr. Ramachandra C. G. 4/5/19		

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Ref. No. PU/SoE/MEC/BOS-09/2018-19/MoM-01 Date: 4th May, 2019

Minutes of the 9th Meeting of Board of Studies (Mechanical Engineering - BOS - MEC)

The 9th meeting of the Board of Studies (BOS) of the Department of Mechanical Engineering was held today, 4th May, 2019, at 10:00 AM in Room No. MG-10, Presidency University.

The following members were present.

Sl. No.	Name	Designation with Affiliation	Status
1	Dr. Udaya Ravi M.	Professor and HoD-MEC SoE, PU, Bengaluru	Chairperson Ex-Officio
2	Dr. C. Prabhakar Reddy	Dean and Professor SoE, PU, Bengaluru	Member
3	Dr. A. M. Surendra Kumar	CoE and Professor SoE, PU, Bengaluru	Member
4	Dr. C. S. Ramesh	Dean R & I and Professor SoE, PU, Bengaluru	Member
5	Dr. Joel Hemanth	Assoc. Dean and Prof. SoE, PU, Bengaluru	Member
6	Dr. B. V. Prabhu	Assoc. Dean and Prof. SoE, PU, Bengaluru	Member
7	Dr. D. Ramesh Rao	Professor SoE, PU, Bengaluru	Member
8	Dr. Bhaskar Pal	Professor SoE, PU, Bengaluru	Member
9	Dr. Akshay Nanjangud	Associate Professor SoE, PU, Bengaluru	Member

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Sl. No.	Name	Designation with Affiliation	Status
10	Dr. Ramesh S. P.	Associate Professor SoE, PU, Bengaluru	Member
11	Dr. G. N. Lokesh	Associate Professor SoE, PU, Bengaluru	Member
12	Dr. Ramachandra C. G.	Associate Professor SoE, PU, Bengaluru	Member
13	Dr. Satish Babu Boppana	Associate Professor SoE, PU, Bengaluru	Member
14	Dr. Sadashiva Prabhu	Assistant Professor SoE, PU, Bengaluru	Internal Member (Nominated by the VC within the Department)
15	Dr. B. S. Praveen Kumar	Assistant Professor SoE, PU, Bengaluru	Internal Member (Nominated by the VC within the Department)
16	Mr. Santosh M. B.	Assistant Professor Civil Engineering SoE, PU, Bengaluru	Internal Member (Nominated by the VC from a Sister Department)
17	Dr. Deepjyoti Mech	Assistant Professor Petroleum Engineering SoE, PU, Bengaluru	Internal Member (Nominated by the VC from a Sister Department)

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Sl. No.	Name	Designation with Affiliation	Status
18	Dr. Mahesha K.	Professor SoE, PU, Bengaluru	Special Invitee
19	Dr. Ramesh S. Sharma	Professor Mechanical Engineering R. V. College of Engineering Bengaluru rameshssharma@rvce.edu.in Phone: +91 9880702543	External Member (Academic)
20	Dr. Ashitava Ghosal	Professor Mechanical Engineering IISc, Bengaluru asitava@mecheng.iisc.ernet.in Phone: +91 9740395571	External Member (Academic)
21	Mr. R. M. Bhat	Sr. Executive – HR, L & T Construction Equipment Limited, Sy. No. 27 & 28, Thammshettihalli Village, Doddaballapur bhatrm_b@rediffmail.com Phone: +91 9986504029	External Member (Industry)
22	Mr. Aravinda T.	Assistant Professor SoE, PU, Bengaluru	Member Secretary

The following members were given leave of absence.

Sl. No.	Name	Affiliation	Status
1	Dr. Rajendrakumar Savanur	Professor SoE, PU, Bengaluru	Special Invitee

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Ref. No. PU/SoE/MEC/BOS-09/2018-19/Attendance

Date: 4th May, 2019

ATTENDANCE SHEET

The 9th meeting of the Board of Studies (BOS) for Mechanical Engineering was held today, 4th May, 2019, in Room No. MG-10, Presidency University, Bengaluru, at 10:00 AM, in the presence of the following members.

Sl. No.	Name	Designation with Affiliation	Status	Signature with Date
1	Dr. Udaya Ravi M.	Professor and HoD-MEC SoE, PU, Bengaluru	Chairperson Ex-Officio	4/5/19
2	Dr. C. Prabhakar Reddy	Dean and Professor SoE, PU, Bengaluru	Member	4/5/19
3	Dr. A. M. Surendra Kumar	CoE and Professor SoE, PU, Bengaluru	Member	
4	Dr. C. S. Ramesh	Dean R & I and Professor SoE, PU, Bengaluru	Member	4/5/2019
5	Dr. Joel Hemanth	Assoc. Dean and Prof. SoE, PU, Bengaluru	Member	
6	Dr. B. V. Prabhu	Assoc. Dean and Prof. SoE, PU, Bengaluru	Member	
7	Dr. D. Ramesh Rao	Professor SoE, PU, Bengaluru	Member	4/5/19
8	Dr. Bhaskar Pal	Professor SoE, PU, Bengaluru	Member	4/5/19
9	Dr. Akshay Nanjangud	Associate Professor SoE, PU, Bengaluru	Member	04-05-19
10	Dr. Ramesh S. P.	Associate Professor SoE, PU, Bengaluru	Member	04.05.19

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Sl. No.	Name	Designation with Affiliation	Status	Signature with Date
11	Dr. G. N. Lokesh	Associate Professor SoE, PU, Bengaluru	Member	4/5/19
12	Dr. Ramachandra C. G.	Associate Professor SoE, PU, Bengaluru	Member	4/5/19
13	Dr. Satish Babu Boppana	Associate Professor SoE, PU, Bengaluru	Member	
14	Dr. Sadashiva Prabhu	Assistant Professor SoE, PU, Bengaluru	Internal Member (Nominated by the VC within the Department)	4/5/19
15	Dr. B. S. Praveen Kumar	Assistant Professor SoE, PU, Bengaluru	Internal Member (Nominated by the VC within the Department)	4/5/2019
16	Mr. Santosh M. B.	Assistant Professor Civil Engineering SoE, PU, Bengaluru	Internal Member (Nominated by the VC from a Sister Department)	4/5/19
17	Dr. Deepjyoti Mech	Assistant Professor Petroleum Engineering SoE, PU, Bengaluru	Internal Member (Nominated by the VC from a Sister Department)	Mech 4/5/19

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Sl. No.	Name	Designation with Affiliation	Status	Signature with Date
18	Dr. Mahesha K.	Professor SoE, PU, Bengaluru	Special Invitee	04 May 19
19	Dr. Rajendrakumar Savanur	Professor SoE, PU, Bengaluru	Special Invitee	ABSENT
20	Dr. Ramesh S. Sharma	Professor Mechanical Engineering R. V. College of Engineering Bengaluru rameshssharma@rvce.edu.in Phone: +91 9880702543	External Member (Academic)	04/05/19
21	Dr. Ashitava Ghosal	Professor Mechanical Engineering IISc, Bengaluru asitava@mecheng.iisc.ernet.in Phone: +91 9740395571	External Member (Academic)	May 4, 2019
22	Mr. R. M. Bhat	Sr. Executive – HR, L & T Construction Equipment Limited, Sy. No. 27 & 28, Thammshettihalli Village, Doddaballapur bhatrm_b@rediffmail.com Phone: +91 9986504029	External Member (Industry)	4/5/2019.
23	Mr. Aravinda T.	Assistant Professor SoE, PU, Bengaluru	Member Secretary	

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The Chairperson welcomed the members of the Board of Studies in Mechanical Engineering and two special invitees, Mr. Salman Ahmed, Vice President, Presidency University, and Ms. Nafeesa Ahmed, Director, Presidency Group of Institutions.

Agenda MEC 9.1: Approval of the Minutes of the 8th Board of Studies Meeting.

The minutes of the 8th meeting of the Board of Studies of the Department of Mechanical Engineering held on January 12, 2019, were placed before the members and the same were approved.

Agenda MEC 9.2: Approval of the Action Taken Report, If Any.

There were no items that needed actions from the 8th Board of Studies meeting. So there was no requirement for such a report. Hence, there is no Action Taken Report.

Agenda MEC 9.3: Review and Approval of the Modifications in the B. Tech. Program Regulations and Curriculum for the 2018-2022, 2017-2021 and 2016-2020 Batches.

The Chairperson presented the modifications in the Program Regulations and Curriculum (appended as Annexure 9.3) to the members. The modifications were the shifting of elective courses so that the final semester only has PIP 102 Professional Practice-II. This would give students an entire semester to undergo internships in industries or work on projects in the University. The members discussed and approved the modifications.

Resolution: The members resolved that the modifications to the Program Regulations and Curriculum for the three batches for the Academic Year 2019-2020 and thereafter be approved.

Agenda MEC 9.4: Introduction and Approval of the B. Tech. Program Regulations and Curriculum for the 2019-2023 Batch.

The Chairperson presented the Program Regulations and Curriculum for the 2019-2023 batch (appended as Annexure 9.4) to the members. The members discussed and approved the same.

Resolution: The members resolved that the Program Regulations and Curriculum for the 2019-2023 batch be approved for the Academic Year 2019-2020 and thereafter.

Agenda MEC 9.5: Deliberation and Approval of Changes in the List of Discipline and Open Elective Courses.

The Chairperson proposed the addition of three Discipline Elective Courses and two Open Elective Courses. The Discipline Elective Courses proposed were Advanced Metal Cutting, Additive Manufacturing and

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Advanced Technical Drawing. The Open Elective Courses proposed were Design of Automatic Control Systems and Hybrid Electric Vehicle Design. The Chairperson presented the syllabus and other details of the courses (appended in Annexure 9.5) to the members. The deliberations of the members are as follows.

The members made the following suggestions for the course Advanced Metal Cutting. Dr. Ashtitava Ghosal suggested the course include the challenges inherent in the cutting of very hard metals like titanium. He and Dr. Ramesh C. S. suggested the inclusion of the topic high speed machining.

Dr. Ashitava Ghosal and Dr. Ramesh C. S. opined that the course Advanced Technical Drawing is very similar to a first course on Computer Aided Machine Drawing. So the contents of the course need to be revisited before its inclusion as a Discipline Elective Course.

The members felt that the course Additive Manufacturing can be offered as an Open Elective Course with the following modifications. Dr. Ramesh C. S. and Dr. Bhaskar Pal suggested that it include topics on reverse engineering and scanning techniques using lasers.

Design of Automatic Control Systems was accepted as an Open Elective Course by the members without any changes.

The final course that was discussed is Hybrid Electric Vehicle Design. Dr. Ramesh C. S. suggested that the various materials used in the design and manufacturing of hybrid electric vehicles be included. Dr. C. Prabhakar Reddy opined that the Open Elective Course Automotive Vehicles be made a prerequisite for this course. All the members felt that the course include the study of drives and transmission systems used in hybrid electric vehicles.

Resolution: The members approved the inclusion of Design of Automatic Control Systems as an Open Elective Course for the 2019-2023, 2018-2022 and 2017-2021 batches. They felt that the other courses can be discussed further in the next Board of Studies meeting before inclusion.

Agenda MEC 9.6: Introduction and Approval of the Program Regulations and Curriculum for the New M. Tech. Program in 'Product Design and Development' for the 2019-2021 Batch.

The Chairperson presented the Program Regulations and Curriculum for the new M. Tech. Program in 'Product Design and Development' for the 2019-2021 batch (appended as Annexure 9.6) to the members. The members discussed the same. Dr. Ashitava Ghosal made three suggestions with the regard to the courses in the M. Tech. Program. The first of these was to replace the course Advanced Numerical Methods with a course on Linear Algebra because the latter is more relevant to an M. Tech. in Product Design and Development. The second suggestion was to include a Core Course on Computer Aided Design so that

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students learn how to use computational tools to design and develop a product. His third suggestion was to include a Core Course on the manufacturing techniques relevant to today's manufacturing industries. All the members agreed with Dr. Ghosal's suggestions.

Resolution: The members resolved that the Program Regulations and Curriculum for the new M. Tech. Program for the 2019-2021 batch for the Academic Year 2019-2020 and thereafter be approved with the changes suggested by Dr. Ghosal.

Agenda MEC 9.7: Approval of the List of MOOC Courses via SWAYAM-NPTEL Offered as Discipline and Open Elective Courses for the 2018-2022, 2017-2021 and 2016-2020 Batches.

The Chairperson presented the list of Discipline and Open Elective Courses proposed by the Department of Mechanical Engineering from SWAYAM-NPTEL (appended in Annexure 9.7) to the members. The committee discussed the list of courses.

Resolution: The members resolved that the list of courses be approved as Discipline and Open Elective Courses for the 2018-2022, 2017-2021 and 2016-2020 batches.

Agenda MEC 9.8: Approval of the List of Examiners.

The Chairperson presented the list of Examiners to the members of the Board of Studies.

Resolution: The members approved the list of Examiners.

Agenda MEC 9.9: Any Other Matter with the Permission of the Chairperson.

The members of the BOS made the following comments.

Dr. Ashitava Ghosal, Professor, Indian Institute of Science, congratulated the university on its progress and suggested that courses be designed in a way to encourage deep learning with the use of mathematical techniques and computational tools.

Mr. R. M. Bhat, the External Member from the Industry, and Dr. Ramesh S. Sharma, Professor, R. V. College of Engineering, complimented the university's progress and commitment to academics. Dr. Ramesh S. Sharma added that the BOS meetings have always been conducted in an "exemplary manner."

Mr. Salman Ahmed, Vice President, Presidency University, congratulated the Department of Mechanical Engineering on its progress. He said that he found the students and faculty members of the Department of Mechanical Engineering to be the most interactive and "full of ideas." He made a special mention of the Head of the Department of Mechanical Engineering for leading the team efficiently.

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As BOS meetings of all the Departments are taking place simultaneously in different venues today, the Chairperson requested approval from the committee to incorporate modifications/alterations, if any, approved by the BOS committee of other Departments for the existing batches in Mechanical Engineering by other departments. The BOS Committee for Mechanical Engineering has approved the proposal unanimously.

The BOS Committee authorised the BOS Chairperson and the Sub-Committee consisting of the Internal Members of the Board of Studies of Mechanical Engineering to incorporate minor corrections/edits, if required.

The BOS Chairperson has conveyed that the decisions taken during the 9th meeting of BOS for Mechanical Engineering will be implemented for 2018-2022, 2017-2021 and 2016-2020 batches.

The meeting ended with Vote of Thanks by the Member Secretary.

BOS Committee:

Sl. No.	Name	Status	Signature with Date
1	Dr. Udaya Ravi M.	Chairperson Ex-Officio	4/5/19
2	Dr. C. Prabhakar Reddy	Member	4/5/19
3	Dr. A. M. Surendra Kumar	Member	
4	Dr. C. S. Ramesh	Member	4/5/2019
5	Dr. Joel Hemanth	Member	
6	Dr. B. V. Prabhu	Member	
7	Dr. D. Ramesh Rao	Member	4/5/19

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Sl. No.	Name	Status	Signature with Date
8	Dr. Bhaskar Pal	Member	4/5/19
9	Dr. Akshay Nanjangud	Member	04-05-19
10	Dr. Ramesh S. P.	Member	04-05-19
11	Dr. G. N. Lokesh	Member	4/5/19
12	Dr. Ramachandra C. G.	Member	4/5/19
13	Dr. Satish Babu Boppana	Member	
14	Dr. Sadashiva Prabhu	Internal Member (Nominated by the VC within the Department)	4/5/19
15	Dr. B. S. Praveen Kumar	Internal Member (Nominated by the VC within the Department)	4/5/19
16	Mr. Santosh M. B.	Internal Member (Nominated by the VC from a Sister Department)	4/5/19
17	Dr. Deepjyoti Mech	Internal Member (Nominated by the VC from a Sister Department)	Mech 4/5/19

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Sl. No.	Name	Status	Signature with Date
18	Dr. Mahesha K.	Special Invitee	
19	Dr. Rajendrakumar Savanur	Special Invitee	ABSENT
20	Dr. Ramesh S. Sharma	External Member (Academic)	04/05/19.
21	Dr. Ashitava Ghosal	External Member (Academic)	May 4, 2019
22	Mr. R. M. Bhat	External Member (Industry)	4/5/2019
23	Mr. Aravinda T.	Member Secretary	

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Annexure 9.3

The existing structure of the fifth, sixth, seventh and eighth semesters for the 2018-2022 and 2017-2020 batches are as shown below.

V SEMESTER							
S. NO.	COURSE CODE	COURSE NAME	CREDIT STRUCTURE				CONTACT HOURS
			L	T	P	CREDITS	
1	MEC 214	Dynamics of Machines	3	1	0	4	4
2	MEC 210	Design of Machine Elements - I	3	1	0	4	4
3	MEC 207	Production Techniques - II	3	0	0	3	3
4	MGT 112 / MGT 113	Engineering Economics/ Digital Entrepreneurship	3	0	0	3	3
5	MEC 217	Finite Element Analysis	3	0	0	3	3
6	MEC 3XX	Discipline Elective - I	3	0	0	3	3
7	MEC 257	Foundry, Forging and Welding Lab	0	0	2	1	2
8	MEC 258	Energy Conversion Engineering Lab	0	0	2	1	2
9	PIP 101	Professional Practice - I**				5	
		TOTAL	18	2	4	27	24

VI SEMESTER							
S. NO.	COURSE CODE	COURSE NAME	CREDIT STRUCTURE				CONTACT HOURS
			L	T	P	CREDITS	
1	MEC 209	Heat and Mass Transfer	3	1	0	4	4
2	MEC 212	Mechanical Vibrations	3	1	0	4	4
3	MEC 216	Design of Machine Elements - II	3	1	0	4	4
4	MGT 113 / MGT 112	Digital Entrepreneurship/ Engineering Economics	3	0	0	3	3
5	MEC 3XX	Discipline Elective - II	3	0	0	3	3
6	MEC 259	Mechanisms, Machines and Design Lab	0	0	2	1	2
7	MEC 260	Heat and Mass Transfer Lab	0	0	2	1	2
8	MEC 261	Modeling, Simulation and Analysis Lab	0	0	2	1	2
9	ULC 101	University Learning Course*				1	
		TOTAL	15	3	6	21/22	24

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VII SEMESTER							
S. NO.	COURSE CODE	COURSE NAME	CREDIT STRUCTURE				CONTACT HOURS
			L	T	P	CREDITS	
1	MEC 213	I. C. Engine and Fuels	3	1	0	4	4
2	MEC 218	Mechatronics	3	1	0	4	4
3	MEC 3XX	Discipline Elective - III	3	0	0	3	3
4	XXX 4XX	Open Elective - I	3	0	0	3	3
5	MEC 256	Mechatronics Lab	0	0	2	1	2
		TOTAL	**12**	**2**	**2**	**15**	**16**

VIII SEMESTER							
S. NO.	COURSE CODE	COURSE NAME	CREDIT STRUCTURE				CONTACT HOURS
			L	T	P	CREDITS	
1	MEC 3XX	Discipline Elective - IV	3	0	0	3	3
2	XXX 4XX	Open Elective - II	3	0	0	3	3
3	PIP 102	Professional Practice - II				15	
		TOTAL	**6**	**0**	**0**	**21**	**6**

The proposed structure of the fifth, sixth, seventh and eighth semesters for the 2018-2022 and 2017-2020 batches are as shown below.

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V SEMESTER

S. NO.	COURSE CODE	COURSE NAME	CREDIT STRUCTURE				CONTACT HOURS
			L	T	P	CREDITS	
1	MEC 214	Dynamics of Machines	3	1	0	4	4
2	MEC 210	Design of Machine Elements - I	3	1	0	4	4
3	MEC 207	Production Techniques - II	3	0	0	3	3
4	MGT 112 / MGT 113	Engineering Economics/ Digital Entrepreneurship	3	0	0	3	3
5	MEC 217	Finite Element Analysis	3	0	0	3	3
6	MEC 3XX	Discipline Elective - I	3	0	0	3	3
7	MEC 3XX	Discipline Elective - II	3	0	0	3	3
8	MEC 257	Foundry, Forging and Welding Lab	0	0	2	1	2
9	MEC 258	Energy Conversion Engineering Lab	0	0	2	1	2
10	PIP 101	Professional Practice - I**				5	
		TOTAL	**18**	**2**	**4**	**30**	**27**

VI SEMESTER

S. NO.	COURSE CODE	COURSE NAME	CREDIT STRUCTURE				CONTACT HOURS
			L	T	P	CREDITS	
1	MEC 209	Heat and Mass Transfer	3	1	0	4	4
2	MEC 212	Mechanical Vibrations	3	1	0	4	4
3	MEC 216	Design of Machine Elements - II	3	1	0	4	4
4	MGT 113 / MGT 112	Digital Entrepreneurship/ Engineering Economics	3	0	0	3	3
5	MEC 3XX	Discipline Elective - III	3	0	0	3	3
6	XXX 4XX	Open Elective - I	3	0	0	3	3
7	MEC 259	Mechanisms, Machines and Design Lab	0	0	2	1	2
8	MEC 260	Heat and Mass Transfer Lab	0	0	2	1	2
9	MEC 261	Modeling, Simulation and Analysis Lab	0	0	2	1	2
10	ULC 101	University Learning Course*				1	
		TOTAL	**15**	**3**	**6**	**24/25**	**27**

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VII SEMESTER							
S. NO.	COURSE CODE	COURSE NAME	CREDIT STRUCTURE				CONTACT HOURS
			L	T	P	CREDITS	
1	MEC 213	I. C. Engine and Fuels	3	1	0	4	4
2	MEC 218	Mechatronics	3	1	0	4	4
3	MEC 3XX	Discipline Elective - IV	3	0	0	3	3
4	XXX 4XX	Open Elective - II	3	0	0	3	3
5	MEC 256	Mechatronics Lab	0	0	2	1	2
		TOTAL	**12**	**2**	**2**	**15**	**16**

VIII SEMESTER							
S. NO.	COURSE CODE	COURSE NAME	CREDIT STRUCTURE				CONTACT HOURS
			L	T	P	CREDITS	
1	PIP 102	Professional Practice - II				15	
		TOTAL	**-**	**-**	**-**	**15**	**-**

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The existing structure of the seventh and eighth semesters for the 2016-2020 batch are as shown below.

VII SEMESTER							
S. NO.	COURSE CODE	COURSE NAME	CREDIT STRUCTURE				CONTACT HOURS
			L	T	P	CREDITS	
1	MEC 217	Mechatronics	3	1	0	4	4
2	MEC 213	I. C. Engine and Fuels	3	1	0	4	4
3	MEC 3XX	Discipline Elective – III	3	0	0	3	3
4	XXX 4XX	Open Elective – I	3	0	0	3	3
5	MEC 256	Mechatronics Lab	0	0	2	1	2
		TOTAL	**12**	**2**	**2**	**15**	**16**

VIII SEMESTER							
S. NO.	COURSE CODE	COURSE NAME	CREDIT STRUCTURE				CONTACT HOURS
			L	T	P	CREDITS	
1	MEC 3XX	Discipline Elective - IV	3	0	0	3	3
2	XXX 4XX	Open Elective - II	3	0	0	3	3
3	PIP 102	Professional Practice - II				15	
		TOTAL	**6**	**0**	**0**	**21**	**6**

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The proposed structure of the seventh and eighth semesters 2016-2020 batch are as shown below.

VII SEMESTER							
S. NO.	COURSE CODE	COURSE NAME	CREDIT STRUCTURE				CONTACT HOURS
			L	T	P	CREDITS	
1	MEC 217	Mechatronics	3	1	0	4	4
2	MEC 213	I. C. Engine and Fuels	3	1	0	4	4
3	MEC 3XX	Discipline Elective – III	3	0	0	3	3
4	MEC 3XX	Discipline Elective - IV	3	0	0	3	3
5	XXX 4XX	Open Elective – I	3	0	0	3	3
6	XXX 4XX	Open Elective - II	3	0	0	3	3
7	MEC 256	Mechatronics Lab	0	0	2	1	2
		TOTAL	**12**	**2**	**2**	**21**	**16**

VIII SEMESTER							
S. NO.	COURSE CODE	COURSE NAME	CREDIT STRUCTURE				CONTACT HOURS
			L	T	P	CREDITS	
1	PIP 102	Professional Practice - II				15	
		TOTAL	**-**	**-**	**-**	**15**	**-**

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Annexure 9.4

The existing structure of assessments in the Program Regulations and Curriculum of the 2018-2022, 2017-2021 and 2016-2020 is as shown below.

Table 2.12.1 Method of Assessment for Courses with the Credit Structure L – T – 0 and L – 0 – 0

	Components of Continuous Assessments	Weightage (% of Total Marks)	Duration of Assessment
1	Test 1	20%	1 hour
2	Test 2	20%	1 hour
3	This component of continuous assessment shall consist of at least TWO (02) of the following: (1) Assignment(s) (2) Quiz (3) Technical Seminar / Report (4) Attendance / Class participation (5) Assessment on self-learning topic(s), or (6) Any other type of assessment as prescribed in the concerned Course Handout.	20%	NA
4	End Term Final Examinations	40%	2 or 3 hours
	Total	**100%**	

Note: An additional Test 3 may be conducted as an optional test to allow for improvement. If a student opts for Test 3, then the higher marks obtained in any two tests shall be considered for evaluation.

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Table 2.12.2 Method of Assessment for Practical Courses with Credit Structure 0 –0 – P and L – 0 – P			
	Components of Continuous Assessments	**Weightage (% of Total Marks)**	**Duration of Assessment**
1	Laboratory/ Practical Exercise conducted in every Practical Class and Laboratory Records, Practical/ Project Reports as prescribed by the Course Handout.	50%	NA
2	Practical Test/ Viva/ Quiz/ Assignments as prescribed by the Course Handout.	20%	NA
3	End Term Final Practical Examinations	30%	2 or 3 hours
	Total	**100%**	

The changed structure of assessments for the 2019-2023 batch is as shown below.

Table 2.12.1 Method of Assessment for Courses with Credit Structures L–T–0 and L–0–0			
S. No.	**Components of Continuous Assessment**	**Weightage (% of Total Marks)**	**Duration of Assessment**
1	Continuous Assessment 1: Test 1	15%	1 hour
2	Continuous Assessment 2: Test 2	15%	1 hour
3	Continuous Assessment 3: This component of Continuous Assessment shall consist of at least two (02) of the following: (1) Assignment(s), (2) Quiz, (3) Technical Seminar/Report, (4) Attendance/Class participation, (5) Assessment on the self-learning topic(s), or, (6) Any other type of assessment as prescribed in the concerned Course Handout.	20%	NA
4	End Term Final Examination	50%	3 hours
	Total	**100%**	

Note:
(i) An additional Test 3 may be conducted as an optional test to allow for improvement. If a Test 3 is provided, then the higher marks obtained in any two tests shall be considered for evaluation.
(ii) Normally, the End Term Final Examination shall cover the entire course coverage as prescribed in the Course Handouts.

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Table 2.12.2 Method of Assessment for Practical Courses with Credit Structures 0–0–P and 1–0–P

S. No.	Components of Continuous Assessments	Weightage (% of Total Marks)	Duration of Assessment
1	Continuous Assessment 1: Laboratory Work/Practical exercises, conducted in every Laboratory/Practice session/activity, including Laboratory records, practice/ project reports, attendance/class participation as applicable, and as prescribed by the Course Handout.	30%	NA
2	Continuous Assessment 2: Practical Test/ Viva-Voce/Quiz/Practice Assignments/ Presentations and other assessments as prescribed in the Course Handout.	20%	NA
3	End Term Practical Examination: Practical Experiment/Practice Test(s) with Viva-Voce, Jury or any other type of assessment as prescribed in the Course Handout.	50%	2 or 3 hours
	Total	**100%**	

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Annexure 9.5

ADVANCED METAL CUTTING (Discipline Elective Course)

Course Content

The comprehensive application engineering course is designed to provide a broad base of knowledge for the selection and use of Metal cutting tools. This course covers lecture, workshop, experience sharing and machine demonstrations.

1. **Mechanics of Metal cutting** will cover tooling from a design perspective. This section starts with a discussion on How Tools Cut, the cutting forces and progress through the design elements related to turning, milling and drilling. All aspects of cutting geometry will be discussed along with its relationship to the cutting edge, work piece material and power.
2. **Work Piece Material** will discuss the various work piece materials that are popular in today's machine shop, their properties, and the challenges they pose to the shop floor personnel, though they are gaining popularity. We will address these challenges on how and what needs to be considered from a tool selection perspective.
3. **Materials Technology** will start with a discussion of common cutting tool materials and how they relate to each other. A discussion of powder metal technology will start with how Carbide is made and progressed through modern technology. Coating technology will include common application methods as well as the latest advances in coating materials.
4. **Tool Selection and Application** will introduce the tool path method of selecting and applying tooling. This section will be divided into the three main operations of turning, milling, hole making and tapping. Selection and application will include processing exercises to provide hands on experience.
5. **Machining Economics** will cover elements that effect productivity and overall cost, such as establishing operating conditions to gain maximum efficiency; the cause and effect relationship between operating conditions and tool failure, machinability, testing methods and cost justification.
6. **Fixtures for Machine Tools** will cover the importance of fixture, design & selection criteria, troubleshooting, etc which is critical for enhancing the tool life.
7. **Cutting Fluids or coolants** are important elements in enhancing the machining efficiencies. We will discuss the various types of cutting fluids, their advantages and roles in metal cutting, and selection and application of fluids. Care and maintenance of cutting fluids also will be discussed.

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Benefits from this Course

The Participants will obtain in-depth knowledge on

(a) Tool Engineering and Tooling applications
(b) Right Selection of cutting tools and machining parameters
(c) Understand tool failures while machining and precautions to avoid the same
(d) Optimizing tool performance vis-à-vis productivity
(e) Understand machining cost Vs. tool life
(f) Selection criteria for the right machine
(g) Fixtures for Machine Tools and their significance
(h) Specific tips for good machining practice will be explained

Instruction Methodology

(i) Lecture style presentation
(ii) Class room workshop
(iii) Machine demonstration
(iv) Animated videos on machining
(v) Plant Visit
(vi) Assessment test

ADVANCED TECHNICAL DRAWING (Discipline Elective Course)

1. Learning Objectives: The students will learn

(i) Understand and interpreting engineering drawings.
(ii) To review the following areas of Basic Technical Drawing: Projection techniques, dimensioning, pictorials, sectional drawing, and working drawings.
(iii) Construct a set of working drawings of a machine assembly including assembly drawings, detail drawings, bill of materials, revisions block, part specifications, and general notes.
(iv) Why geometric tolerance is superior to coordinate tolerance. Detailed analysis of assembly drawing and blue prints.

2. Course Outcomes: On successful completion of the course students shall be able to:

(i) Demonstrate proficiency in the production of Technical Drawing using drawing standards.
(ii) Helping the student in drafting their technical ideas.
(iii) Creating knowledge about the various practices with regard to the dimensioning, sectioning and development of views.
(iv) Know about the industrial drawing and their usages in practical design and manufacturing fields.

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(v) Interpretation of machine drawings that in turn help the students in the preparation of the production drawings

3. Course Description: This course introduces student to the use of technical drawing in an effective way for communicating and integrating with engineering concepts. The Course emphasizes on various techniques of technical drawing. Conversions form 2D to 3D and Vice versa. Course also focus on enhancing the ability of student to read, interpret the production drawing. Course includes classification of Machine Drawings, principles of projections and its types. Problems on first and third angle of projection. Course includes sections of machine components, Assembly Drawings, Production Drawings, and Reproduction of Drawing. And also, GD&T emphasizes student to have detailed idea on production drawing. At the end of the course, student should be able to apply the skill and knowledge of engineering drawing to interpret design, capable of reading blueprints. Couse also gives importance on sheet metal drawings and free hand sketch.

4. Syllabus:

Chapter 1: Introduction to Technical Drawing:

Need of technical drawing in the field of design, classifications of drawing, principles of drawing: Drawing sheet, Title block, scales, types of lines, dimensioning and its types. Theory of projection, angle of projections. Types of projections: First and third angle projections. Exercise problems. Orthographic projections of machine components. Isometric projections of machine components, exercise problems.

Chapter 2: Section of Machine Components:

Introduction, importance of sectioning of solids, types of sections with examples, conventions in sectional view drawings. True shape of a section, Sections of prisms, pyramids, cylinders and cones, exercise problems. Sectioning of machine components, exercise problems. Thread forms and fasteners. Intersection of two solids, different ways of intersection of solids, exercise problems.

Chapter 3: Geometrical Dimensioning and Tolerance:

Introduction, Importance of GD&T, Terminology & Basic Rules, Features and Rules of GD&T, Datums Control, Adding GD&T to a Drawing/Design, Tolerances and its types, Form, orientation, Profile, Location, Runout tolerances. Exercise problems. Understanding GD & T Drawing, Material conditions.

Chapter 4: Assembly Drawing & Blueprints Reading:

Introduction, types of Assembly, importance of BOM, assembly procedures, exercise problems. Assembly drawing of screw jack, plummer block, machine wise. Detailed study on blueprints. Exercise problems.

Chapter 5: Sheet metal drawing and free and sketching

Introduction, application, types of sheet metal works, dimensioning sheet metal developed drawings, developments of basic structures, exercise problems. Introduction to free hand sketching, importance, exercise problems.

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5. Instructional Pedagogy: The instructional pedagogy used in the course is through lecturing, power point presentations, video visuals and model demonstration.

A mixture of lectures, tutorial exercises, and case studies are used to deliver the various topics. Some of these topics are covered in a problem-based format to enhance learning objectives. Others will be covered through directed study in order to enhance the students' ability of "learning to learn." Some case studies are used to integrate these topics and thereby demonstrate to students how the various techniques are inter-related and how they can be applied to real problems in an industry.

6. Textbook: Dhananjay A Jolhe, Engineering drawing, TMH, 2008. T2 K Venugpoal, Engineering Drawing and Graphics, 3nd edition, New Age International, 1998.

ADDITIVE MANUFACTURING (Open Elective Course)

Additive Manufacturing Syllabus for B.Tech 6th sem is covered here. This gives the details about credits, number of hours and other details along with reference books for the course.

OBJECTIVES

1. To know the principle methods, areas of usage, possibilities and limitations as well as environmental effects of the Additive Manufacturing technologies
2. To be familiar with the characteristics of the different materials those are used in Additive Manufacturing.

UNIT I : INTRODUCTION [10 hours]

Overview – History – Need-Classification -Additive Manufacturing Technology in product development-Materials for Additive Manufacturing Technology – Tooling – Applications.

UNIT II : CAD & REVERSE ENGINEERING [10 hours]

Basic Concept – Digitization techniques – Model Reconstruction – Data Processing for Additive Manufacturing Technology: CAD model preparation – Part Orientation and support generation – Model Slicing –Tool path Generation – Softwares for Additive Manufacturing Technology: CURA

UNIT III : LIQUID AND SOLID BASED ADDITIVE MANUFACTURING SYSTEMS 10 hours]

Classification – Liquid based system – Stereolithography Apparatus (SLA)- Principle, process, advantages and applications – Solid based system –Fused Deposition Modeling – Principle, process, advantages and applications, Laminated Object Manufacturing

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UNIT IV : POWDER BASED ADDITIVE MANUFACTURING SYSTEMS [10 hours]

Selective Laser Sintering – Principles of SLS process – Process, advantages and applications, Three Dimensional Printing – Principle, process, advantages and applications- Laser Engineered Net Shaping (LENS), Electron Beam Melting.

UNIT V : MEDICAL AND BIO-ADDITIVE MANUFACTURING [5 hours]

Customized implants and prosthesis: Design and production. Bio-Additive Manufacturing- Computer Aided Tissue Engineering (CATE) – Case studies

TOTAL : 45 HOURS

Course Learning Objectives:

1. The aim of the course is to provide the students, with an opportunity to conceive, design, and implement products quickly and effectively, using the latest rapid prototyping methods.
2. Technologies associated with material addition process are identified and its advantages are evaluated.
3. Students learn to differentiate various process parameters associated with additive Manufacturing Technique & choose tooling techniques for a specific application.
4. Learn how relative improvements can be established by using computers and optimization techniques as compared to initial, manual solutions.
5. Software associated with rapid additive manufacturing techniques are explored.

Course Outcomes:

1. Identify the stages of development related to AM system and classification based of material types
2. Compare different AM process based on process parameter
3. Analyse the different AM Tooling process for batch production
4. Select and use correct data formats in the manufacture of a 3D printed part
5. Analyse suitable orientation workflow for better part fabrication process & reduced part build errors

Textbooks:

- Chua C.K., Leong K.F., and Lim C.S., "Rapid prototyping: Principles and applications", Third Edition, World Scientific Publishers, 2010.
- Gebhardt A., "Rapid prototyping", Hanser Gardener Publications, 2003.

Reference Books:

- Liou L.W. and Liou F.W., "Rapid Prototyping and Engineering applications : A tool box for prototype development", CRC Press, 2007.

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- Kamrani A.K. and Nasr E.A., "Rapid Prototyping: Theory and practice", Springer, 2006. 3. Hilton P.D. and Jacobs P.F., "Rapid
- Tooling: Technologies and Industrial Applications", CRC press, 2000.

DESIGN OF AUTOMATIC CONTROL SYSTEMS (Open Elective Course)

Course proposed for: Final year (VI/VII sem)

Pre-requisite: Should studied Control engg/control systems/Auto control engg/control theory in the previous sem

Credits: 03 (3-0-0-0)

Corse Outcome: After completing the course students are able to design automatic control systems

Course Instructor: Prof. Dr. Joel Hemanth

Course Objective: Introduction – Design performance specifications – Transient and steady sate responses – stability – robustness – design process steps – Impedance approach of mechanical and electrical systems – numericals

Concept of poles and zeros – first and second order systems – analysis – design based on stability analysis – static and dynamic error coefficients - steady state errors. Compensation: Ideal and passive compensation – compensators –design through system compensation (lag, lead and lead-lag) Root locus plots - design through root locus analysis – Design via gain adjustments – Design through Bode analysis – Design through Nyquist analysis. State space analysis: conversion of transfer function to state space and vice versa – Controller design through state space approach – controllability – observability – Linearization of non-liner control systems. MATLAB application in control engineering.

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HYBRID ELECTRIC VEHICLE DESIGN (Open Elective Course)

1. Learning Objectives

1. To familiarise hybrid powertrains which meet the needs of modern vehicles, by combining the strengths of both electric motors and combustion engines
2. To identify how to define key vehicle system requirements and select and size system components that best meet those requirements
3. To select the torque speed curves for motors and the application to electric and hybrid electric vehicles.
4. Factors to be considered to design the main hybrid and electric vehicle development considerations and performance requirements for various vehicle system
5. To analyze fundamental electro chemistry of battery operation and performance requirements for HEV, PHEV, EREV and full electric vehicle applications.

2. Course Outcomes

On successful completion of the course that student shall be able to:

1. Understand working of different configurations of electric vehicles and I C Engine vehicles
2. Compute hybrid vehicle configuration and its components, performance analysis
3. Select various electric vehicle drive systems
4. Define the factors to be considered to design the main hybrid vehicle
5. Apply different batteries and the specific hybrid electric vehicles

3. Course Description

This course presents an introduction to the current status of hybrid vehicles and basic technologies. Hybrid powertrains provide new opportunities to achieve better trade offs in vehicle designs, for example, between driving performance and fuel economy. An in depth discussion is provided at the end of the course about the control and design of split hybrid electric vehicles.

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4. Syllabus

Chapter 1

Introduction to Electric vehicle: History , components of Electric vehicle, Comparison with internal combustion Engine Technology, Comparison with Internal Combustion engine: Benefits and Challenges, Electric Vehicle classification and their electrification levels. EV Terminology

Chapter 2

Motor Torque Calculations For Electric Vehicle: Calculating the Rolling Resistance, Calculating the grade resistance Calculating The Acceleration Force Finding The Total Tractive Effort , Torque Required On The Drive Wheel

Chapter 3

Electric Vehicle Architecture Design : Types of Electric Vehicle and components, Electrical protection and system requirement, Photovoltaic solar based EV design, Battery Electric vehicle (BEV) ,Hybrid electric vehicle (HEV), Plug-in hybrid vehicle (PHEV),Fuel cell electric vehicle (FCEV) , Electrification Level of EV ,Comparison of fuel vs Electric and solar power, Solar Power operated Electric vehicles

Chapter 4

Electric Drive and controller: Types of Motors, Selection and sizing of Motor, RPM and Torque calculation of motor, Motor Controllers, Component sizing, Physical locations, Mechanical connection of motor, Electrical connection of motor

Chapter 5

Energy Storage Solutions: Cell Types (Lead Acid/Li/NiMH),Battery charging and discharging calculation, Cell Selection and sizing, Battery lay outing design, Battery Pack Configuration, Battery Pack Construction, Battery selection criteria

Chapter 6

Battery and Energy Management Systems: Need of BMS, Rule based control and optimisation based control, Software-based high level supervisory control, Mode of power, Behaviour of motor , Advance Features

Chapter 7

Control Unit: Function of CU, Development Process, Software, Hardware, Data Management GUI/HMI

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Chapter-8.

Electric Vehicles Charging Stations: Type of Charging station, Selection and Sizing of charging station, Components of charging station, Single line diagram of charging station

Chapter-9.

Indian and Global Scenarios: Technology Scenario, Market Scenario, Policies and Regulations, Payback and commercial model, Payback and commercial model, Polices in India

Software : Ansys /CAD/Solid Work

5. Textbooks

1. Electric and Hybrid Vehicles: Design Fundamentals, Second Edition 2nd Edition, by Iqbal Husain (Author)
2. Build Your Own Electric Vehicle, Third Edition 3rd Edition, by Seth Leitman (Author), Bob Brant (Author)

6. Reference Books:

1. The Electric Vehicle Conversion Handbook: How to Convert Cars, Trucks, Motorcycles, and Bicycles -- Includes EV Components, Kits, and Project Vehicles, by Mark Warner
2. Modern Electric, Hybrid Electric, and Fuel Cell Vehicles by Mehrdad Ehsani, Yimin Gao, Stefano Longo
3. Electric and Hybrid Vehicles by Tom Denton

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Annexure 9.7

The following are the list of SWAYAM-NPTEL courses approved by the Department of Mechanical Engineering as Discipline Elective and Open Elective Courses for transfer of credits.

Sl. No.	Discipline Elective Courses	Open Elective Courses
1	Aircraft Stability and Control	Introduction to Aerospace Engineering
2	Mathematical Modelling of Manufacturing Processes	Industrial Safety Engineering
3	Advanced Concepts in Fluid Mechanics	Work System Design
4	Fundamentals of Gas Dynamics	Applied Ergonomics
5	Dynamic Behaviour of Materials	Fundamentals of Artificial Intelligence
6	Heat Exchangers: Fundamentals and Design Analysis	

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Annexure 9.8

The following is the list of Examiners approved by the Department of Mechanical Engineering.

Sl. No.	Course Code and Name	External Examiner	Designation	Affiliation
1	MEC 216 Design of Transmission Systems	Dr. P B Shetty	Professor	NMIT
		Dr. Ramesh Sharma	AP SG	RVCE
		Dr. Y.S. Ram Mohan	Professor	BMSCE
		Dr. P. Mahadevaswamy	Professor	SCE
		Dr. M. Phanibhushana	Professor	Amrita SoE
2	MEC 217 Renewable Energy Systems	Dr. Rakesh S. G	Professor	AMRITA SoE
		Dr. Nagaraja S.R.	Professor	AMRITA SoE
		Dr. Madhusudhan	Professor	NMIT
		Dr. T Nageswara Rao	Prof. & HoD	GITAM U
		Dr. N.Nanjundaradhya	Professor	RVCE
3	MEC 304 Production Planning and Control	Dr. C.K. Umesh	Professor	UVCE
		Dr.B.N Sarada	Professor	BMSCE
		Prof. Sathish	Professor	Dr. AIT
		Prof. Ram Rohit	Professor	BMSCE
		Dr.Nataraj J R	Professor	RVCE
4	MEC 324 Control Engineering	Dr. P B Shetty	Professor	NMIT
		Dr. Ramesh Sharma	AP SG	RVCE
		Dr. Y.S. Ram Mohan	Professor	BMSCE
		Dr. P. Mahadevaswamy	Professor	SCE
		Dr. M. Phanibhushana	Professor	Amrita SoE

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PRESIDENCY UNIVERSITY

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

Ref. No. PU/SoE/MEC/BOS-10/2019-20/CIR01 Date: 10th January, 2020

10th BOS MEETING NOTICE

The 10th Board of Studies (BOS) meeting of the Department of Mechanical Engineering is scheduled on Friday, 17th January, 2020, at 10:00 AM in the University campus, Bengaluru. You are hereby requested to attend the meeting.

The agenda for the meeting is:

MEC 10.1 Approval of the minutes and action taken report of the 9th Board of Studies meeting held on 4th May, 2019

MEC 10.2 Review and approval of modifications in the B.Tech. Program Regulations and Curriculum for the existing batches

MEC 10.3 Discussion on feedback on curriculum collected from stakeholders

MEC 10.4 Approval of the list of MOOC Courses from SWAYAM-NPTEL that are offered as Discipline and Open Elective Courses in the B. Tech Program in Mechanical Engineering for the even semester of the academic year 2019-2020

MEC 10.5 Approval of the updated list of Examiners for various Courses in the B. Tech. Program in Mechanical Engineering

MEC 10.6 Any other matter with the permission of the Chairperson

M. N. Ravi 10/1/20
Chairperson
(Dr. Udaya Ravi M.)
BOS-MEC Committee

Copy to:

- Pro-Chancellor, PU
- Vice-Chancellor, PU
- Registrar, PU
- Pro-Vice-Chancellor, PU
- Dean-SoE, PU
- Dean-Academics, PU
- Members of the Board of Studies listed in the table below.

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PRESIDENCY UNIVERSITY

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

Ref. No. PU/SoE/MEC/BOS-10/2019-20/Attendance

Date: 17th January, 2020

ATTENDANCE SHEET

The 10th meeting of the Board of Studies (BOS) for Mechanical Engineering was held today, 17th January, 2020, in Room No. MG-10, Presidency University, Bengaluru, at 10:00 AM, in the presence of the following members.

Sl. No.	Name	Designation with Affiliation	Status	Signature with Date
1	Dr. Udaya Ravi M.	Professor and HoD-MEC SoE, PU, Bengaluru	Chairperson Ex-Officio	M. N. Ravi 17/1/'20
2	Dr. C. Prabhakar Reddy	Dean and Professor SoE, PU, Bengaluru	Member	17/1/2020
3	Dr. A. M. Surendra Kumar	CoE and Professor SoE, PU, Bengaluru	Member	
4	Dr. C. S. Ramesh	Dean R & I and Professor SoE, PU, Bengaluru	Member	17/01/2020
5	Dr. B. V. Prabhu	Assoc. Dean and Prof. SoE, PU, Bengaluru	Member	17/01/2020
6	Dr. Bhaskar Pal	Professor SoE, PU, Bengaluru	Member	17/1/2020
7	Dr. Akshay Nanjangud	Associate Professor SoE, PU, Bengaluru	Member	17-01-20
8	Dr. Ramesh S. P.	Associate Professor SoE, PU, Bengaluru	Member	17/01/2020
9	Dr. G. N. Lokesh	Associate Professor SoE, PU, Bengaluru	Member	G.N.L 17/Jan/2020
10	Dr. Ramachandra C. G.	Associate Professor SoE, PU, Bengaluru	Member	17/1/20

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Sl. No.	Name	Designation with Affiliation	Status	Signature with Date
11	Dr. Satish Babu Boppana	Associate Professor SoE, PU, Bengaluru	Member	17/01/2020
12	Dr. B. S. Praveen Kumar	Assistant Professor SoE, PU, Bengaluru	Internal Member (Nominated by the VC within the Department)	17/01/2020
13	Mr. Santosh M. B.	Assistant Professor Civil Engineering SoE, PU, Bengaluru	Internal Member (Nominated by the VC from a Sister Department)	17/1/2020
14	Dr. Deepjyoti Mech	Assistant Professor Petroleum Engineering SoE, PU, Bengaluru	Internal Member (Nominated by the VC from a Sister Department)	17/1/2020
15	Dr. Mahesha K.	Professor SoE, PU, Bengaluru	Special Invitee	17 Jan 2020
16	Dr. Rajendrakumar Savanur	Professor SoE, PU, Bengaluru	Special Invitee	Dr. RA Savanur 17/01/2020

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Sl. No.	Name	Designation with Affiliation	Status	Signature with Date
17	Dr. Ramesh S.	Professor SoE, PU, Bengaluru	Special Invitee	17/01/'20
18	Dr. Jothi Basu R.	Associate Professor SoE, PU, Bengaluru	Special Invitee	
19	Dr. Ramesh S. Sharma	Professor Mechanical Engineering R. V. College of Engineering Bengaluru rameshssharma@rvce.edu.in Phone: +91 9880702543	External Member (Academic)	
20	Dr. Ashitava Ghosal	Professor Mechanical Engineering I. I. Sc., Bengaluru asitava@mecheng.iisc.ernet.in Phone: +91 9740395571	External Member (Academic)	
21	Mr. R. M. Bhat	Sr. Executive – HR, L & T Construction Equipment Limited, Sy. No. 27 & 28, Thammshettihalli Village, Doddaballapur bhatrm_b@rediffmail.com Phone: +91 9986504029	External Member (Industry)	17/01/2020
22	Mr. Aravinda T.	Assistant Professor SoE, PU, Bengaluru	Member Secretary	

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Ref. No. PU/SoE/MEC/BOS-10/2019-20/MoM-01 Date: 17th January, 2020

Minutes of the 10th Meeting of Board of Studies (Mechanical Engineering - BOS - MEC)

The 10th meeting of the Board of Studies (BOS) of the Department of Mechanical Engineering was held today, 17th January, 2020, at 10:00 AM in Room No. MG 10, Presidency University.

The following members were present.

Sl. No.	Name	Designation with Affiliation	Status
1	Dr. Udaya Ravi M.	Professor and HoD-MEC SoE, PU, Bengaluru	Chairperson Ex-Officio
2	Dr. C. Prabhakar Reddy	Dean and Professor SoE, PU, Bengaluru	Member
3	Dr. C. S. Ramesh	Dean R & I and Professor SoE, PU, Bengaluru	Member
4	Dr. B. V. Prabhu	Assoc. Dean and Prof. SoE, PU, Bengaluru	Member
5	Dr. Bhaskar Pal	Professor SoE, PU, Bengaluru	Member
6	Dr. Akshay Nanjangud	Associate Professor SoE, PU, Bengaluru	Member
7	Dr. Ramesh S. P.	Associate Professor SoE, PU, Bengaluru	Member
8	Dr. G. N. Lokesh	Associate Professor SoE, PU, Bengaluru	Member
9	Dr. Ramachandra C. G.	Associate Professor SoE, PU, Bengaluru	Member

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Sl. No.	Name	Designation with Affiliation	Status
10	Dr. Satish Babu Boppana	Associate Professor SoE, PU, Bengaluru	Member
11	Dr. B. S. Praveen Kumar	Assistant Professor SoE, PU, Bengaluru	Internal Member (Nominated by the VC within the Department)
12	Mr. Santosh M. B.	Assistant Professor Civil Engineering SoE, PU, Bengaluru	Internal Member (Nominated by the VC from a Sister Department)
13	Dr. Deepjyoti Mech	Assistant Professor Petroleum Engineering SoE, PU, Bengaluru	Internal Member (Nominated by the VC from a Sister Department)
14	Dr. Mahesha K.	Professor SoE, PU, Bengaluru	Special Invitee
15	Dr. Rajendrakumar Savanur	Professor SoE, PU, Bengaluru	Special Invitee
16	Dr. Ramesh S.	Professor SoE, PU, Bengaluru	Special Invitee

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Sl. No.	Name	Designation with Affiliation	Status
17	Dr. Jothi Basu R.	Associate Professor SoE, PU, Bengaluru	Special Invitee
18	Mr. R. M. Bhat	Sr. Executive – HR, L & T Construction Equipment Limited, Sy. No. 27 & 28, Thammshettihalli Village, Doddaballapur bhatrm_b@rediffmail.com Phone: +91 9986504029	External Member (Industry)
19	Mr. Aravinda T.	Assistant Professor SoE, PU, Bengaluru	Member Secretary

The following members were given leave of absence.

Sl. No.	Name	Affiliation	Status
1	Dr. A. M. Surendra Kumar	CoE and Professor SoE, PU, Bengaluru	Member
2	Dr. Ramesh S. Sharma	Professor Mechanical Engineering R. V. College of Engineering Bengaluru rameshssharma@rvce.edu.in Phone: +91 9880702543	External Member (Academic)
3	Dr. Ashitava Ghosal	Professor Mechanical Engineering I. I. Sc., Bengaluru asitava@mecheng.iisc.ernet.in Phone: +91 9740395571	External Member (Academic)

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The Chairperson welcomed the members of the Board of Studies in Mechanical Engineering.

Agenda MEC 10.1: Approval of the Minutes of the 9th Board of Studies Meeting.

The minutes of the 9th meeting of the Board of Studies of the Department of Mechanical Engineering held on May 4, 2019, were placed before the members. Since there were no pending actions from the meeting there was no action taken report. The minutes of the 9th Board of Studies Meeting were approved by the members.

Agenda MEC 10.2: Review and Approval of the Modifications in the B. Tech. Program Regulations and Curriculum for the existing Batches.

The Chairperson presented the modifications in the Program Regulations and Curriculum to the members. The first proposal was for the 2017-2021 batch and it is appended as Annexure 10.2. It involves shifting the Discipline Elective Course and Open Elective Course from the sixth semester to the eight semester and MEC 259 Mechanisms, Machines and Design Lab to the seventh semester. The Chairperson explained that such a shift would permit the University to utilise eight hours per week in the timetable of the students of this batch in the sixth semester for training related to placement activities. The committee approved this change.

Next, the Chairperson initiated a discussion on the Credit Structure for MEC 152 Engineering Graphics in the B. Tech. Program Regulations and Curriculum for the 2019-2021 batch. The discussion was to change the L-T-P Credit Structure for MEC 152 from 2-0-4 to 0-2-4. Dr. C. Prabhakar Reddy, the Dean of the School of Engineering, opined that this change would disturb the uniformity of academic structure within the same batch since half of the 2019-2023 batch underwent the Course with the existing Credit Structure in the odd semester of this academic year. The committee agreed with the Dean's explanation and decided to retain the existing Credit Structure for MEC 152 Engineering Graphics.

Resolution: The committee approved the modifications to the Program Regulations and Curriculum for the 2017-2021 batch for the Academic Year 2019-2020 and thereafter. The committee decided to retain the existing Credit Structure for MEC 152 Engineering Graphics in the Program Regulations and Curriculum for the 2019-2023 batch.

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Agenda MEC 10.3: Discussion on feedback on curriculum from stakeholders.

The Chairperson presented the feedback data collected from the stakeholders: students, alumni, faculty members and parents of students (appended as Annexure 10.3) to the members. The committee reviewed all the feedback and deliberated on it. Since most of the feedback was positive no further action was deemed necessary. Mr. R. M. Bhat, External Member (Industry), very much appreciated the step taken by the University and the Department on collecting this feedback and efforts to improve the University processes.

Resolution: This committee accepted the feedback as presented and opined that no action needs to be taken.

Agenda MEC 10.4: Approval of the list of MOOC Courses from SWAYAM-NPTEL offered as Discipline and Open Elective Courses.

The Chairperson presented the list of Discipline and Open Elective Courses proposed by the Department of Mechanical Engineering from SWAYAM-NPTEL (appended in Annexure 10.4) to the members. The committee approved the list of courses.

Resolution: The members resolved that the list of courses be approved as Discipline and Open Elective Courses for the 2018-2022, 2017-2021 and 2016-2020 batches.

Agenda MEC 10.5: Approval of the List of Examiners.

The Chairperson presented an updated list of Examiners (appended as Annexure 10.5) to the members of the Board of Studies. This list has several additions in various Courses.

Resolution: The members approved the updated list of Examiners.

Agenda MEC 10.9: Any Other Matter with the Permission of the Chairperson.

The Chairperson informed the committee that this is the last meeting of the present BOS committee and the committee would be reconstituted for the next meeting. Mr. R. M. Bhat appreciated the conduction of the BOS meetings and said that he was very happy to have been a part of the Board of Studies in Mechanical Engineering for the last many years since its inception.

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As BOS meetings of all the Departments are taking place simultaneously in different venues today, the Chairperson requested approval from the committee to incorporate modifications/alterations, if any, approved by the BOS committee of other Departments for the existing batches in Mechanical Engineering. The BOS Committee for Mechanical Engineering has approved the proposal unanimously.

The BOS Committee authorised the BOS Chairperson and the Sub-Committee consisting of the Internal Members of the Board of Studies of Mechanical Engineering to incorporate minor corrections/edits, if required.

The BOS Chairperson has conveyed that the decisions taken during the 10th meeting of BOS for Mechanical Engineering will be implemented for 2019-2023, 2018-2022, 2017-2021 and 2016-2020 batches.

The meeting ended with a Vote of Thanks by the Member Secretary.

BOS Committee:

Sl. No.	Name	Status	Signature with Date
1	Dr. Udaya Ravi M.	Chairperson Ex-Officio	17/1/'20
2	Dr. C. Prabhakar Reddy	Member	17/1/2020
3	Dr. A. M. Surendra Kumar	Member	
4	Dr. C. S. Ramesh	Member	17/01/2020
5	Dr. B. V. Prabhu	Member	17/01/2020
6	Dr. Bhaskar Pal	Member	17/01/2020
7	Dr. Akshay Nanjangud	Member	17-01-20

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Sl. No.	Name	Status	Signature with Date
8	Dr. Ramesh S. P.	Member	17/01/2020
9	Dr. G. N. Lokesh	Member	17/Jan/2020
10	Dr. Ramachandra C. G.	Member	17/1/20
11	Dr. Satish Babu Boppana	Member	17/01/2020
12	Dr. B. S. Praveen Kumar	Internal Member (Nominated by the VC within the Department)	17/01/2020
13	Mr. Santosh M. B.	Internal Member (Nominated by the VC from a Sister Department)	17/1/2020
14	Dr. Deepjyoti Mech	Internal Member (Nominated by the VC from a Sister Department)	17/1/2020
15	Dr. Mahesha K.	Special Invitee	17Jan2020
16	Dr. Rajendrakumar Savanur	Special Invitee	17/01/2020

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Sl. No.	Name	Status	Signature with Date
17	Dr. Ramesh S.	Special Invitee	17/01/'20
18	Dr. Jothi Basu R.	Special Invitee	
19	Dr. Ramesh S. Sharma	External Member (Academic)	
20	Dr. Ashitava Ghosal	External Member (Academic)	
21	Mr. R. M. Bhat	External Member (Industry)	17/01/2020
22	Mr. Aravinda T.	Member Secretary	17/01/2020

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Annexure 10.2

The existing structure of the sixth, seventh and eighth semesters for the 2017-2020 batches are as shown below.

VI SEMESTER							
S. NO.	COURSE CODE	COURSE NAME	CREDIT STRUCTURE				CONTACT HOURS
			L	T	P	CREDITS	
1	MEC 209	Heat and Mass Transfer	3	1	0	4	4
2	MEC 212	Mechanical Vibrations	3	1	0	4	4
3	MEC 219	Design of Machine Elements - II	3	1	0	4	4
4	MGT 113 / MGT 112	Digital Entrepreneurship/ Engineering Economics	3	0	0	3	3
5	MEC 3XX	Discipline Elective - III	3	0	0	3	3
6	XXX 4XX	Open Elective - I	3	0	0	3	3
7	MEC 259	Mechanisms, Machines and Design Lab	0	0	2	1	2
8	MEC 260	Heat and Mass Transfer Lab	0	0	2	1	2
9	MEC 261	Modeling, Simulation and Analysis Lab	0	0	2	1	2
10	ULC 101	University Learning Course*	-	-	-	1	-
		TOTAL	**18**	**3**	**6**	**24/25**	**27**

VII SEMESTER							
S. NO.	COURSE CODE	COURSE NAME	CREDIT STRUCTURE				CONTACT HOURS
			L	T	P	CREDITS	
1	MEC 213	I. C. Engine and Fuels	3	1	0	4	4
2	MEC 218	Mechatronics	3	1	0	4	4
3	MEC 3XX	Discipline Elective - IV	3	0	0	3	3
4	XXX 4XX	Open Elective - II	3	0	0	3	3
5	MEC 256	Mechatronics Lab	0	0	2	1	2
		TOTAL	**12**	**2**	**2**	**15**	**16**

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VIII SEMESTER							
S. NO.	COURSE CODE	COURSE NAME	CREDIT STRUCTURE				CONTACT HOURS
			L	T	P	CREDITS	
1	PIP 102	Professional Practice - II	-	-	-	15	-
		TOTAL	-	-	-	15	-

The modified structure of the sixth, seventh and eighth semesters for the 2017-2020 batches are as shown below.

VI SEMESTER							
S. NO.	COURSE CODE	COURSE NAME	CREDIT STRUCTURE				CONTACT HOURS
			L	T	P	CREDITS	
1	MEC 209	Heat and Mass Transfer	3	1	0	4	4
2	MEC 212	Mechanical Vibrations	3	1	0	4	4
3	MEC 219	Design of Machine Elements - II	3	1	0	4	4
4	MGT 113 / MGT 112	Digital Entrepreneurship/ Engineering Economics	3	0	0	3	3
5	MEC 260	Heat and Mass Transfer Lab	0	0	2	1	2
6	MEC 261	Modeling, Simulation and Analysis Lab	0	0	2	1	2
7	ULC 101	University Learning Course*	-	-	-	1	-
		TOTAL	12	3	4	17/18	19

VII SEMESTER							
S. NO.	COURSE CODE	COURSE NAME	CREDIT STRUCTURE				CONTACT HOURS
			L	T	P	CREDITS	
1	MEC 213	I. C. Engine and Fuels	3	1	0	4	4
2	MEC 218	Mechatronics	3	1	0	4	4
3	MEC 3XX	Discipline Elective - III	3	0	0	3	3
4	XXX 4XX	Open Elective - I	3	0	0	3	3
5	MEC 256	Mechatronics Lab	0	0	2	1	2
6	MEC 259	Mechanisms, Machines and Design Lab	0	0	2	1	2
		TOTAL	12	2	4	16	18

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VIII SEMESTER							
S. NO.	COURSE CODE	COURSE NAME	CREDIT STRUCTURE				CONTACT HOURS
			L	T	P	CREDITS	
1	MEC 3XX	Discipline Elective - IV	3	0	0	3	3
2	XXX 4XX	Open Elective - II	3	0	0	3	3
3	PIP 102	Professional Practice II	-	-	-	15	-
		TOTAL	**6**	**0**	**0**	**21**	**6**

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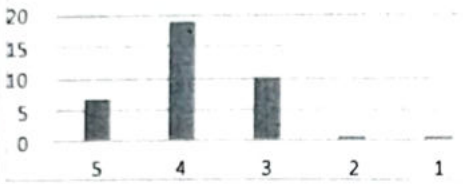
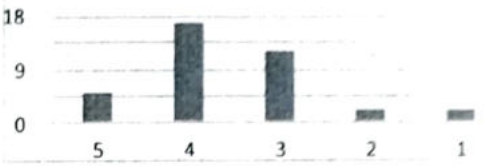
Annexure 10.3

Table 10.3.1: Student Feedback on Curriculum

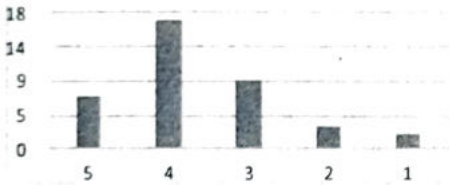
How do you rate the syllabus of the courses that you have studied?



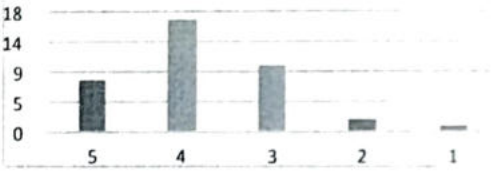
Course Applicability /relevance to real life situations (Employ ability)



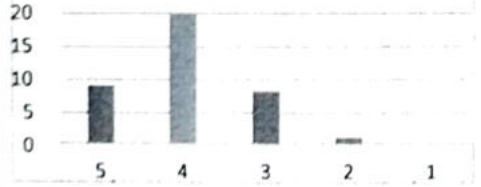
Learning value in terms of skills, concepts, knowledge and analytical abilities



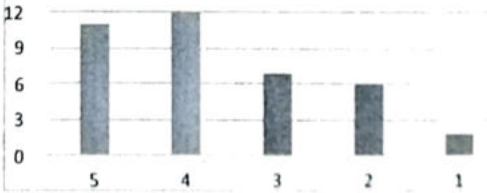
How do you rate the sequence of the Courses that you have studied in the previous semester?



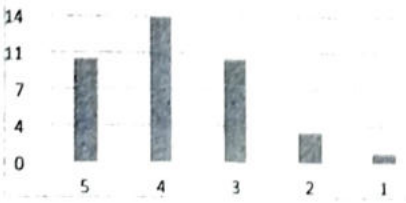
How do you rate the sequence of the units in the Course?



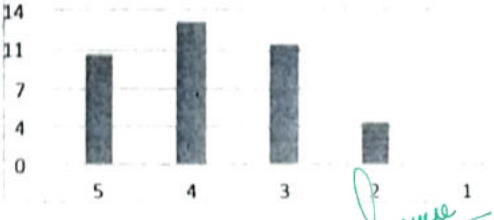
How do you rate the offering of the electives in terms of their relevance to the specialization streams?



How do you rate the relevance of the Text Books and reference books to the Courses?



How do you rate the percentage of courses having LAB components?



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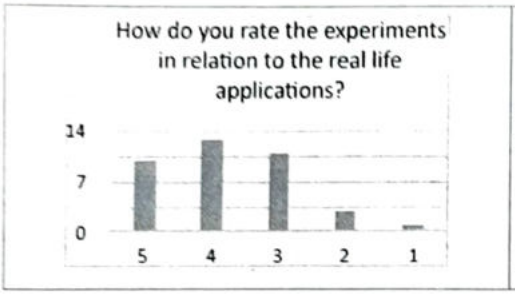


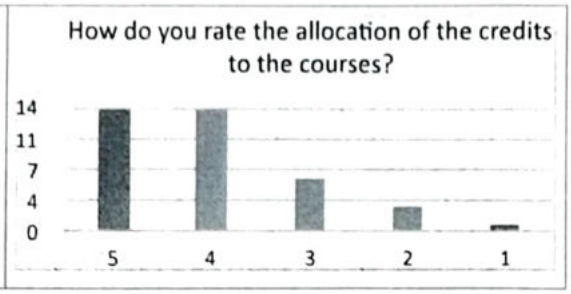
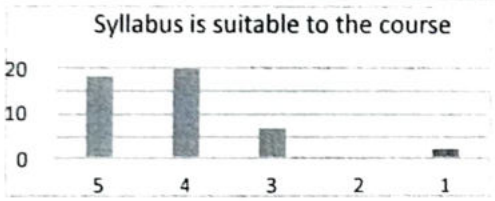
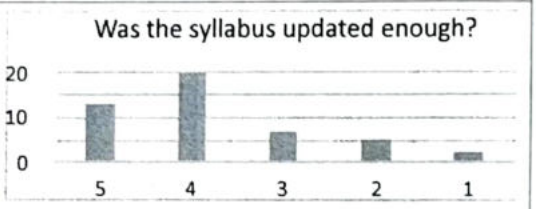
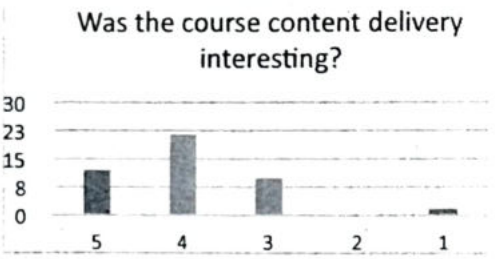
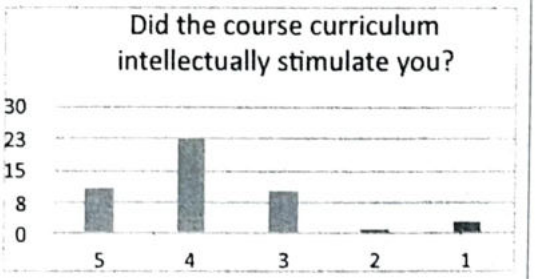


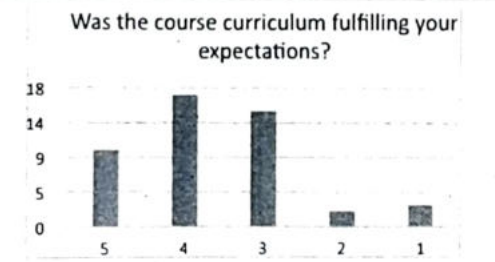
Table 10.3.2: Alumni Feedback on Curriculum

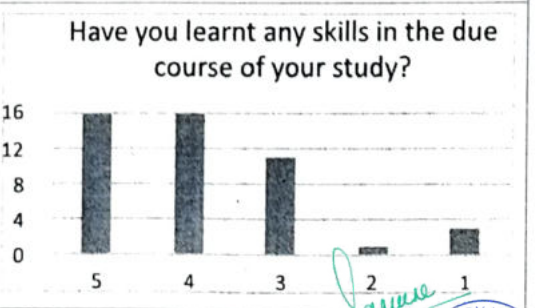












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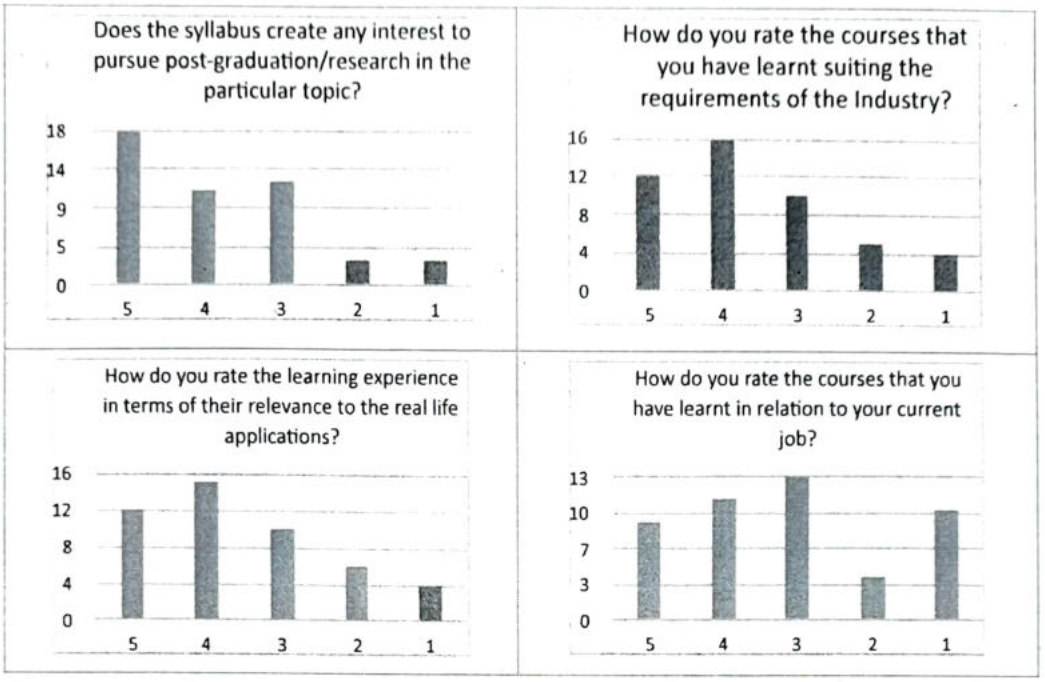
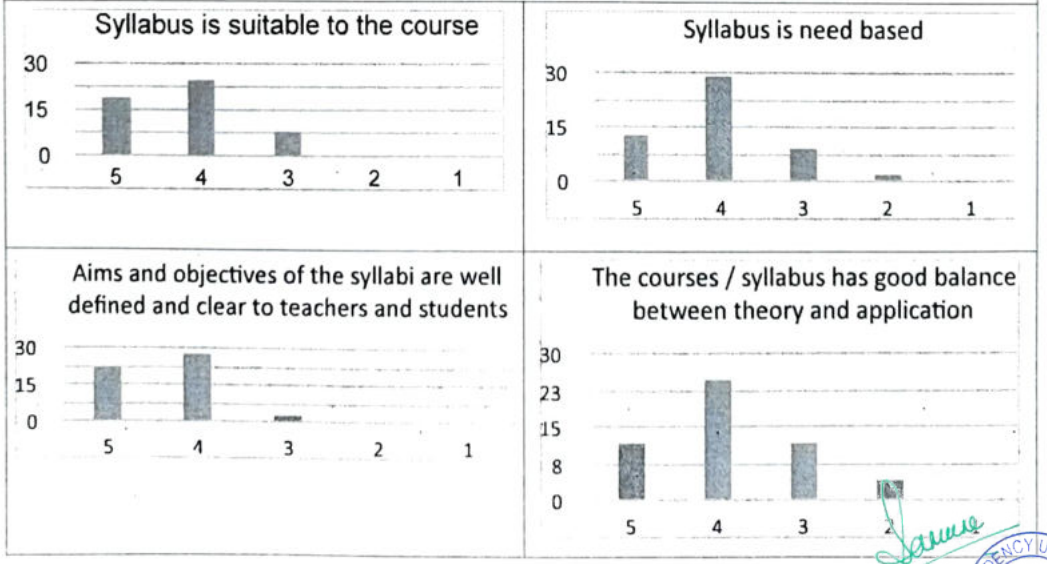


Table 10.3.3: Faculty Feedback on Curriculum



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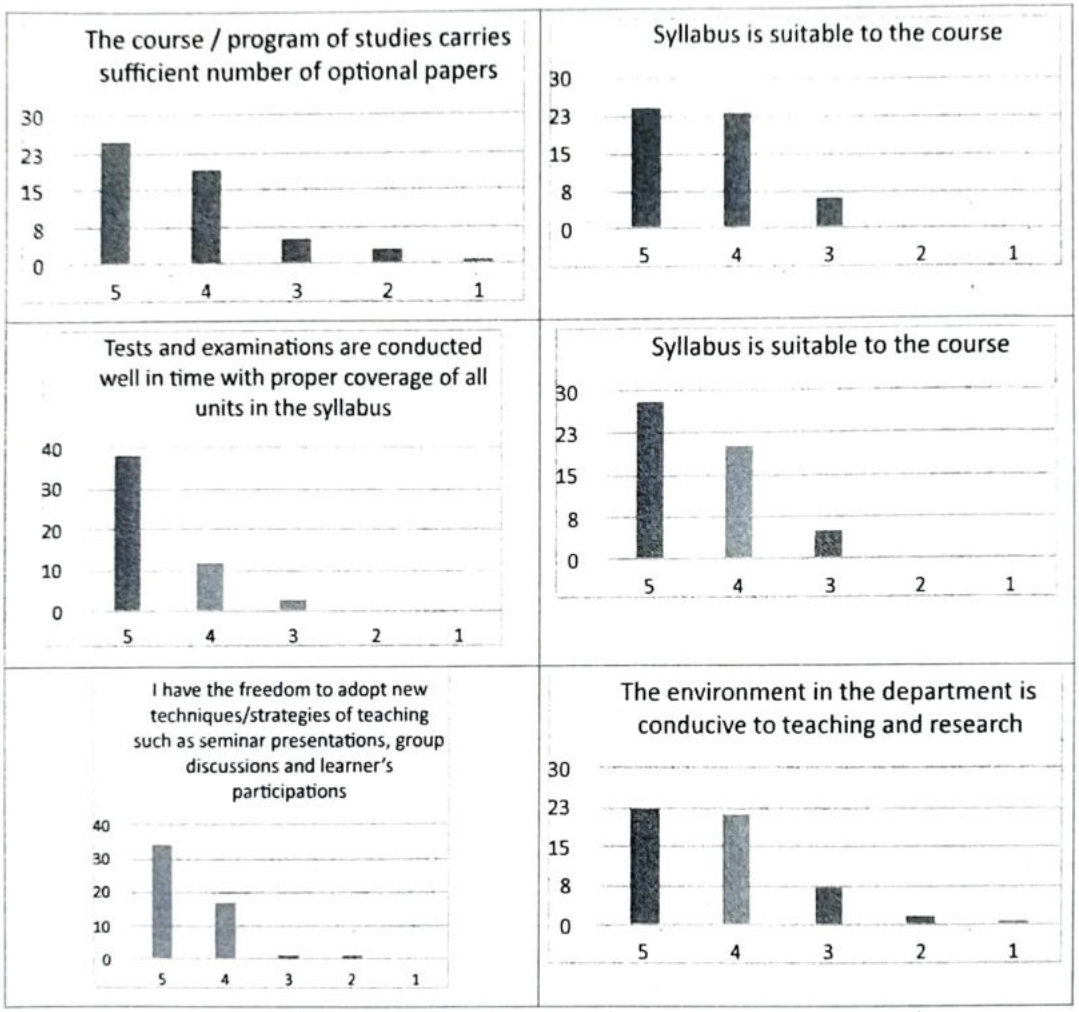
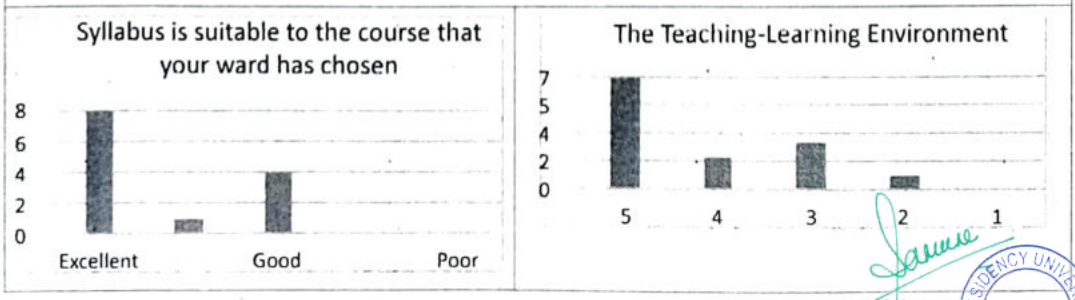


Table 10.3.4: Parents Feedback on Curriculum



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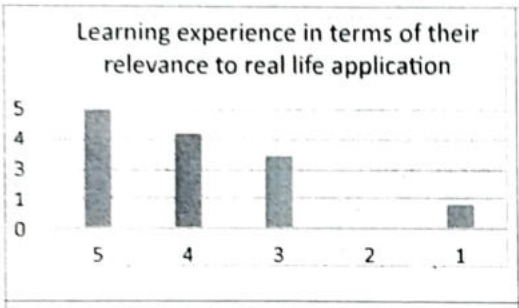

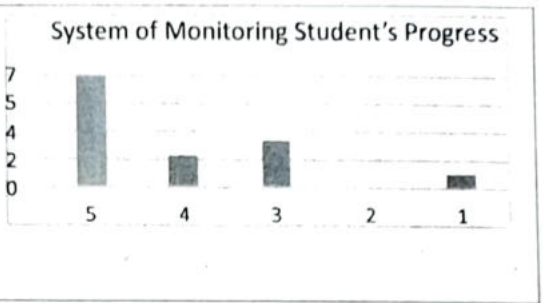

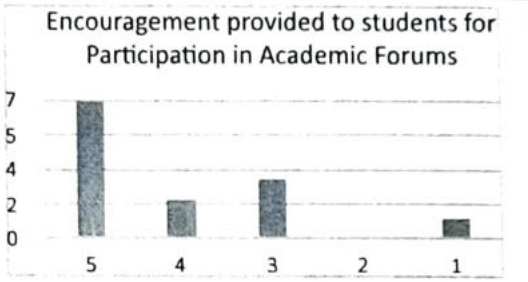

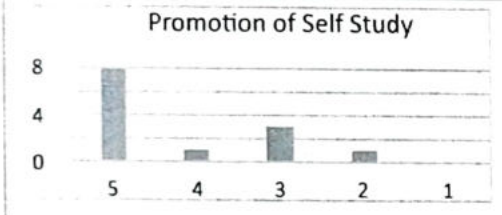

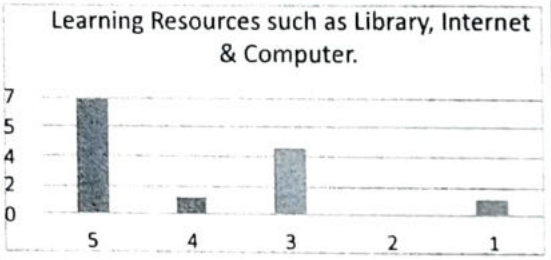

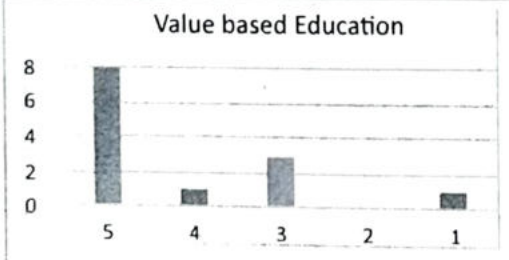

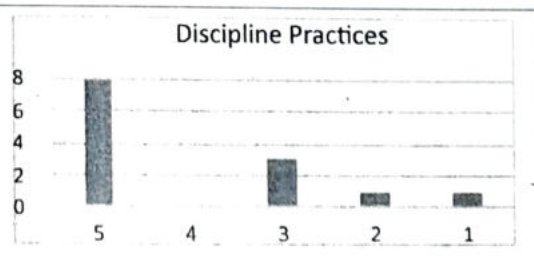

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Annexure 10.4

The following are the list of SWAYAM-NPTEL courses approved by the Department of Mechanical Engineering as Discipline Elective and Open Elective Courses for transfer of credits.

Table 10.4.1: List of SWAYAM-NPTEL Courses Approved as Discipline Elective Courses for Students in the B. Tech. Program in Mechanical Engineering

Sl. No.	SWAYAM-NPTEL Course Code	Course Name	Date of the Final Exam	Link to the SWAYAM-NPTEL Course Page
1	noc_20-me07	Experimental Methods in Fluid Mechanics	April 25, 2020	https://swayam.gov.in/nd1_noc20_me07/preview
2	noc_20-me08	Foundations of Computational Materials Modelling	April 26, 2020	https://swayam.gov.in/nd1_noc20_me08/preview
3	noc_20-me11	Applied Ergonomics	April 25, 2020	https://nptel.ac.in/courses/112/104/112104222
4	noc_20-me15	Introduction to Mechanical Micromachining	April 26, 2020	https://nptel.ac.in/courses/112/105/112105231
5	noc_20-me39	Industrial Automation and Control	April 25, 2020	https://nptel.ac.in/courses/108/105/108105088
6	noc_20-me40	Fundamentals of Nuclear Power Generation	April 26, 2020	https://nptel.ac.in/courses/112/103/112103243
7	noc_20-mm06	Welding Processes	April 25, 2020	https://nptel.ac.in/courses/113/106/113106087
8	noc20-ae02	Rocket Propulsion	April 25, 2020	https://swayam.gov.in/nd1_noc20_ae02/preview
9	noc_20-mm11	Dealing With Materials Data: Collection, Analysis and Interpretation	April 26, 2020	https://swayam.gov.in/nd1_noc20_mm11/preview

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Table 10.4.2: List of SWAYAM-NPTEL Courses Approved as Open Elective Courses for Students in the B. Tech. Program in Mechanical Engineering

Sl. No.	SWAYAM-NPTEL Course Code	Course Name	Date of the Final Exam	Link to the SWAYAM-NPTEL Course Page
1	noc_20-me36	Financial Mathematics	April 26, 2020	https://nptel.ac.in/courses/112/107/112107260
2	noc20-ge01	Qualitative Research Methods and Research Writing	April 25, 2020	https://nptel.ac.in/courses/109/105/109105115
3	noc20-ph11	Introduction to Atmospheric and Space Sciences	April 25, 2020	https://swayam.gov.in/nd1_noc20_ph11/preview
4	noc20-hs19	English Language for Competitive Exams	April 25, 2020	https://nptel.ac.in/courses/109/106/109106116
5	noc20-hs26	Patent Law for Engineers and Scientists	April 25, 2020	https://nptel.ac.in/courses/110/106/110106081

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Annexure 10.5

Table 10.5: Updated List of External Examiners for the Odd Semester of the Academic Year 2019-2020

Sl. NO.	YEAR	COURSE CODE	COURSE TITLE	Name of External Examiner	University / Institute	Mobile No.	E-Mail Address
2016 Batch (VII Semester)							
1	FOURTH YEAR	MEC 213	IC Engines and Fuels	Dr. K M Nataraj	JSSATE	9449186829	kashipuranataraj69@gmail.com
				Dr. M R KAMESH	DSCE	9844310573	kamesh_mr@yahoo.com
				Dr G V Gnanedra Reddy	SJCIT	99980923295	gvgrmed@rediffmail.com
2	FOURTH YEAR	MEC 218	Mechatronics	Prof. Sathish	Dr. AIT	9448908552	sathish123@yahoo.co.in
				Mr. Raghuvamshikrisha	Gitam U	8310318594	b.v.vamshi@gmail.com
				Prof. Ram Rohit	BMSCE	9986141999	ramrohith111@gmail.com
				Mr. Sachin Naik	CMRIT	9739317648	naik.venky@gmail.com
				Dr. K R Prakash	NIE, Mysuru	8105473206	
3	FOURTH YEAR	MEC 256	Mechatronics Lab	Mr. Raghuvamshikrisha	Gitam U	8310318594	b.v.vamshi@gmail.com
				Dr. Balakumar	Sir MVIT		
				Mr. Sachin Naik	CMRIT	9739317648	naik.venky@gmail.com
4	FOURTH YEAR	MEC323	Non Destructive Testing	Prof. Naveen Kumar K H	MSRUAS	8749058185	naveen.me.et@msruas.ac.in
				Dr. M Rajanish	DSATM	9902430242	rajanish-me@dsatm.edu.in
				Dr. U S Mallik	SIT	9448166621	usm@sit.ac.in
				Dr. B Yogesha	MCE	9448996433	by@mcehassan.ac.in

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Sl. NO.	YEAR	COURSE CODE	COURSE TITLE	Name of External Examiner	University / Institute	Mobile No.	E-Mail Address
2017 Batch (V Semester)							
5	THIRD YEAR	MEC 207	Prodction Techniques - II	Dr. C.K. Umesh	UVCE	9449024145	umeshuvce@yahoo.co.in
				Dr.B.N Sarada	BMSCE	9480237458	bnsarada122gmail.com
				Prof. Sathish	Dr. AIT	9448908552	sathish123@yahoo.co.in
				Prof. Ram Rohit	BMSCE	9986141999	ramrohith111@gmail.com
				Dr.Nataraj J R	RVCE	9901150505	natarajjr@rvce.edu.in
6	THIRD YEAR	MEC 210	Design of Machine Elements - I	Dr. P B Shetty	NMIT	9845061312	pb.shetty@nmit.ac.in
				Dr. Ramesh Sharma	RVCE	9880702543	rssharma25@yahoo.com
				Dr. Y.S. Ram Mohan	BMSCE	9449457977	ysrammohan62@gmail.com
				Dr. P. Mahadevaswamy	SCE	8150095544	pmadevaswamy@gmail.com
				Dr. M.V. Phanibhushana	Amrita SoE	9449658138	mv_phanibhushana@blr.amrita.edu
7	THIRD YEAR	MEC 214	Dynamics of Machines	Dr. A R K Swamy	Acharya IT	9035997163	arkswamy@acharya.ac.in
				Dr. Vitala H R	SJBIT	9916907193	vitala.hr@gmail.com
				Dr. Hanumantharaju	UVCE	9448792253	hghuvce@bub.ernet.in
				Dr. Ramesh Sharma	RVCE	9880702543	rssharma25@yahoo.com
				Dr. Y.S. Ram Mohan	BMSCE	9449457977	ysrammohan62@gmail.com
8	THIRD YEAR	MEC 220	Finite Element Analysis	Dr. M.V. Phanibhushana	Amrita SoE	9449658138	mv_phanibhushana@blr.amrita.edu
				Mr. R. Pramod	Amrita SoE	9916901083	r_pramod@blr.amrita.edu
				Mr. Ravi Kumar. V	Amrita SoE	8197749349	v_ravikmr@blr.amrita.edu
				Dr. P.R. Venkatesh	RVCE	9341232242	venkateshpr@rvce.edu.in
				Dr. Ramesh Sharma	RVCE	9880702543	rssharma25@yahoo.com

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Sl. NO.	YEAR	COURSE CODE	COURSE TITLE	Name of External Examiner	University / Institute	Mobile No.	E-Mail Address
9	THIRD YEAR	MEC 257	Foundry Forging and Welding Lab	Dr. C.K. Umesh	UVCE	9449024145	umeshuvce@yahoo.co.in
				Dr.B.N Sarada	BMSCE	9480237458	bnsarada122gmail.com
				Prof. Sathish	Dr. AIT	9448908552	sathish123@yahoo.co.in
				Prof. Ram Rohit	BMSCE	9986141999	ramrohith111@gmail.com
				Dr.Nataraj J R	RVCE	9901150505	natarajjr@rvce.edu.in
10	THIRD YEAR	MEC 258	Energy Conversion Engineering Lab	Dr. K M Nataraj	JSSATE	9449186829	
				Dr. M R KAMESH	DSCE	9844310573	kamesh_mr@yahoo.com
				Dr G V Gnanedra reddy	SJCIT		
				Dr. D K Ramesha	UVCE	9482600066	
				Dr. Basawaraj	VTU, PG	9986157177	basawaraj.2009@gmail.com
2018 Batch (III Semester)							
11	SECOND YEAR	MEC 201	Basic Thermodynamics	Dr. Madhusudhan	NMIT	9980451908	madhusudhan.acharya@nmit.ac.in
				Dr. T Nageswara Rao	GITAM U	9886890853	mechhod_blrcampus@gitam.edu
				Dr. Basawaraj	VTU, PG	9986157177	basawaraj.2009@gmail.com
				Dr. Srihari R	RVCE	9449588790	sridharr@rvce.edu.in
				Dr.V.Krishna	PES U	9449866820	vkrishna@pes.edu
12	SECOND YEAR	MEC 203	Fluid Mechanics and Machines	Mr. Vinod Kotebavi	AMRITA SoE	9448818191	k_vinod@blr.amrita.edu
				Dr. Madhusudhan	NMIT	9980451908	madhusudhan.acharya@nmit.ac.in
				Dr. T Nageswara Rao	GITAM U	9886890853	mechhod_blrcampus@gitam.edu
				Dr. N.V.Nanjundaradhya	RVCE	9448180450	nanjundaradhya@rvce.edu.in
				Dr. Srihari R	RVCE	9449588790	sridharr@rvce.edu.in

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Sl. NO.	YEAR	COURSE CODE	COURSE TITLE	Name of External Examiner	University / Institute	Mobile No.	E-Mail Address
13	SECOND YEAR	MEC 205	Material Science and Metallurgy	Dr. K S Sridhar	PES U	9449867808	kssridhar@pes.edu
				Dr K R Phaneesh	MSRIT	9845195452	krphaneesh@msrit.edu
				Dr. J.R. Nataraj	RVCE	9901150505	natarajjr@rvce.edu.in
				Dr. Girish B M	Alliance U	9632784278	bmgiri1@gmail.com
				Dr. Nanjundaradhya N V	RVCE	9448180450	nanjundaradhya@rvce.edu.in
14	SECOND YEAR	MEC 206	Mechanics of Solids	Dr. M.V. Phanibhushana	Amrita SoE	9449658138	mv_phanibhushana@blr.amrita.edu
				Mr. R. Pramod	Amrita SoE	9916901083	r_pramod@blr.amrita.edu
				Mr. Ravi Kumar. V	Amrita SoE	8197749349	v_ravikmr@blr.amrita.edu
				Dr. P.R. Venkatesh	RVCE	9341232242	venkateshpr@rvce.edu.in
				Dr. Ramesh Sharma	RVCE	9880702543	rssharma25@yahoo.com
15	SECOND YEAR	MEC 251	Fluid Mechanics and Machines Lab	Mr. Vinod Kotebavi	AMRITA SoE	9448818191	k_vinod@blr.amrita.edu
				Dr. Madhusudhan	NMIT	9980451908	madhusudhan.acharya@nmit.ac.in
				Dr. T Nageswara Rao	GITAM U	9886890853	mechhod_blrcampus@gitam.edu
				Dr. N.V.Nanjundaradhya	RVCE	9448180450	nanjundaradhya@rvce.edu.in
				Dr. Srihari R	RVCE	9449588790	sridharr@rvce.edu.in
16	SECOND YEAR	MEC 253	Computer Aided Machine Drawing Lab	Dr. Basavaraj	SCE	9916363315	srajubasava@gmail.com
				Mr. Vikram K V	NMIT	9164155277	vikramkv123@gmail.com
				Dr. B P Shiva Kumar	JSSATE	9731387331	bpshiva19642gmail.com
				Dr. Shantha V	Sir MVIT	9449662999	
				Dr. Nagaraja S R	Amritha SoE	9845641131	

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Sl. NO.	YEAR	COURSE CODE	COURSE TITLE	Name of External Examiner	University / Institute	Mobile No.	E-Mail Address
2019 BATCH [I SEMESTER]							
17	FIRST YEAR	MEC 101	Elements of Mechanical Engineering	Mr. Prashanth B N	Amrita SoE	9844118915	bn_prashanth@blr.amrita.edu
				Dr. Adarsha H	Jain U	9739545648	adarsha.85@gmail.com
				Dr. R. Sridhar	RVCE	9740400717	sridharr@rvce.edu.in
				Dr. Srihari R	RVCE	9449588790	
				Dr. Amit Thakur	PES U	9900169998	amitthakur@pes.edu.in
18	FIRST YEAR	MEC 152	Engineering Graphics	Dr. N Kapilan	NCET	9845418874	kapilan@ncetmail.com
				Dr.Sudheer Reddy	NMAT	9538112326	sudheerreddy.j@nmit.ac.in
				Dr. Ranga Vittal	BMSCE		
				Dr.Kiran Aithal S	NMIT	9845133607	kiranaithal.s@nmit.ac.in
				Dr.Madhusudhan	NMIT	9980451908	acharyamadhusudhan@gmail.com
				Dr. Raju. B.S	Reva University, Bengaluru	9880655105	raju_bs@reva.edu.in
				Dr.G Balakumar	Sir. MVIT	9886753589	drgbalakumar_mech@sirmvit.edu
				Dr. Thygaraj N R	SJCIT	9972012848	thygarajnr@gmail.com
				Dr. Ravikumar M	SJCIT	9738075498	ramtok@gmail.com
				Dr.Babu E R	BIT	9945232743	rajjbabu@gmail.com
				Dr. Chandrashekar	BIT	9980450702	acsmech@gmail.com

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Sl. NO.	YEAR	COURSE CODE	COURSE TITLE	Name of External Examiner	University / Institute	Mobile No.	E-Mail Address
19	FIRST YEAR	MEC 151	Workshop Practice	Dr. Nataraj S N	SJCIT	9844178179	natarajusn1972@gmail.com
				Dr. Nagesh S N	MSRIT	9740369754	snnagesh80@gmail.com
				Dr. Siddaraju C S	MSRIT	9880612806	siddaraju80@gmail.com
				Dr. Devaraju S	Reva University, Bengaluru	89718244109	devaraj.s@reva.edu.in
				Dr. Sanjay Kumar	SJBIT	8310913752	sanjay20376@gmail.com
				Mr. Madhu B P	Reva University, Bengaluru	9845403168	madhubhogapura@gmail.com
				Mr. Nagesh	Sir. MVIT	9900103098	
				Dr. T Krishna Rao	GAT	9743711190	
				Dr. Suresh P M	ACS	9886756991	
				Mr. B Vijaya	SVIT	9964954507	
				Dr. Thygaraj N R	SJCIT	9972012848	thygarajnr@gmail.com
				Dr. Ravikumar M	SJCIT	9738075498	ramtok@gmail.com
				Mr. Prashanth B N	Amrita SoE	9844118915	bn_prashanth@blr.amrita.edu
				Dr. V Krishna	PES U	9448463079	
				Mr. Dhandapani	PES U	9741081363	

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Annexure 8.5

List of Elective Courses Approved for Transfer of Credit from NPTEL

Discipline Elective Courses Approved by the Department of Mechanical Engineering			
Sl. No.	**Course Code**	**Course Name**	**Link to Course Details and Registration**
1	MEC 328	Industrial Automation and Control	https://onlinecourses.nptel.ac.in/noc19_me04/
2	MEC 329	Rapid Manufacturing	https://onlinecourses.nptel.ac.in/noc19_me24/
3	MEC 330	Introduction to Mechanical Micro Machining	https://onlinecourses.nptel.ac.in/noc19_me26/
4	MEC 331	Machinery Fault Diagnosis and Signal Processing	https://onlinecourses.nptel.ac.in/noc19_me27/
5	MEC 332	Satellite Attitude Dynamics and Control	https://onlinecourses.nptel.ac.in/noc19_ae04/

Open Elective Courses Approved by the Department of Civil Engineering			
Sl. No.	**Course Code**	**Course Name**	**Link to Course Details and Registration**
1	CIV 405	Applied Environmental Microbiology	https://onlinecourses.nptel.ac.in/noc19_ce04/
2	CIV 406	Energy Efficiency, Acoustics and Day Lighting in Building	https://onlinecourses.nptel.ac.in/noc19_ce13/

Open Elective Courses Approved by the Department of Computer Science and Engineering			
Sl. No.	**Course Code**	**Course Name**	**Link to Course Details and Registration**
1	CSE 408	Joy of computing using Python	https://onlinecourses.nptel.ac.in/noc19_cs09/
2	CSE 409	AI:Knowledge Representation and Reasoning	https://onlinecourses.nptel.ac.in/noc19_cs19/
3	CSE 410	Social networks	https://onlinecourses.nptel.ac.in/noc19_cs30/
4	CSE 411	Machine Learning for Engineering and Science Applications	https://onlinecourses.nptel.ac.in/noc19_cs14/
5	CSE 412	Block chain Architecture and Use Cases	https://onlinecourses.nptel.ac.in/noc19_cs26/

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Open Elective Courses Approved by the Department of Electrical and Electronics Engineering

Sl. No.	Course Code	Course Name	Link to Course Details and Registration
1	EEE 409	Principles of Digital Communications	https://onlinecourses.nptel.ac.in/noc19_ee05/
2	EEE 410	Electronic Systems for Cancer Diagnosis	https://onlinecourses.nptel.ac.in/noc19_ee12/
3	EEE 411	Biomedical Signal Processing	https://onlinecourses.nptel.ac.in/noc19_ee23/

Open Elective Courses Approved by the Department of Electronics and Communication Engineering

Sl. No.	Course Code	Course Name	Link to Course Details and Registration
1	ECE 409	Programming, Data Structures and Algorithms using Python (2 Credits)	https://onlinecourses.nptel.ac.in/noc19_cs08/
2	ECE 410	Machine Learning for Engineering and Science Applications (3 Credits)	https://onlinecourses.nptel.ac.in/noc19_cs14/
3	ECE 411	Data Base Management System (2 Credits)	https://onlinecourses.nptel.ac.in/noc19_cs12/
4	ECE 412	Programming in Java (3 Credits)	https://onlinecourses.nptel.ac.in/noc19_cs07/
5	ECE 413	Introduction to Soft Computing (2 Credits)	https://onlinecourses.nptel.ac.in/noc19_cs23/

Open Elective Courses Approved by the Department of Mechanical Engineering

Sl. No.	Course Code	Course Name	Link to Course Details and Registration
1	MEC 412	Material Characterization	https://onlinecourses.nptel.ac.in/noc19_mm08/
2	MEC 413	Welding Processes	https://onlinecourses.nptel.ac.in/noc19_mm12/
3	MEC 414	Six Sigma	https://onlinecourses.nptel.ac.in/noc19_mg17/
4	MEC 415	Quality Design and Control	https://onlinecourses.nptel.ac.in/noc19_mg18/
5	MEC 416	English Language for Competitive Exams	https://onlinecourses.nptel.ac.in/noc19_ge18/

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PRESIDENCY UNIVERSITY

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

Ref: PU-SOE-MEC/2020-2021/BOS-11/Notice

Date: 24-08-2020

11th BOS MEETING NOTICE

The 11th Meeting of the Board of Studies in Mechanical Engineering, School of Engineering, Presidency University, is convened on Saturday, 5th September, 2020, at 10:30 AM. The meeting will be hosted online on Microsoft Teams from the Presidency University Campus, Itgalpur, Rajanakunte, Yelahanka, Bengaluru.

Kindly make it convenient to attend the meeting.

Agenda

Agenda SOE-MEC 11.1	To approve the minutes of the 10th Board of Studies Meeting held on 17th January, 2020.
Agenda SOE-MEC 11.2	To consider and approve the Program Regulations and Curriculum for the following Programs starting in the academic year 2020-21: 1. the B. Tech. Program in Mechanical Engineering, 2. the M. Tech. Program in Product Design and Development. Annexure MEC 11.2
Agenda SOE-MEC 11.3	To consider and approve the changes in the Program Regulations and Curriculum for the B. Tech. Program in Mechanical Engineering for the 2019-2023 batch. Annexure MEC 11.3
Agenda SOE-MEC 11.4	Approval of the list of MOOC Courses from SWAYAM-NPTEL offered as Discipline Elective Courses and Open Elective Courses by the Department. Annexure MEC 11.4
Agenda SOE-MEC 11.5	Approval of the updated list of External Examiners for Courses in the B. Tech. Program offered by the Department. Annexure MEC 11.5
Agenda SOE-MEC 11.6	Any other matter with the permission of the Chairperson.

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To,

Members and Invitees

Sl. No.	Name of the Member	Designation with Affiliation	Status
1	Dr. Udaya Ravi M.	Professor and HoD-MEC SoE, PU, Bengaluru	Chairperson Ex-Officio
2	Dr. A. M. Surendra Kumar	Professor, Pro Vice Chancellor and Dean In-Charge PU, Bengaluru	Member
3	Dr. C. S. Ramesh	Professor and Dean R & I SoE, PU, Bengaluru	Member
4	Dr. B. V. Prabhu	Professor and Assoc. Dean SoE, PU, Bengaluru	Member
5	Dr. Bhaskar Pal	Professor SoE, PU, Bengaluru	Member
6	Dr. Mahesha K.	Professor SoE, PU, Bengaluru	Member
7	Dr. Ramesh S.	Professor SoE, PU, Bengaluru	Member
8	Dr. Akshay Nanjangud	Associate Professor SoE, PU, Bengaluru	Member
9	Dr. Ramesh S. P.	Associate Professor SoE, PU, Bengaluru	Member
10	Dr. G. N. Lokesh	Associate Professor SoE, PU, Bengaluru	Member
11	Dr. Ramachandra C. G.	Associate Professor SoE, PU, Bengaluru	Member
12	Dr. Satish Babu Boppana	Associate Professor SoE, PU, Bengaluru	Member
13	Dr. R. Jothi Basu	Associate Professor SoE, PU, Bengaluru	Member
14	Dr. Yuvaraja Naik	Assistant Professor SoE, PU, Bengaluru	Internal Member (Nominated by the VC within the Department)

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Sl. No.	Name of the Member	Designation with Affiliation	Status
15	Mr. Muralidhar	Assistant Professor SoE, PU, Bengaluru	Internal Member (Nominated by the VC within the Department)
16	Mr. Bhavan Kumar	Assistant Professor Civil Engineering SoE, PU, Bengaluru	Internal Member (Nominated by the VC from a Sister Department)
17	Dr. Kalpajit Hazarika	Assistant Professor Petroleum Engineering SoE, PU, Bengaluru	Internal Member (Nominated by the VC from a Sister Department)
18	Ms. Priyanka Umarji	Assistant Professor SoE, PU, Bengaluru	Special Invitee
19	Mr. Kunwar Singh	Assistant Professor SoE, PU, Bengaluru	Special Invitee
20	Dr. B. M. Rajaprakash	Professor Mechanical Engineering, U. V. C. E., Bengaluru	External Member (Academic)
21	Dr. Anindya Deb	Professor CPDM-I. I. Sc., Bengaluru	External Member (Academic)
22	Mr. Shivaprakash M. S.	Deputy General Manager Kennametal Shared Services Pvt. Limited, Bengaluru	External Member (Industry)
23	Dr. Madhusudhan M.	Assistant Professor SoE, PU, Bengaluru	Member Secretary

Permanent Invitees

Shri. Nissar Ahmed, Hon'ble Chancellor, Presidency University
Shri. Salman Ahmed, Hon'ble Board Member, PGI
Dr. Radha Padmanabhan, Vice Chancellor, Presidency University
Dr. Surendra Kumar, Pro Vice Chancellor, Presidency University

Dr. Madhusudhan M.
Member Secretary

Dr. Udaya Ravi M.
Chairperson
24/8/20

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

Ref: PU-SOE-MEC/2020-2021/BOS-11/Attendance

Date: 05-09-2020

ATTENDANCE SHEET

The 11th meeting of the Board of Studies (BOS) for Mechanical Engineering was held today, 5th September, 2020, on Microsoft Teams from 10:30 AM to 1:10 PM in the presence of the following members.

Sl. No.	Name	Designation with Affiliation	Status	Signature With Date
1	Dr. Udaya Ravi M.	Professor and HoD-MEC SoE, PU, Bengaluru	Chairperson Ex-Officio	
2	Dr. A. M. Surendra Kumar	Professor, Pro Vice Chancellor and Dean In-Charge PU, Bengaluru	Member	
3	Dr. C. S. Ramesh	Professor and Dean R & I SoE, PU, Bengaluru	Member	
4	Dr. B. V. Prabhu	Professor and Assoc. Dean SoE, PU, Bengaluru	Member	
5	Dr. Bhaskar Pal	Professor SoE, PU, Bengaluru	Member	
6	Dr. Mahesha K.	Professor SoE, PU, Bengaluru	Member	
7	Dr. Ramesh S.	Professor SoE, PU, Bengaluru	Member	
8	Dr. Akshay Nanjangud	Associate Professor SoE, PU, Bengaluru	Member	
9	Dr. Ramesh S. P.	Associate Professor SoE, PU, Bengaluru	Member	

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PRESIDENCY UNIVERSITY Registrar BANGALORE

Sl. No.	Name	Designation with Affiliation	Status	Signature With Date
10	Dr. G. N. Lokesh	Associate Professor SoE, PU, Bengaluru	Member	
11	Dr. Ramachandra C. G.	Associate Professor SoE, PU, Bengaluru	Member	
12	Dr. Satish Babu Boppana	Associate Professor SoE, PU, Bengaluru	Member	
13	Dr. R. Jothi Basu	Associate Professor SoE, PU, Bengaluru	Member	
14	Dr. Yuvaraja Naik	Assistant Professor SoE, PU, Bengaluru	Internal Member (Nominated by the VC within the Department)	
15	Mr. Muralidhar	Assistant Professor SoE, PU, Bengaluru	Internal Member (Nominated by the VC within the Department)	
16	Mr. Bhavan Kumar	Assistant Professor Civil Engineering SoE, PU, Bengaluru	Internal Member (Nominated by the VC from a Sister Department)	
17	Dr. Kalpajit Hazarika	Assistant Professor Petroleum Engineering SoE, PU, Bengaluru	Internal Member (Nominated by the VC from a Sister Department)	

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Sl. No.	Name	Designation with Affiliation	Status	Signature With Date
18	Ms. Priyanka Umarji	Assistant Professor SoE, PU, Bengaluru	Special Invitee	
19	Mr. Kunwar Singh	Assistant Professor SoE, PU, Bengaluru	Special Invitee	
20	Dr. B. M. Rajaprakash	Professor Mechanical Engineering, U. V. C. E., Bengaluru	External Member (Academic)	
21	Dr. Anindya Deb	Professor CPDM-I. I. Sc., Bengaluru	External Member (Academic)	
22	Mr. Shivaprakash M. S.	Deputy General Manager Kennametal Shared Services Pvt. Limited, Bengaluru	External Member (Industry)	
23	Dr. Madhusudhan M.	Assistant Professor SoE, PU, Bengaluru	Member Secretary	

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Ref: PU-SOE-MEC/2020-2021/BOS-11/MoM

Date: 05-09-2020

MINUTES OF THE 11TH MEETING OF THE BOARD OF STUDIES (MECHANICAL ENGINEERING - BOS - MEC)

The 11th meeting of the Board of Studies (BOS) of the Department of Mechanical Engineering was held today, 5th September, 2020, from 10:30 AM to 1:10 PM on Microsoft Teams.

The following members were present.

Sl. No.	Name	Designation with Affiliation	Status
1	Dr. Udaya Ravi M.	Professor and HoD-MEC SoE, PU, Bengaluru	Chairperson Ex-Officio
2	Dr. A. M. Surendra Kumar	Professor, Pro Vice Chancellor and Dean In-Charge PU, Bengaluru	Member
3	Dr. C. S. Ramesh	Professor and Dean R & I SoE, PU, Bengaluru	Member
4	Dr. B. V. Prabhu	Professor and Assoc. Dean SoE, PU, Bengaluru	Member
5	Dr. Bhaskar Pal	Professor SoE, PU, Bengaluru	Member
6	Dr. Mahesha K.	Professor SoE, PU, Bengaluru	Member
7	Dr. Ramesh S.	Professor SoE, PU, Bengaluru	Member
8	Dr. Akshay Nanjangud	Associate Professor SoE, PU, Bengaluru	Member

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Sl. No.	Name	Designation with Affiliation	Status
9	Dr. Ramesh S. P.	Associate Professor SoE, PU, Bengaluru	Member
10	Dr. G. N. Lokesh	Associate Professor SoE, PU, Bengaluru	Member
11	Dr. Ramachandra C. G.	Associate Professor SoE, PU, Bengaluru	Member
12	Dr. Satish Babu Boppana	Associate Professor SoE, PU, Bengaluru	Member
13	Dr. R. Jothi Basu	Associate Professor SoE, PU, Bengaluru	Member
14	Dr. Yuvaraja Naik	Assistant Professor SoE, PU, Bengaluru	Internal Member (Nominated by the VC within the Department)
15	Mr. Muralidhar	Assistant Professor SoE, PU, Bengaluru	Internal Member (Nominated by the VC within the Department)
16	Mr. Bhavan Kumar	Assistant Professor Civil Engineering SoE, PU, Bengaluru	Internal Member (Nominated by the VC from a Sister Department)

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Sl. No.	Name	Designation with Affiliation	Status
17	Dr. Kalpajit Hazarika	Assistant Professor Petroleum Engineering SoE, PU, Bengaluru	Internal Member (Nominated by the VC from a Sister Department)
18	Ms. Priyanka Umarji	Assistant Professor SoE, PU, Bengaluru	Special Invitee
19	Mr. Kunwar Singh	Assistant Professor SoE, PU, Bengaluru	Special Invitee
20	Dr. B. M. Rajaprakash	Professor Mechanical Engineering, U. V. C. E., Bengaluru	External Member (Academic)
21	Dr. Anindya Deb	Professor CPDM-I. I. Sc., Bengaluru	External Member (Academic)
22	Mr. Shivaprakash M. S.	Deputy General Manager Kennametal Shared Services Pvt. Limited, Bengaluru	External Member (Industry)
23	Dr. Madhusudhan M.	Assistant Professor SoE, PU, Bengaluru	Member Secretary

The Chairperson started the meeting by welcoming the members of the Board of Studies in Mechanical Engineering (BOS-MEC). He began by saying that the Board had been reconstituted by the University after the completion of the tenure of the previous Board. This reconstitution had brought in three new external members, two from academia and one from industry. The new external members from academia are Professors B. M. Rajaprakash and Anindya Deb from U. V. C. E., Bengaluru, and I. I. Sc., Bengaluru. The new external member from industry is Mr. Shivaprakash, Deputy General Manager, Kennametal Shared Services Pvt. Limited, Bengaluru. The Chairperson welcomed the external members to their first BOS-MEC meeting in

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Presidency University. Next, the internal and external members were asked to introduce themselves. Following this introduction the Chairperson pointed out that the pandemic had forced this meeting to take place on Microsoft Teams. Due to this the external members weren't able to see our University and Department. To make up for this deficiency the Chairperson spent a few minutes delivering a presentation that showcased the University and the Department of Mechanical Engineering for the benefit of the external members. After this presentation the Board discussed each point on the agenda. A record of the discussions are as follows.

Agenda MEC 11.1: To approve the minutes of the 10th Board of Studies Meeting held on 17th January, 2020.

The minutes of the 10th meeting of the Board of Studies of the Department of Mechanical Engineering held on January 17, 2020, had been emailed to the members prior to the meeting. They were also presented during the meeting. The Chairperson said that all the resolutions from that meeting had been put into effect and asked the members to approve the minutes.

Resolution: The minutes of the 10th Board of Studies Meeting were approved by the members.

Agenda MEC 11.2: To consider and approve the Program Regulations and Curriculum for the B. Tech. (Mechanical Engineering) and M. Tech. (Product Design and Development) Programs starting in the academic year 2020-21.

The Chairperson first opened the discussion on the Program Regulations and Curriculum for the B. Tech. (Mechanical Engineering) Program. This document had also been shared with the members prior to the meeting. The Chairperson highlighted the following updations in this document in comparison to the Program Regulations and Curriculum for the 2019-2023 batch. These updations are included as Annexure MEC 11.2. A summary of the updations and discussions on them are as follows.

(i) The Departments of Mathematics, Physics, Chemistry and English has proposed changes in the first-year Courses offered by them. The Chairperson said that these changes would be discussed and approved by the Boards of Studies of the respective Departments and not by the BOS-MEC. These changes were being presented here only to inform the members of the BOS-MEC.

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(ii) The Chairperson informed the Board that the Department of Learning & Development offered four Courses to students in the B. Tech. Program. These Courses are named Building Self Confidence, Effective Communication, Design Thinking and Team Building and Being Corporate Ready. Until the 2019-2023 batch these were 1-Credit Courses. For the 2020-2024 batch these Courses would not have any Credits, would be mandatory and would be considered as Value Added Courses. This didn't the approval of the BOS-MEC, it was being presented here for the information of the Board.

(iii) The Chairperson informed the Board that the University would be teaching a 1-Credit Course KAN 101 Kannada Kali from the academic year 2020-2021 for the 2020-2024 batch. This Course is also not to be discussed or approved by the BOS-MEC. It would be reviewed and approved in the appropriate Board.

(iv) The Chairperson then said that the B. Tech. (Mechanical Engineering) Program had four Discipline Elective Courses of three Credits each until the 2019-2023 batch. From the 20202-2024 batch the Program would have five Discipline Elective Courses of three Credits each. Students would take up one, two, one and one Discipline Elective Course in the fourth, fifth, sixth and seventh semesters, respectively. The members supported this idea. They felt that the addition of a Discipline Elective Course gave the students more choice to plan their academic journey and further specialise in areas of their choice. The Board approved this decision.

(v) The introduction of the extra Discipline Elective Course led to 29 contact hours per week in the fourth semester out of the available 30 hours. This is very high and leaves students with no time for any Departmental or other activities. The Chairperson informed the Board that this problem was resolved by shifting MEC 255 Metrology and Mechanical Measurements Lab from the fourth semester to the sixth semester and shifting MEC 259 Mechanisms, Machine and Design Lab from the sixth semester to the seventh semester. This reduced the contact hours in the fourth semester to 27 and only increased them from 16 to 18 in the seventh semester. The Board approved this change.

(vi) Next, the Chairperson explained the University's decision to offer "additional minors" in Mechatronics and Additive Manufacturing. The University would give students a B. Tech. Degree in Mechanical Engineering with an additional minor in one of the two areas if the students took all five Courses or fifteen

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Credits of Discipline Elective Courses from the Courses listed by the Department as being in the area. The Chairperson then showed the members the Discipline Elective Courses in Additive Manufacturing and Mechatronics. The members appreciated the decision of the University to award additional minors. They approved the list of Courses for each additional minor.

(vii) The Chairperson told the members that the Department would initiate Value Added Courses for its students from this academic year. These Courses would complement the regular Courses taught in the B. Tech. Programs by going into practical areas, like CNC programming, rapid prototyping, etc., or into software and programming areas, through ANSYS or AutoCAD, or cover areas related to health and wellbeing. The Chairperson displayed the list of Value Added Courses to the members who approved it.

This concluded the discussion of the Board on the Program Regulations and Curriculum for B. Tech. (Mechanical Engineering) Program for the 2020-2024 batch. The Board then moved on to discussing the Program Regulations and Curriculum for the M. Tech. (Product Design and Development) Program. This document had also been emailed to the members prior to the meeting so the Board was able to commence discussions immediately. The members approved the Program Regulations and Curriculum asking the Chairperson to explore the feasibility of implementing the following suggestions.

(a) Professor Anindya Deb felt that the students need to be exposed to the state of Industry 4.0 either through a full Core Course or at least as a module in one of the Core Courses.

(b) Mr. Shivaprakash felt that students may benefit by starting interaction with industries from the first semester in a way that would smoothly transition to their M. Tech. Project Work. The members discussed this idea and felt that industry visits could be arranged as a part of the Value Added Courses offered to the students.

(c) Professor Anindya Deb felt that students could be guided towards three kinds of projects in their M. Tech. The first type would be one where students develop new technology, not just interfacing technology, that helps in the design of products. The second type would be the kind in which students develop new fundamental design methodologies that can be used in product design. Here he

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gave an example of coming up with metrics that can be used by automobile companies in the "soft design" aspects of aesthetics of automobiles. The third type of project would be one in which students design a product and build at least a scaled model. With the third kind of a project students would have done some actual product development and not just studied product development as a theory. Professor C. S. Ramesh added that this third type of project could be carried out with the use of our manufacturing labs which would soon be augmented with a 3-D printer.

(d) Mr. Shivaprakash said that the University should permit the faculty members involved in the M. Tech. Program to visit and work closely with industries on projects. He felt that the time dedicated by faculty members in industries would enhance the quality of teaching in this Program and help faculty members guide students through high quality projects.

Resolution: The members approved the Program Regulations and Curriculum for the B. Tech. (Mechanical Engineering) and M. Tech. (Product Design and Development) Programs for the 2020-2024 and 2020-2022 batches, respectively.

Agenda MEC 11.3: To consider and approve the changes in the Program Regulations and Curriculum for the B. Tech. Program in Mechanical Engineering for the 2019-2023 batch.

The Chairperson informed the members that the only changes in the Program Regulations and Curriculum for this batch were in the mathematics Courses in the third and fourth semesters. The Courses had been renamed with edited syllabi and textbooks. These included as Annexure MEC 11.3.

Mr. Shivaprakash enquired on how the teaching of mathematics is being contextualised to students in the B. Tech. (Mechanical Engineering) Program. The Chairperson explained that the faculty members in the Departments of Mathematics and Mechanical Engineering had worked together to generate examples and problems from areas of mechanical engineering for each topic in mathematics. With the help of such examples and problems the teaching of mathematics was being contextualised for students in the B. Tech. (Mechanical Engineering) Program. Mr. Shivaprakash appreciated this approach of teaching mathematics to engineers.

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Resolution: The members approved these changes in the Program Regulations and Curriculum for the 2019-2023.

Agenda MEC 11.4: Approval of the list of MOOC Courses from SWAYAM-NPTEL offered as Discipline Elective Courses and Open Elective Courses by the Department.

The Chairperson explained the University's policy on transfer of Credits through SWAYAM-NPTEL to the members and presented the list of Discipline Elective Courses and Open Elective Courses approved by the Department for the odd semester of this academic year. These Courses are listed in Annexure MEC 11.4.

Resolution: The members approved these SWAYAM-NPTEL Courses.

Agenda MEC 11.5: Approval of the updated list of External Examiners for Courses in all the Programs offered by the Department..

The Chairperson presented an updated list of Examiners (appended as Annexure MEC 10.5) to the members of the Board of Studies.

Resolution: The members approved the updated list of Examiners.

Agenda MEC 11.6: Any other matter with the permission of the Chair.

The Chairperson opened the meeting to all the members for their inputs and suggestions. Mr. Shivaprakash appreciated how "professionally" the meeting had been approached and conducted. The team had sent him and the other members all the documents that would be discussed in the meeting well in advance so that they could prepare themselves for the discussions. Dr. Anindya Deb said that the M. Tech. (Product Design and Development) Program had a good curriculum and with the right student projects the Program could become a high quality one. The Chairperson thanked Mr. Shivaprakash and Dr. Deb for these kind and encouraging remarks.

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As BOS meetings of all the Departments are taking place simultaneously in different venues today, the Chairperson requested approval from the Board to incorporate modifications and alterations, if any, approved by the BOS committee of other Departments for the existing batches in Mechanical Engineering. The BOS Committee for Mechanical Engineering approved this proposal unanimously.

The BOS Committee authorised the BOS Chairperson and the Sub-Committee consisting of the Internal Members of the Board of Studies of Mechanical Engineering to incorporate minor corrections and edits, if required.

The BOS Chairperson has conveyed that the decisions taken during the 11th meeting of BOS for Mechanical Engineering will be implemented for 2020-2024 and 2019-2023 batches of the B. Tech. Program and the 2020-2022 batch of the M. Tech. Program.

The meeting ended with a Vote of Thanks by the Member Secretary.

BOS Committee:

Sl. No.	Name	Designation with Affiliation	Status	Signature With Date
1	Dr. Udaya Ravi M.	Professor and HoD-MEC SoE, PU, Bengaluru	Chairperson Ex-Officio	
2	Dr. A. M. Surendra Kumar	Professor, Pro Vice Chancellor and Dean In-Charge PU, Bengaluru	Member	
3	Dr. C. S. Ramesh	Professor and Dean R & I SoE, PU, Bengaluru	Member	
4	Dr. B. V. Prabhu	Professor and Assoc. Dean SoE, PU, Bengaluru	Member	
5	Dr. Bhaskar Pal	Professor SoE, PU, Bengaluru	Member	
6	Dr. Mahesha K.	Professor SoE, PU, Bengaluru	Member	

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Sl. No.	Name	Designation with Affiliation	Status	Signature With Date
7	Dr. Ramesh S.	Professor SoE, PU, Bengaluru	Member	
8	Dr. Akshay Nanjangud	Associate Professor SoE, PU, Bengaluru	Member	
9	Dr. Ramesh S. P.	Associate Professor SoE, PU, Bengaluru	Member	
10	Dr. G. N. Lokesh	Associate Professor SoE, PU, Bengaluru	Member	
11	Dr. Ramachandra C. G.	Associate Professor SoE, PU, Bengaluru	Member	
12	Dr. Satish Babu Boppana	Associate Professor SoE, PU, Bengaluru	Member	
13	Dr. R. Jothi Basu	Associate Professor SoE, PU, Bengaluru	Member	
14	Dr. Yuvaraja Naik	Assistant Professor SoE, PU, Bengaluru	Internal Member (Nominated by the VC within the Department)	
15	Mr. Muralidhar	Assistant Professor SoE, PU, Bengaluru	Internal Member (Nominated by the VC within the Department)	

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Sl. No.	Name	Designation with Affiliation	Status	Signature With Date
16	Mr. Bhavan Kumar	Assistant Professor Civil Engineering SoE, PU, Bengaluru	Internal Member (Nominated by the VC from a Sister Department)	
17	Dr. Kalpajit Hazarika	Assistant Professor Petroleum Engineering SoE, PU, Bengaluru	Internal Member (Nominated by the VC from a Sister Department)	
18	Ms. Priyanka Umarji	Assistant Professor SoE, PU, Bengaluru	Special Invitee	
19	Mr. Kunwar Singh	Assistant Professor SoE, PU, Bengaluru	Special Invitee	
20	Dr. B. M. Rajaprakash	Professor Mechanical Engineering, U. V. C. E., Bengaluru	External Member (Academic)	
21	Dr. Anindya Deb	Professor CPDM-I. I. Sc., Bengaluru	External Member (Academic)	
22	Mr. Shivaprakash M. S.	Deputy General Manager Kennametal Shared Services Pvt. Limited, Bengaluru	External Member (Industry)	
23	Dr. Madhusudhan M.	Assistant Professor SoE, PU, Bengaluru	Member Secretary	

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Annexure MEC 11.2

This annex shows the following updations to the Program Regulations and Curriculum for the B. Tech. (Mechanical Engineering) Program for the 2020-2024 batch.:

1. The updated details of the first-year Courses offered by the Departments of Mathematics, Physics, Chemistry and English.
2. The details of the new Course KAN 101 Kannada Kali.
3. The structure of the fourth, fifth, sixth and seventh semesters showing the placement of the additional Discipline Elective Course and the lab Courses MEC 255 Metrology and Mechanical Measurements and MEC 259 Mechanisms, Machines and Design Lab.
4. The list of Discipline Elective Courses that students can choose from for additional minors in Mechatronics and Additive Manufacturing.

Course Name:	Calculus and Linear Algebra					
Course Code:	MAT 105	Credit Structure :	L	T	P	C
			3	1	0	4

Course Description: This course aims to introduce the idea of applying differential and integral calculus to notions of curvature and to improper integrals. Apart from some applications it gives a basic introduction on Beta and Gamma functions. Also introduces the fallouts of Rolle's Theorem that is fundamental to application of analysis to Engineering problems. Develops the tool of power series and Fourier series for learning advanced Engineering Mathematics. Familiarize the student with functions of several variables that is essential in most branches of engineering and develop the essential tool of matrices and linear algebra in a comprehensive manner.

Textbooks:

1. Erwin Kreyszig, "*Advanced Engineering Mathematics*", 9th Edition, John Wiley & Sons, 2006.

Reference Books:

1. B. S. Grewal, ' *Higher Engineering Mathematics*", Khanna Publishers, 36th Edition 2010.
2. Cengage, Mathematics – I (Calculus & Linear Algebra), ITL Education Solutions Ltd., 2018.

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Course Name:	Calculus, Differential Equations and Complex Variables					
Course Code:	MAT 106	Credit Structure :	L	T	P	C
			3	1	0	4

Course Description: This course aims to acquaint the student with mathematical tools needed in evaluating multiple integrals and their usage. Also to introduce effective mathematical tools for the solutions of differential equations that model physical processes and introduce the tools of differentiation and integration of functions of complex variable that are used in various techniques dealing engineering problems.

Textbooks:

1. Erwin Kreyszig, "*Advanced Engineering Mathematics*", 9th Edition, John Wiley & Sons, 2006.

Reference Books:

1. B. S. Grewal, ' *Higher Engineering Mathematics*", Khanna Publishers, 44th Edition, 2007.
2. Cengage, Mathematics – II (Calculus, Ordinary Differential Equations & Complex Variables), ITL Education Solutions Ltd., 2018.

Course Name:	Transfer Techniques, Partial Differential Equations and Probability					
Course Code:	MAT 107	Credit Structure :	L	T	P	C
			3	1	0	4

Course Description: This course aims to introduce Fourier transform, z-transform and Laplace transform. The topics include the applications of Laplace transform in LCR circuits and solution of difference equations using z-transform.

This course is commonly designed for all engineering branches and the contents learned in the previous semester are the prerequisite for this course. Solution of second and higher order, linear ordinary differential equations with constant and variable coefficients. Formation of Partial Differential Equations (PDE), solution of homogeneous and non-homogeneous PDEs and the application of PDEs. Laplace transforms of functions and properties; Laplace transform of periodic and unit step functions. Inverse Laplace Transforms, Application of Laplace transforms and solution of differential equations.

The course aims at introducing students to quantitative uncertainty analysis and risk assessment for engineering applications. Probability theory is of great use in understanding and modeling phenomena that exhibit random behavior and the emphasis is on real-world applications to engineering problems. The topics covered

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include basic concepts of probability and conditional probability, Baye's law and correlation analysis, Linear Regression and method of least square.

Textbooks:

1. Erwin Kreyszig, "Advanced Engineering Mathematics", 10th Edition, John Wiley & Sons (India), 2014.
2. Grewal B.S., "Higher Engineering Mathematics", 43rd Edition, Khanna Publishers, 2014.

Reference Books:

1. Peter V. O'Neil, Advanced Engineering Mathematics, 7th Edition, Cengage Learning, 2012.

2. Ronald E. Walpole, Raymond H. Myers & Sharon L. Myers, "Probability & Statistics for Engineers & Scientists", Ninth Edition.

Course Name:	Numerical Methods, Probability and Sampling Distribution					
Course Code:	MAT 108	Credit Structure :	L	T	P	C
			3	1	0	4

Course Description: The objective of Numerical Methods, Probability Distribution and Sampling Theory is to equip the students with adequate knowledge of basic mathematics that will enable them in formulating problems and solving them analytically as well as numerically in their Engineering programme. The course enables students to incorporate the knowledge of complex variables and their significance in engineering, Numerical methods, probability distribution and sampling theory to support their concurrent, subsequent engineering studies to explore complex systems, physicists, engineers and mathematicians require computational methods since mathematical models are rarely solvable analytically. This course provides an introduction to basic numerical methods such as fitting of various curves, interpolation, differentiation, integration. This course also provides an introduction to numerical solution of algebraic and transcendental equations, ordinary differential equations such as Taylor's series method, modified Euler's method and Runge-Kutta Methods. The course aims at introducing students to quantitative uncertainty analysis and risk assessment for engineering applications. Probability theory is of great use in understanding and modeling phenomena that exhibit random behavior and the emphasis is on real-world applications to engineering problems. The topic covered include discrete and continuous probability distributions covering binomial, Poisson, geometric, exponential, uniform, normal distributions and their applications, functions of random variable, random sampling and its properties, sampling distributions of

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means and variances, chi-squared, t and F distributions, methods of estimation, estimating means, proportions and variances, maximum likelihood estimation, tests of hypothesis on means, proportions and variances, chi-squared test of goodness of fit.

Textbooks

1. Erwin Kreyszig, "Advanced Engineering Mathematics", 10th Edition, John Wiley & Sons (India), 2014.
2. M.K. Jain, S.R.K. Iyengar and R.K. Jain, Numerical Methods for Scientific and Engineering Computations, 6th Edition, New age Publishing House, 2015.
3. Ronald .E. Walpole, Raymond. H. Myers, Sharon. L Myers, and Keying E.Ye, "Probability and Statistics for Engineers and Scientists", Pearson Education, Delhi-9th edition, 2012.

Reference Books

1. B.S. Grewal, "Higher Engineering Mathematics", 43rd edition, Khanna Publishers.
2. B.S. Grewal, Numerical methods in engineering and science, 10th Edition, Khanna publishers, 2016.
3. Kishor S Trivedi, "Probability ansd Statistics with reliability, Queuing and Computer Science Applications", John Wiley & Sons, 2nd edition, 2008.

Course Name:	Engineering Physics Lab					
Course Code:	PHY 151	Credit Structure :	L	T	P	C
			0	0	2	1

Course Description: This Course includes the laboratory sessions on determination of the wave length of Laser, rigidity modulus, Planck's constant, dielectric constant, radius of curvature by Newton's rings, calculation of Numerical Aperture, Resistivity by four probe method, Fermi energy of copper and acceleration due to gravity by simple pendulum. It also includes experiments on characteristics of Zener diode.

Course Material: "*Engineering Physics Lab manual*" Presidency University (2020-21).

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Course Name:	Engineering Chemistry					
Course Code:	CHE 101	Credit Structure :	L	T	P	C
			4	0	0	4

Course Description: The primary objective of the course is to introduce the students to the concepts and applications of chemistry in Engineering. It should cultivate in them an ability to identify chemistry in each piece of finely engineered products used in households and industry. It aims to strengthen the fundamental concepts of chemistry and then builds an interface with their industrial applications. It deals with applied and industrially useful topics, such as Water Technology, Engineering materials such as Polymers & Liquid crystals, Introduction to Computational Chemistry, Electrochemistry principles & its application to batteries, Corrosion and its control, Fuels and combustion.

Textbooks:

1. Wiley, "Engineering Chemistry", Wiley.

Reference Books:

1. Dr. K. Pushpalatha, "Engineering Chemistry", Revised Edition, Wiley.
2. F Jain and Jain, "Engineering Chemistry", 17th Edition, Dhanpat Rai Publishing Company. New Delhi, 2019.
3. Koch, W., & Holthausen, M. C. (2015). A chemist's guide to density functional theory. John Wiley & Sons.
4. Shikha Agarwal, "Engineering Chemistry-Fundamentals and Applications", Cambridge University Press, 2015.
5. Principles of Physical Chemistry B.R.Puri, L.R. Sharma & M.S. Pathania, S. Nagin Chand & Co., 41 Ed., 2004.
6. F.W. Billmeyer, Text Book of Polymer Science, John Wiley & Sons, 4th Edition, 1996.
7. M.G. Fontana, N. D. Greene, Corrosion Engineering, McGraw Hill Publications, New York, 3rd Edition, 1996.
8. Jurs, P.C., 1996. Computer software applications in chemistry. John Wiley & Sons.
9. Stephen Wilson (auth.) - Chemistry by Computer: An Overview of the Applications of Computers in Chemistry-Springer US (1986).
10. K.V. Raman, Computers in Chemistry, Tata McGraw Hill Publication, New Delhi.

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Course Name:	Technical Spoken Communication					
Course Code:	ENG 104	Credit Structure :	L	T	P	C
			1	0	2	2

Course Description: A Course on Technical Spoken Communication in the field of technical education will train the students to speak better English and face the corporate world with determination and self-belief. The theoretical and practical sessions on pronunciation, listening, conversation, narration, speech presentation, will make the target audience to stand out in the forefront of their field of operation. At the end of the course, the students will have better skills, and the students will also be able to excel in middle-higher level management in the corporate world.

Reference Books:

1. Tomson, Robert. *"The Interview."* Stories of Work, Life and the Balance in Between. The Write Place.
2. Daniel. J. C. "Unforgettable Salim Ali." *Inspiring People: Fifty People Who Made a Difference.* Readers Digest Selection.
3. Bovee, Courtland L. Thill, John V, Chatterjee. Abha. *Business Communication Today.* 10th Edition. Pearson
4. Carmine, Gallo. *"11 Presentation Lessons You Can Still Learn From Steve Jobs."* FORBES, October 12, 2012.
5. Thrishna's: *How to Do well in GDs and Interview.* New Delhi: Pearson 2013
6. Raman, Meenakshi. Sharma, Sangeetha. *Technical Communication: Principles and Practice.* Oxford University Press, New Delhi. 2015.
7. Hart, Steve. Nari, Aravind R. and Bhambhani, Veena. Embark: *English for Undergraduates.* New Delhi; Cambridge University Press, 2016.
8. J. K. Gangal, *A Practical course in Spoken English,* PHL Learning Private Limited, Delhi-2014.

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IV SEMESTER

S. NO.	COURSE CODE	COURSE NAME	CREDIT STRUCTURE				CONTACT HOURS	TYPE OF SKILL	COURSE ADDRESSES TO
			L	T	P	CREDITS			
1	MAT 108	Numerical Methods, Probability and Sampling Distributions	3	1	0	4	4	F	-
2	MEC 204	Production Techniques - I	3	0	0	3	3	F/E	-
3	MEC 202	Kinematics of Machines	3	1	0	4	4	F	-
4	MEC 211	Metrology and Mechanical Measurements	3	0	0	3	3	F/E	-
5	MEC 208	Applied Thermodynamics	3	1	0	4	4	F	-
6	MEC 3XX	Discipline Elective-I	3	0	0	3	3	-	-
7	MEC 254	Metallography and Materials Testing Lab	0	0	2	1	2	E	-
8	MEC 252	Machine Shop Practice	0	0	2	1	2	E	-
9	PPS 108	Being Corporate Ready	-	-	-	-	2	E	P
10	SIC 501	Social Immersion Course	-	-	-	1	-	P	G/Env/S
		TOTAL	**18**	**3**	**4**	**23/24**	**27**		

V SEMESTER

S. NO.	COURSE CODE	COURSE NAME	CREDIT STRUCTURE				CONTACT HOURS	TYPE OF SKILL	COURSE ADDRESSES TO
			L	T	P	CREDITS			
1	MEC 214	Dynamics of Machines	3	1	0	4	4	F	-
2	MEC 210	Design of Machine Elements-I	3	1	0	4	4	F	-
3	MEC 207	Production Techniques-II	3	0	0	3	3	E	-
4	MGT 1XX	Management Sciences-I	3	0	0	3	3	E	P
5	MEC 220	Finite Element Analysis	3	0	0	3	3	E	-
6	MEC 3XX	Discipline Elective-II	3	0	0	3	3	-	-
7	MEC 3XX	Discipline Elective-III	3	0	0	3	3	-	-
8	MEC 257	Foundry, Forging and Welding Lab	0	0	2	1	2	E	-
9	MEC 258	Energy Conversion Engineering Lab	0	0	2	1	2	E	-
10	MEC 501	Professional Practice-I**	-	-	-	5	-	E	-
		TOTAL	**21**	**2**	**4**	**30**	**27**		

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VI SEMESTER

S. NO	COURSE CODE	COURSE NAME	CREDIT STRUCTURE				CONTACT HOURS	TYPE OF SKILL	COURSE ADDRESSES TO
			L	T	P	CREDITS			
1	MEC 209	Heat and Mass Transfer	3	1	0	4	4	F	-
2	MEC 212	Mechanical Vibrations	3	1	0	4	4	F	-
3	MEC 219	Design of Machine Elements-II	3	1	0	4	4	F	-
4	MGT 1XX	Management Sciences-II	3	0	0	3	3	E	-
5	MEC 3XX	Discipline Elective-IV	3	0	0	3	3	-	-
6	XXX XXX	Open Elective-I	3	0	0	3	3	-	-
7	MEC 255	Metrology and Mechanical Measurements Lab	0	0	2	1	2	E	-
8	MEC 260	Heat and Mass Transfer Lab	0	0	2	1	2	F	-
9	MEC 261	Modeling, Simulation and Analysis Lab	0	0	2	1	2	E	-
10	SIC 501	Social Immersion Course	-	-	-	1	-	P	G/Env/S
		TOTAL	**18**	**3**	**6**	**24/25**	**27**		

VII SEMESTER

S. NO	COURSE CODE	COURSE NAME	CREDIT STRUCTURE				CONTACT HOURS	TYPE OF SKILL	COURSE ADDRESSES TO
			L	T	P	CREDITS			
1	MEC 213	I. C. Engine and Fuels	3	1	0	4	4	E	-
2	MEC 218	Mechatronics	3	1	0	4	4	E	-
3	MEC 3XX	Discipline Elective-V	3	0	0	3	3	-	-
4	XXX XXX	Open Elective-II	3	0	0	3	3	-	-
5	MEC 256	Mechatronics Lab	0	0	2	1	2	E	-
6	MEC 259	Mechanisms, Machines and Design Lab	0	0	2	1	2	F	-
		TOTAL	**12**	**2**	**4**	**16**	**18**		

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TABLE — 3.2.2 (ii)

DISCIPLINE ELECTIVES FOR THE ADDITIONAL MINOR IN ADDITIVE MANUFACTURING

S. NO.	COURSE CODE	COURSE NAME	CREDIT STRUCTURE				CONTACT HOURS	TYPE OF SKILL	COURSE ADDRESSES TO
			L	T	P	CREDITS			
1	MEC 331	CAD for Additive Manufacturing	3	0	0	3	3	E	-
2	MEC 332	Additive Manufacturing Machines and Systems	3	0	0	3	3	E	-
3	MEC 333	Additive Manufacturing in Medical Applications	3	0	0	3	3	E	-
4	MEC 334	Modeling and Simulation of Manufacturing Systems	3	0	0	3	3	E	-
5	MEC 335	Modern Manufacturing Processes	3	0	0	3	3	E	-
6	MEC 336	CNC Technology & Programming	1	0	4	3	3	E	-
7	MEC 337	Manufacturing Control and Automation	1	0	4	3	3	E	-
8	MEC 338	Soft Computing Techniques	3	0	0	3	3	E	-
9	MEC 339	Rapid Tooling and Industrial Applications	3	0	0	3	3	E	-
10	MEC 340	Integrated Product Design and Development	3	0	0	3	3	E	-
11	MEC 341	Reverse Engineering and Computer Aided Inspection	3	0	0	3	3	E	-
12	MEC 342	Micro and Nano Manufacturing	3	0	0	3	3	E	-
13	MEC 343	Powder Metallurgy	3	0	0	3	3	E	-
14	MEC 344	Product Design for Manufacturing and Assembly	3	0	0	3	3	E	-
15	MEC 345	Lasers in Manufacturing Technology	3	0	0	3	3	F	-

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TABLE — 3.2.2 (iii)

DISCIPLINE ELECTIVES FOR THE ADDITIONAL MINOR IN MECHATRONICS

S. NO.	COURSE CODE	COURSE NAME	CREDIT STRUCTURE				CONTACT HOURS	TYPE OF SKILL	COURSE ADDRESSES TO
			L	T	P	CREDITS			
1	MEC 313	Robotics	3	0	0	3	3	E	-
2	MEC 346	Dynamics of Robots	3	0	0	3	3	E	-
3	MEC 347	Mobile Robots	1	0	4	3	3	E	-
4	MEC 319	Hydraulics and Pneumatics	1	0	4	3	3	E	-
5	MEC 324	Control Engineering	3	0	0	3	3	E	-
6	MEC 325	Engineering Dynamics	3	0	0	3	3	E	-
7	MEC 348	Modeling, Analysis and Simulation of Linear Systems	3	0	0	3	3	E	-
8	MEC 349	Modeling, Analysis and Simulation of Nonlinear Systems	3	0	0	3	3	E	-

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Annexure MEC 11.3

The updated details of the second-year Courses offered by the Department of Mathematics for the B. Tech. (Mechanical Engineering) Program for the 2019-2023 batch are as follows.

Course Name:	Transfer Techniques, Partial Differential Equations and Probability					
Course Code:	MAT 107	Credit Structure :	L	T	P	C
			3	1	0	4

Course Description: This course aims to introduce Fourier transform, z-transform and Laplace transform. The topics include the applications of Laplace transform in LCR circuits and solution of difference equations using z-transform.

This course is commonly designed for all engineering branches and the contents learned in the previous semester are the prerequisite for this course. Solution of second and higher order, linear ordinary differential equations with constant and variable coefficients. Formation of Partial Differential Equations (PDE), solution of homogeneous and non-homogeneous PDEs and the application of PDEs. Laplace transforms of functions and properties; Laplace transform of periodic and unit step functions. Inverse Laplace Transforms, Application of Laplace transforms and solution of differential equations.

The course aims at introducing students to quantitative uncertainty analysis and risk assessment for engineering applications. Probability theory is of great use in understanding and modeling phenomena that exhibit random behavior and the emphasis is on real-world applications to engineering problems. The topics covered include basic concepts of probability and conditional probability, Baye's law and correlation analysis, Linear Regression and method of least square.

Textbooks:

1. Erwin Kreyszig, "Advanced Engineering Mathematics", 10th Edition, John Wiley & Sons (India), 2014.
2. Grewal B.S., "Higher Engineering Mathematics", 43rd Edition, Khanna Publishers, 2014.

Reference Books:

1. Peter V. O'Neil, Advanced Engineering Mathematics, 7th Edition, Cengage Learning, 2012.
2. Ronald E. Walpole, Raymond H. Myers & Sharon L. Myers, "Probability & Statistics for Engineers & Scientists", Ninth Edition.

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Course Name:	Numerical Methods, Probability and Sampling Distribution				
Course Code:	MAT 108	Credit Structure :	L	T	P	C
			3	1	0	4

Course Description: The objective of Numerical Methods, Probability Distribution and Sampling Theory is to equip the students with adequate knowledge of basic mathematics that will enable them in formulating problems and solving them analytically as well as numerically in their Engineering programme. The course enables students to incorporate the knowledge of complex variables and their significance in engineering. Numerical methods, probability distribution and sampling theory to support their concurrent, subsequent engineering studies to explore complex systems, physicists, engineers and mathematicians require computational methods since mathematical models are rarely solvable analytically. This course provides an introduction to basic numerical methods such as fitting of various curves, interpolation, differentiation, integration. This course also provides an introduction to numerical solution of algebraic and transcendental equations, ordinary differential equations such as Taylor's series method, modified Euler's method and Runge-Kutta Methods. The course aims at introducing students to quantitative uncertainty analysis and risk assessment for engineering applications. Probability theory is of great use in understanding and modeling phenomena that exhibit random behavior and the emphasis is on real-world applications to engineering problems. The topic covered include discrete and continuous probability distributions covering binomial, Poisson, geometric, exponential, uniform, normal distributions and their applications, functions of random variable, random sampling and its properties, sampling distributions of means and variances, chi-squared, t and F distributions, methods of estimation, estimating means, proportions and variances, maximum likelihood estimation, tests of hypothesis on means, proportions and variances, chi-squared test of goodness of fit.

Textbooks

1. Erwin Kreyszig, "Advanced Engineering Mathematics", 10th Edition, John Wiley & Sons (India), 2014.
2. M.K. Jain, S.R.K. Iyengar and R.K. Jain, Numerical Methods for Scientific and Engineering Computations, 6th Edition, New age Publishing House, 2015.
3. Ronald .E. Walpole, Raymond. H. Myers, Sharon. L Myers, and Keying E.Ye, "Probability and Statistics for Engineers and Scientists", Pearson Education, Delhi-9th edition, 2012.

Reference Books

1. B.S. Grewal, "Higher Engineering Mathematics", 43rd edition, Khanna Publishers.
2. B.S. Grewal, Numerical methods in engineering and science, 10th Edition, Khanna publishers, 2016.
3. Kishor S Trivedi, "Probability ansd Statistics with reliability, Queuing and Computer Science Applications", John Wiley & Sons, 2nd edition, 2008.

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Annexure MEC 11.4

The following is the list of SWAYAM-NPTEL courses approved by the Department of Mechanical Engineering as Discipline Elective and Open Elective Courses for transfer of credits for the odd semester of the academic year 2020-2021.

List of SWAYAM-NPTEL Courses Approved as Discipline Elective Courses for Students in the B. Tech. Program in Mechanical Engineering

Sl. No.	SWAYAM-NPTEL Course Code	Course Name	Date of the Final Exam	Industries Applicable To (As Per SWAYAM-NPTEL)
1	noc20-me54	Advanced Fluid Mechanics	October 17, 2020	IOCL, SHELL, BPCL, GE, Airbus, Tata Motors and the likes
2	noc20-me58	Automation in Manufacturing	October 18, 2020	All automobile, mobile phone and airplane manufacturing companies
3	noc20-me95	Introduction to Composites	October 18, 2020	
4	noc20-me50	Rapid Manufacturing	October 17, 2020	HAL, NAL, SAIL, ISRO
5	noc20-me70	Work System Design	October 18, 2020	Industries using work system theory to improve productivity and effectiveness
6	noc20-ae05	Aircraft Stability and Control	October 17, 2020	NAL, ADE, ADA all of which are in Bangalore
7	noc20-ae13	Introduction to Airbreathing Propulsion	October 18, 2020	Aerospace, Mechanical, Power Generation and Defence Industries
8	noc20-ae14	Introduction to Aircraft Design	October 17, 2020	HAL, NAL, ADE, ADA all of which are in Bangalore, Airbus, Boeing, Mahindra Aerospace

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List of SWAYAM-NPTEL Courses Approved as Discipline Elective Courses for Students in the B. Tech. Program in Mechanical Engineering

Sl. No.	SWAYAM-NPTEL Course Code	Course Name	Date of the Final Exam	Industries Applicable To (As Per SWAYAM-NPTEL)
9	noc20-ae06	Space Flight Mechanics	October 17, 2020	ISRO, DRDO, Boeing and industries working on satellite technology

List of SWAYAM-NPTEL Courses Approved as Open Elective Courses for Students in the B. Tech. Program in Mechanical Engineering

Sl. No.	SWAYAM-NPTEL Course Code	Course Name	Date of the Final Exam	Industries Applicable To (As Per SWAYAM-NPTEL)
1	noc20-ag02	Dairy and Food Process and Product Technology (Agriculture Engineering)	October 17, 2020	Britannia, ITC, Hindustan Lever, Mother Diary, Amul
2	noc20-ag04	Irrigation and Drainage (Agriculture Engineering)	October 18, 2020	All irrigation based companies
3	noc20-cs89	Learning Analytics Tool (Multidisciplinary)	October 18, 2020	This information is not provided for these Courses.
4	noc20-ge17	Neuroscience of Human Movement (Multidisciplinary)	October 17, 2020	
5	noc20-de10	Functional and Conceptual Design (Design Engineering)	October 17, 2020	

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Annexure MEC 11.5

Updated List of External Examiners for the Odd Semester of the Academic Year 2019-2020

SL NO.	YEAR	COURSE CODE	COURSE TITLE	Name of External Examiner	University / Institute	Mobile No.	E-Mail Address
				2017-2021 Batch (VII Semester)			
1	FOURTH YEAR	MEC 213	IC Engines and Fuels	Dr. K M Nataraj	JSSATE	9449186829	kashipuranataraj69@gmail.com
				Dr. M R KAMESH	DSCE	9844310573	kamesh_mr@yahoo.com
				Dr G V Gnanedra Reddy	SJCIT	99980923295	gvgrmed@rediffmail.com
2	FOURTH YEAR	MEC 218	Mechatronics	Prof. Sathish	Dr. AIT	9448908552	sathish123@yahoo.co.in
				Mr. Raghuvamshikrisha	Gitam U	8310318594	b.v.vamshi@gmail.com
				Prof. Ram Rohit	BMSCE	9986141999	ramrohith111@gmail.com
				Mr. Sachin Naik	CMRIT	9739317648	naik.venky@gmail.com
				Dr. K R Prakash	NIE, Mysuru	8105473206	
3	FOURTH YEAR	MEC 256	Mechatronics Lab	Mr. Raghuvamshikrisha	Gitam U	8310318594	b.v.vamshi@gmail.com
				Dr. Balakumar	Sir MVIT		
				Mr. Sachin Naik	CMRIT	9739317648	naik.venky@gmail.com
4	FOURTH YEAR	MEC323	Non Destructive Testing	Prof. Naveen Kumar K H	MSRUAS	8749058185	naveen.me.et@msruas.ac.in
				Dr. M Rajanish	DSATM	9902430242	rajanish-me@dsatm.edu.in
				Dr. U S Mallik	SIT	9448166621	usm@sit.ac.in
				Dr. B Yogesha	MCE	9448996433	by@mcehassan.ac.in

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Sl. NO.	YEAR	COURSE CODE	COURSE TITLE	Name of External Examiner	University / Institute	Mobile No.	E-Mail Address
2018-2022 Batch (V Semester)							
5	THIRD YEAR	MEC 207	Prodction Techniques - II	Dr. C.K. Umesh	UVCE	9449024145	umeshuvce@yahoo.co.in
				Dr.B.N Sarada	BMSCE	9480237458	bnsarada122gmail.com
				Prof. Sathish	Dr. AIT	9448908552	sathish123@yahoo.co.in
				Prof. Ram Rohit	BMSCE	9986141999	ramrohith111@gmail.com
				Dr.Nataraj J R	RVCE	9901150505	natarajjr@rvce.edu.in
6	THIRD YEAR	MEC 210	Design of Machine Elements - I	Dr. P B Shetty	NMIT	9845061312	pb.shetty@nmit.ac.in
				Dr. Ramesh Sharma	RVCE	9880702543	rssharma25@yahoo.com
				Dr. Y.S. Ram Mohan	BMSCE	9449457977	ysrammohan62@gmail.com
				Dr. P. Mahadevaswamy	SCE	8150095544	pmadevaswamy@gmail.com
				Dr. M.V. Phanibhushana	Amrita SoE	9449658138	mv_phanibhushana@blr.amrita.edu
7	THIRD YEAR	MEC 214	Dynamics of Machines	Dr. A R K Swamy	Acharya IT	9035997163	arkswamy@acharya.ac.in
				Dr. Vitala H R	SJBIT	9916907193	vitala.hr@gmail.com
				Dr. Hanumantharaju	UVCE	9448792253	hghuvce@bub.ernet.in
				Dr. Ramesh Sharma	RVCE	9880702543	rssharma25@yahoo.com
				Dr. Y.S. Ram Mohan	BMSCE	9449457977	ysrammohan62@gmail.com
8	THIRD YEAR	MEC 220	Finite Element Analysis	Dr. M.V. Phanibhushana	Amrita SoE	9449658138	mv_phanibhushana@blr.amrita.edu
				Mr. R. Pramod	Amrita SoE	9916901083	r_pramod@blr.amrita.edu
				Mr. Ravi Kumar. V	Amrita SoE	8197749349	v_ravikmr@blr.amrita.edu
				Dr. P.R. Venkatesh	RVCE	9341232242	venkateshpr@rvce.edu.in
				Dr. Ramesh Sharma	RVCE	9880702543	rssharma25@yahoo.com

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Sl. NO.	YEAR	COURSE CODE	COURSE TITLE	Name of External Examiner	University / Institute	Mobile No.	E-Mail Address
9	THIRD YEAR	MEC 257	Foundry Forging and Welding Lab	Dr. C.K. Umesh	UVCE	9449024145	umeshuvce@yahoo.co.in
				Dr.B.N Sarada	BMSCE	9480237458	bnsarada122gmail.com
				Prof. Sathish	Dr. AIT	9448908552	sathish123@yahoo.co.in
				Prof. Ram Rohit	BMSCE	9986141999	ramrohith111@gmail.com
				Dr.Nataraj J R	RVCE	9901150505	natarajjr@rvce.edu.in
10	THIRD YEAR	MEC 258	Energy Conversion Engineering Lab	Dr. K M Nataraj	JSSATE	9449186829	
				Dr. M R KAMESH	DSCE	9844310573	kamesh_mr@yahoo.com
				Dr G V Gnanedra reddy	SJCIT		
				Dr. D K Ramesha	UVCE	9482600066	
				Dr. Basawaraj	VTU, PG	9986157177	basawaraj.2009@gmail.com
2019-2023 Batch (III Semester)							
11	SECOND YEAR	MEC 201	Basic Thermodynamics	Dr. Madhusudhan	NMIT	9980451908	madhusudhan.acharya@nmit.ac.in
				Dr. T Nageswara Rao	GITAM U	9886890853	mechhod_blrcampus@gitam.edu
				Dr. Basawaraj	VTU, PG	9986157177	basawaraj.2009@gmail.com
				Dr. Srihari R	RVCE	9449588790	sridharr@rvce.edu.in
				Dr.V.Krishna	PES U	9449866820	vkrishna@pes.edu
12	SECOND YEAR	MEC 203	Fluid Mechanics and Machines	Mr. Vinod Kotebavi	AMRITA SoE	9448818191	k_vinod@blr.amrita.edu
				Dr. Madhusudhan	NMIT	9980451908	madhusudhan.acharya@nmit.ac.in
				Dr. T Nageswara Rao	GITAM U	9886890853	mechhod_blrcampus@gitam.edu
				Dr. N.V.Nanjundaradhya	RVCE	9448180450	nanjundaradhya@rvce.edu.in
				Dr. Srihari R	RVCE	9449588790	sridharr@rvce.edu.in

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Sl. NO.	YEAR	COURSE CODE	COURSE TITLE	Name of External Examiner	University / Institute	Mobile No.	E-Mail Address
				Dr. K S Sridhar	PES U	9449867808	kssridhar@pes.edu
				Dr K R Phaneesh	MSRIT	9845195452	krphaneesh@msrit.edu
13	SECOND YEAR	MEC 205	Material Science and Metallurgy	Dr. J.R. Nataraj	RVCE	9901150505	natarajjr@rvce.edu.in
				Dr. Girish B M	Alliance U	9632784278	bmgiri1@gmail.com
				Dr. Nanjundaradhya N V	RVCE	9448180450	nanjundaradhya@rvce.edu.in
				Dr. M.V. Phanibhushana	Amrita SoE	9449658138	mv_phanibhushana@blr.amrita.edu
				Mr. R. Pramod	Amrita SoE	9916901083	r_pramod@blr.amrita.edu
14	SECOND YEAR	MEC 206	Mechanics of Solids	Mr. Ravi Kumar. V	Amrita SoE	8197749349	v_ravikmr@blr.amrita.edu
				Dr. P.R. Venkatesh	RVCE	9341232242	venkateshpr@rvce.edu.in
				Dr. Ramesh Sharma	RVCE	9880702543	rssharma25@yahoo.com
				Mr. Vinod Kotebavi	AMRITA SoE	9448818191	k_vinod@blr.amrita.edu
				Dr. Madhusudhan	NMIT	9980451908	madhusudhan.acharya@nmit.ac.in
15	SECOND YEAR	MEC 251	Fluid Mechanics and Machines Lab	Dr. T Nageswara Rao	GITAM U	9886890853	mechhod_blrcampus@gitam.edu
				Dr. N.V.Nanjundaradhya	RVCE	9448180450	nanjundaradhya@rvce.edu.in
				Dr. Srihari R	RVCE	9449588790	sridharr@rvce.edu.in
				Dr. Basavaraj	SCE	9916363315	srajubasava@gmail.com
				Mr. Vikram K V	NMIT	9164155277	vikramkv123@gmail.com
16	SECOND YEAR	MEC 253	Computer Aided Machine Drawing Lab	Dr. B P Shiva Kumar	JSSATE	9731387331	bpshiva19642gmail.com
				Dr. Shantha V	Sir MVIT	9449662999	
				Dr. Nagaraja S R	Amritha SoE	9845641131	

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Sl. NO.	YEAR	COURSE CODE	COURSE TITLE	Name of External Examiner	University / Institute	Mobile No.	E-Mail Address
2020-2024 BATCH (I SEMESTER)							
17	FIRST YEAR	MEC 101	Elements of Mechanical Engineering	Mr. Prashanth B N	Amrita SoE	9844118915	bn_prashanth@blr.amrita.edu
				Dr. Adarsha H	Jain U	9739545648	adarsha.85@gmail.com
				Dr. R. Sridhar	RVCE	9740400717	sridharr@rvce.edu.in
				Dr. Srihari R	RVCE	9449588790	
				Dr. Amit Thakur	PES U	9900169998	amitthakur@pes.edu.in
18	FIRST YEAR	MEC 152	Engineering Graphics	Dr. N Kapilan	NCET	9845418874	kapilan@ncetmail.com
				Dr.Sudheer Reddy	NMAT	9538112326	sudheerreddy.j@nmit.ac.in
				Dr. Ranga Vittal	BMSCE		
				Dr.Kiran Aithal S	NMIT	9845133607	kiranaithal.s@nmit.ac.in
				Dr.Madhusudhan	NMIT	9980451908	acharyamadhusudhan@gmail.com
				Dr. Raju. B.S	Reva University, Bengaluru	9880655105	raju_bs@reva.edu.in
				Dr.G Balakumar	Sir. MVIT	9886753589	drgbalakumar_mech@sirmvit.edu
				Dr. Thygaraj N R	SJCIT	9972012848	thygarajnr@gmail.com
				Dr. Ravikumar M	SJCIT	9738075498	ramtok@gmail.com
				Dr.Babu E R	BIT	9945232743	rajjbabu@gmail.com
				Dr. Chandrashekar	BIT	9980450702	acsmech@gmail.com

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SL NO.	YEAR	COURSE CODE	COURSE TITLE	Name of External Examiner	University / Institute	Mobile No.	E-Mail Address
				Dr. Nataraj S N	SJCIT	9844178179	natarajusn1972@gmail.com
				Dr. Nagesh S N	MSRIT	9740369754	snnagesh80@gmail.com
				Dr. Siddaraju C S	MSRIT	9880612806	siddaraju80@gmail.com
				Dr. Devaraju S	Reva University, Bengaluru	89718244109	devaraj.s@reva.edu.in
				Dr. Sanjay Kumar	SJBIT	8310913752	sanjay20376@gmail.com
19	FIRST YEAR	MEC 151	Workshop Practice	Mr. Madhu B P	Reva University, Bengaluru	9845403168	madhubhogapura@gmail.com
				Mr. Nagesh	Sir. MVIT	9900103098	
				Dr. T Krishna Rao	GAT	9743711190	
				Dr. Suresh P M	ACS	9886756991	
				Mr. B Vijaya	SVIT	9964954507	
				Dr. Thygaraj N R	SJCIT	9972012848	thygarajnr@gmail.com
				Dr. Ravikumar M	SJCIT	9738075498	ramtok@gmail.com
				Mr. Prashanth B N	Amrita SoE	9844118915	bn_prashanth@blr.amrita.edu
				Dr. V Krishna	PES U	9448463079	
				Mr. Dhandapani	PES U	9741081363	

The End

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PRESIDENCY UNIVERSITY

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

SCHOOL OF ENGINEERING

Department of Mechanical Engineering

Ref. No.: PU/SOE/MEC/BOS-12/2021-22/MOM-01 Date: 06/08/2021

Minutes of the 12th Meeting of Board of Studies (Mechanical Engineering)

The 12th meeting of the Board of Studies of the Mechanical Engineering was held on 06-08-2021 at 10.30 am in Online Mode via the MS Teams link, https://teams.microsoft.com/l/meetup-join/19%3aK0-b94rfLXb_U9ODYl8xpyDSjj3ETkpDj9M67x3wFM81%40thread.tacv2/1628162205176?context=%7b%22Tid%22%3a%22bf93bb5e-ecf0-4e3d-be0e-79b5cc527a48%22%2c%22Oid%22%3a%22380108ba-f4ce-4418-acc5-d0d9acb30dd5%22%7d , hosted by Presidency University Itgalpur, Rajankunte, Yelahanka, Bengaluru.

12th BoS committee members:

Sl No.	Name	Affiliation	Position
1	Dr. Abdul Sharief	Chairman	Dean, School of Engineering
2	Dr. Mahesha K	Head of the Department & Professor	Member Secretary
3	Mr. Shivaprakash M S	Deputy General Manager, Kennametal Shared Services Pvt. Ltd., Bengaluru	Senior Professional
4	Dr. Shanmugam S	Professor, Department of Mechanical Engineering, National Institute of Technology, Trichy	External Expert
5	Dr. M. P. Maiya	Professor, Mechanical Engineering Dept., IIT Madras, Chennai	External Expert
6	Dr. Ramesh C S	Dean, R&I, PU	Special Invitee
7	Dr. Udaya Ravi M	Professor	Special Invitee
8	Dr. Sudheer R	Assistant Professor	Special Invitee
9	Dr. Madhusudhan M	Assistant Professor	Member

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The member secretary/ HoD extended a warm welcome to the members, particularly to the external members and introduced all the members in the committee. The chairman of 12th BoS meeting, Dr Abdul Sharief delivered the opening remarks by requesting BoS members to deliberate on each agenda and to provide constructive suggestions for the effective implementation of the proposed CBCS system.

With the permission of chairperson, the member secretary had presented the following agenda points and deliberations were recorded.

Agenda SOE-MEC 12.1: To approve the minutes of 11th Board of Studies Meeting held on 5th Sept 2020

Resolution SOE-MEC 12.1: The Minutes of 11th BoS meeting held on 5th September 2020 and its Action taken report (ATR) was discussed and approved by the members.

Agenda SOE-MEC 12.2: Discussion on the Program Regulations & Curriculum [PRC] for the 2020 admitted students

Resolution SOE-MEC 12.2: The proposed changes in Program Regulations & Curriculum [PRC] for the 2020 admitted students was presented as in Annexure 1 by the member secretary and the same had been discussed and approved

Table 1: Illustrating the proposed changes in PRC for 2020 admitted students

TABLE 3.1.1 B.Tech (Mechanical Engineering) 2020-2024: Mandatory Courses and Credits					
S. No.	**TYPE OF COURSES**		**NO. OF COURSES**	**CREDITS**	
1	Humanities (HS)		3	6	
2	Basic Sciences (BS)		9	27	
3	Engineering Sciences (ES)		7	21	
4	Core (Professional) Course (CC)		13	43	
5	Discipline (Professional) Elective (DE)		Minimum of 15	43	
6	Open Elective (OE)	Management Sciences (MS)	Minimum of 2	6	20
		Other Open Elective (OE) courses	Minimum of 5	14	
7	Professional Practice (PP)		2	20	
8	Personal and Professional Skills (PPS) (Compulsory to be audited.)		4	-	
TOTAL			**Minimum of 60**	**180**	
The mandatory minimum Credits required for the award of the B. Tech. (Mechanical Engineering) Degree is 180 Credits.					

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Agenda SOE-MEC 12.3: Discussion on the Program Regulations &Curriculum [PRC] for the 2019 admitted students

Resolution SOE-MEC 12.3: The member secretary presented the Program Regulations & Curriculum [PRC] for the 2019 admitted students as listed in Annexure-2.

The changes are listed as follows:

1. MEC 261 Modeling, Simulation and Analysis Lab moved from 6 th sem to 7th sem.
2. In 6 th sem total credits changed from 24/25 to 23/24 credits.
3. In 7 th sem total credits changed from 15 to 16 credits.

They had been discussed and approved after the following discussion point.

(i) Dr. Maiya raised concern over the evaluation scheme for the Social Immersion course. He observed that the course was relevant, but it appeared more suitable to be assessed assatisfactory or unsatisfactory based on the student performance, and requested for the evaluationscheme for the allotment of credits for it.

The recommendations of the experts were considered and addressed as follows:

The Member Secretary briefed him about the evaluation scheme followed, and assured that the matter would be discussed in the DAC.

Table 2: Illustrating the revised Course list for the 6th Semester.

VI SEMESTER									
S. NO.	COURSE CODE	COURSE NAME	CREDIT STRUCTURE				CONTACT HOURS	TYPE OF SKILL	COURSE ADDRESSES TO
			L	T	P	CREDITS			
1	MEC 209	Heat and Mass Transfer	3	1	0	4	4	F	-
2	MEC 212	Mechanical Vibrations	3	1	0	4	4	F	-
3	MEC 219	Design of Machine Elements-II	3	1	0	4	4	F	-
4	MGT 1XX	Management Sciences-II	3	0	0	3	3	E	-
5	MEC 3XX	Discipline Elective-III	3	0	0	3	3	-	-
6	XXX XXX	Open Elective-I	3	0	0	3	3	-	-
7	MEC 259	Mechanisms, Machines and Design Lab	0	0	2	1	2	F	-
8	MEC 260	Heat and Mass Transfer Lab	0	0	2	1	2	F	-
9	SIC 501	Social Immersion Course	-	-	-	1	-	P	G/Env/S
		TOTAL	15	3	6	23/24	25		

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VII SEMESTER									
S. NO.	COURSE CODE	COURSE NAME	CREDIT STRUCTURE				CONTACT HOURS	TYPE OF SKILL	COURSE ADDRESSES TO
			L	T	P	CREDITS			
1	MEC 213	I. C. Engine and Fuels	3	1	0	4	4	E	-
2	MEC 218	Mechatronics	3	1	0	4	4	E	-
3	MEC 3XX	Discipline Elective-IV	3	0	0	3	3	-	-
4	XXX XXX	Open Elective-II	3	0	0	3	3	-	-
5	MEC 256	Mechatronics Lab	0	0	2	1	2	E	-
6	MEC 261	Modeling, Simulation and Analysis Lab	0	0	2	1	2	E	-
		TOTAL	12	2	2	16	18		

Agenda SOE-MEC 12.4: Discussion on the Program Regulations &Curriculum [PRC] for the 2018 admitted students

Resolution SOE-MEC 12.4: The member secretary presented the Program Regulations & Curriculum [PRC] for the 2018 admitted students as listed in Annexure-3

The introduction of the extra Open Elective Course with respect to recent trends in Mechanical Engineering. They felt that the addition of an Open Elective Course gave the students more choice to plan their academic journey and further specialize in areas of their choice, and the same had been discussed and approved. Mr. Shivaprakash advised that such a provision will improve the employability rate at the entry level. Extra Open Elective Course listed in Annexure-3. All the members have appreciated the efforts.

Agenda SOE-MEC 12.5: Discussion on the Feedback obtained on curriculum from Industry, students, alumni & faculty members

Resolution SOE-MEC 12.4: The member secretary presented the gist of feedback obtained on existing curriculum from Industry, students, alumni & faculty members as listed in Annexure 4 and highlighted the necessity of revamping the curriculum towards flexible Choice based Credit System(CBCS). All the members have appreciated the efforts.

Agenda SOE-MEC 12.6: Discussion on the Proposed CBCS Course grid and the Course catalogues for the 2021 admitted students

The member secretary presented the salient features of proposed program structure and CBCS Course grid including course catalogues for both B.Tech and M.Tech program, given in Annexure 5. The changes in the program outcome for the M.Tech program was highlighted as well. They were duly approved after much deliberations with following discussion points:

(i) Mr. Shivaprakash observed that the courses under the School Core would be beneficial for the

students of mechanical engineering. Further, he suggested that the CAD based courses like Engineering Graphics can be very useful for the students from Computer Science Department.

(ii) Mr. Shivaprakash suggested an inclusion of B.Tech program in Mechanical Engineering with minors in Thermal Engineering.

(iii) Mr. Shivaprakash advised on inclusion of courses related to; 1) Materials for Aerospace, 2) Motors, and 3) Power Transmission Techniques and their design, into the course grid during its next revision. In response to this, Dr. Maiya sought Mr. Shivaprakash's opinion on the grade/extend of information to be delivered in such courses. Mr. Shivaprakash, in reply, suggested that the courses shall train students for the entry level positions in industry.

(iv) Dr. Maiya raised his concern on whether industrial internship could be provided for all the M.Tech students in the department.

(v) Mr. Shivaprakash enquired if the open elective courses offered for the B.Tech student could be accessed by the M.Tech students too. He advised that such a provision will improve the curriculum for M.Tech program.

(vi) Dr. Maiya observed that the proposed CBCS curriculum would be difficult for the first year students to comprehend, which was supported by Mr. Shivaprakash too.

(vii) Both Mr. Shivaprakash and Prof. Maiya appreciated the proposed CBCS scheme, especially for the inclusion of computer based courses, and recommended the inclusion of more industrially relevant courses in the next revision.

The recommendations of the experts were considered and addressed as follows:

(i) Inclusion of CAD based course under School Core: The Member Secretary welcomed his suggestion, and committed to convey it to the Office of Dean Academics.

(ii) Inclusion of a Program in mechanical engineering with minors in Thermal Engineering**:** The Member Secretary appreciated the suggestion, and offered to discuss the matter with the Office of Dean Academics.

(iii) Inclusion of select courses: The suggestions were well conceived, and their inclusion in the form of VACs and Open Elective courses were offered, to be discussed in DAC for further approval.

(iv) Internship for all students in M.Tech program: The concern was addressed by the Dr. Ramesh C S, Dean R& C. He briefed the committee members about the MoUs that presidency university has established for similar student programs, and assured that every student would avail an internship.

(v) Access of Open Elective courses from the B.Tech course grid**:** The Member Secretary illustrated the courses offered under the M.Tech program, which were represented under the B.Tech curriculum as well. He offered to discuss its extension with the DAC.

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(vi) Difficulty in understanding the CBCS scheme**:** The Member Secretary assured them that The University had an effective mentoring system by the faculty advisors, and the same can be further strengthened/ trained in order to guide the students for selecting the appropriate courses.

(vii) Appreciation of the proposed CBCS scheme: The Member Secretary thanked the BoS members for their comments, and assured them of timely revisions to improve the curriculum.

Agenda SOE-MEC 12.7: Discussion on the feedback obtained from the Industry, students,faculty members and alumni on the proposed CBCS Course grid.

Resolution SOE-MEC 12.7: The feedback questionnaires which were shared to the stake holders, its responses, recommendations and action taken on recommendations was presented by the member secretary as listed in Annexure 6. The committee has appreciated the motive of the exercise.

Agenda SOE-MEC 12.8: Any Other Matter with the permission of the chair

(i) To ratify the proposal of offering of soft skills course of 3 credits and Coding Training of 2 credits for the 2018 admitted students in lieu of the 5 credits course of Professional Practice 1 **(Annexure 7)**

Resolution SOE-MEC 12.8.1:

The member secretary presented the course handouts of soft skill course of 3 credits and coding training course of 2 credits for the 2018 admitted students in lieu of PP-1 and the same has been approved by the committee members and recorded in **Annexure 7.**

(ii) To ratify the proposal of allowing the students to register for the "SMART MANAGERS' Certificate programs through different courses offered by AIU- CII for the 2019 admitted students in lieu of the 5 credits course of Professional Practice-1**(Annexure 8)**

Resolution SOE-MEC 12.8.2:

The course handouts for the "SMART MANAGERS' Certificate programs through different courses offered by AIU- CII for 1 credit and soft skill course & coding training course for 4 credits in lieu of PP-1 for 2019 admitted students was presented by member secretary and the same was ratified by the committee.

(iii) To ratify the course contents of 2019-2020 & 2020-2021 academic year courses of various programs and semesters as approved by the BOS chairpersons based on the approval of the respective Departmental Academic Committees[DAC].

Resolution SOE-MEC 12.8.3:

The course contents/ course handouts for the Academic Year 2019-2020 & 2020-2021 were approved.

(iv) To ratify the list of MOOC Courses from SWAYAM-NPTEL offered as Discipline and Open Elective Courses

Resolution SOE-MEC 12.8.4:

The list of MOOC courses from Swayam-NPTEL offered as Discipline and Open Elective Courses were presented by the member secretary and the same was ratified by the committee.

(v) To ratify the list of nominated external examiners for the End Term Final Examination.

Resolution SOE-MEC 12.8.5:

The list of nominated external examiners for the End Term Final Examination was presented by the member secretary and the same was ratified by the committee after the following discussion point.

(i) Dr. Maiya and Mr. Shivaprakash advised that external examiners from IISc and National Institute of Design can be included in the list of examiners.

The recommendations of the experts were considered and addressed as follows:

The member secretary informed them that Dr. Anandya Dev from IISc had been involved in the process with the Presidency University, and more experts in the field would be brought in to this.

The BOS Chairperson has assured that the decisions taken during the 12th BoS meeting for Mechanical Engineering will be implemented as early as possible and will be conveyed. The Chairperson and member secretary had expressed special thanks to all the members and requested to extend the same support for the future activities.

The meeting ended with Vote of Thanks by Dr. Mahesha K.

BoS Committee Members:

Sl No	Name	Position	Signature with Date
1	Dr. Abdul Sharief	Chairman	
2	Dr. Mahesha K	Head of the Department & Professor	
3	Mr. Shivaprakash M S	Deputy General Manager, Kennametal Shared Services Pvt. Ltd., Bengaluru	
4	Dr. Shanmugam S	Professor, Department of Mechanical Engineering, National Institute of Technology, Trichy	2/9/21
5	Dr. M. P. Maiya	Professor, Mechanical Engineering Dept., IIT Madras, Chennai	Maiya MP
6	Dr. Ramesh C S	Dean, R&I, PU	
7	Dr. Udaya Ravi M	Professor	M. U. Ravi 2/9/21
8	Dr. Sudheer R	Assistant Professor	REGISTRAR Registrar
9	Dr. Madhusudhan M	Assistant Professor	

The 12th BoS meeting was hosted online via the MS Teams https://teams.microsoft.com/l/meetup-join/19%3aK0-b94rfLXb_U9ODYl8xpyDSjj3ETkpDj9M67x3wFM81%40thread.tacv2/1628162205176?context=%7b%22Tid%22%3a%22bf93bb5e-ecf0-4e3d-be0e-79b5cc527a48%22%2c%22Oid%22%3a%22380108ba-f4ce-4418-acc5-d0d9acb30dd5%22%7d

Fig. 1. The screenshot of 12th BoS meeting on MS Teams
First row L to R- Dr Mahesha K, Dr. Abdul Sharief and Dr Sudheer R
Second row L to R- Dr Udaya Ravi M, Dr. M P Maiya and Mr. Shivaprakash M S
Third row L to R-Dr. Shanmugam S, Dr. Madhusudhan M

Thank You

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PRESIDENCY UNIVERSITY

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

SCHOOL OF ENGINEERING

Department of Mechanical Engineering

Ref. No.: PU/SOE/MEC/BOS-13/2021-22/MOM-01 Date 30th December, 2021

Minutes of the 13th Meeting of Board of Studies (Mechanical Engineering)

The 13th meeting of the Board of Studies of the Mechanical Engineering was held on 29-12-2021 at 11.30am in Online Mode via the MS Teams link, https://teams.microsoft.com/l/meetup-join/19%3aaiUYteN3dA5RsblUVhkKCayIulQ8hX6t4OO2GUVGAAg1%40thread.tacv2/1640794045757?context=%7b%22Tid%22%3a%22bf93bb5e-ecf0-4e3d-be0e-79b5cc527a48%22%2c%22Oid%22%3a%22380108ba-f4ce-4418-acc5-d0d9acb30dd5%22%7d, hosted by Presidency University Itgalpur, Rajankunte, Yelahanka, Bengaluru.

13th BoS committee members:

S No	Name	Affiliation	Position
1	Dr. Abdul Sharief	Chairman	Dean, School of Engineering
2	Dr. Satish Babu Boppanna	Head of the Department & Professor	Member Secretary
3	Mr. Shivaprakash M S	Deputy General Manager, Kennametal Shared Services Pvt. Ltd., Bengaluru	Senior Professional
4	Dr. Shanmugam S	Professor, Department of Mechanical Engineering, National Institute of Technology, Trichy	External Expert
5	Dr. M. P. Maiya	Professor, Mechanical Engineering Dept., IIT Madras, Chennai	External Expert
6	Dr. Ramesh C S	Dean, R&I, PU	Special Invitee
7	Dr. Udaya Ravi M	Professor	Special Invitee
8	Dr. Sudheer R	Assistant Professor	Special Invitee
9	Dr. Madhusudhan M	Assistant Professor	Member

The member secretary/ HoD extended a warm welcome to the members, particularly to the external members and introduced all the members in the committee. The chairman of 13th BoS meeting, Dr Abdul Sharief delivered the opening remarks by requesting BoS members to deliberate on each agenda and to provide constructive suggestions for the effective implementation of the proposed CBCS system.

REGISTRAR

With the permission of chairperson, the member secretary had presented the following agenda points and deliberations were recorded

- **Agenda SOE-MEC 13.2:To approve the minutes of 12th Board of Studies Meeting held on 6th August 2021.**

Resolution SOE-MEC 13.1: The Minutes of 12th BoS meeting held on 6th August 2021 and its Action taken report (ATR) was discussed and approved by the members.

- **Agenda SOE-MEC 13.2: Approval and Review of proposed Elective Courses of Course Catalogues for 2021 admitted students - Annexure 1**

Resolution SOE-MEC 13.2: The member secretary had put forward the content of the course to make it suitable for other discipline of engineering. The proposed changes in MEC1003 Engineering Drawing for the 2021 admitted students was presented as in Annexure 1 by the member secretary and the same had been discussed and suggested to retain the existing syllabus as. The proposal was discussed in detail and all the board members agreed with the suggestion**.**

- **Agenda SOE-MEC 13.3: Discussion on the Program Regulations & Curriculum [PRC] for 2020 admitted students - Annexure 2.**

Resolution SOE-MEC 13.3: The member secretary presented the Program Regulations & Curriculum [PRC] for the 2020 admitted students as listed in Annexure-2, and the same had been discussed and approved. (There are no changes.)

- **Agenda SOE-MEC 13.4: Discussion on the Program Regulations &Curriculum [PRC] for the 2019 admitted students**

Resolution SOE-MEC 13.4: The member secretary presented the Program Regulations & Curriculum [PRC] for the 2018 admitted students as listed in Annexure-3.

Prof. Maiya requested for the evaluation scheme employed for URE2001 University Research Experience. On observing that the course offered 3 credits on its successful completion, he suggested that the course should have an evaluation scheme. These suggestions were welcomed by the member secretary.

- **Agenda SOE-MEC 13.5: Discussion on the Feedback obtained on curriculum from alumni – Annexure 4**

Resolution SOE-MEC 13.5: The member secretary presented the gist of feedback obtained on existing curriculum from Industry, students, alumni & faculty members as listed in Annexure 4 and highlighted the necessity of revamping the curriculum towards flexible Choice based Credit System(CBCS). All the members have appreciated the efforts.

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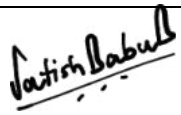
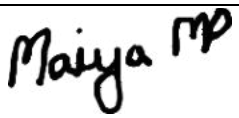
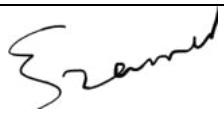
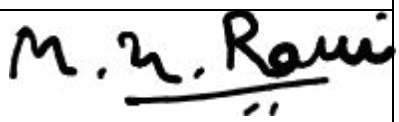
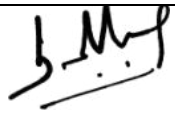
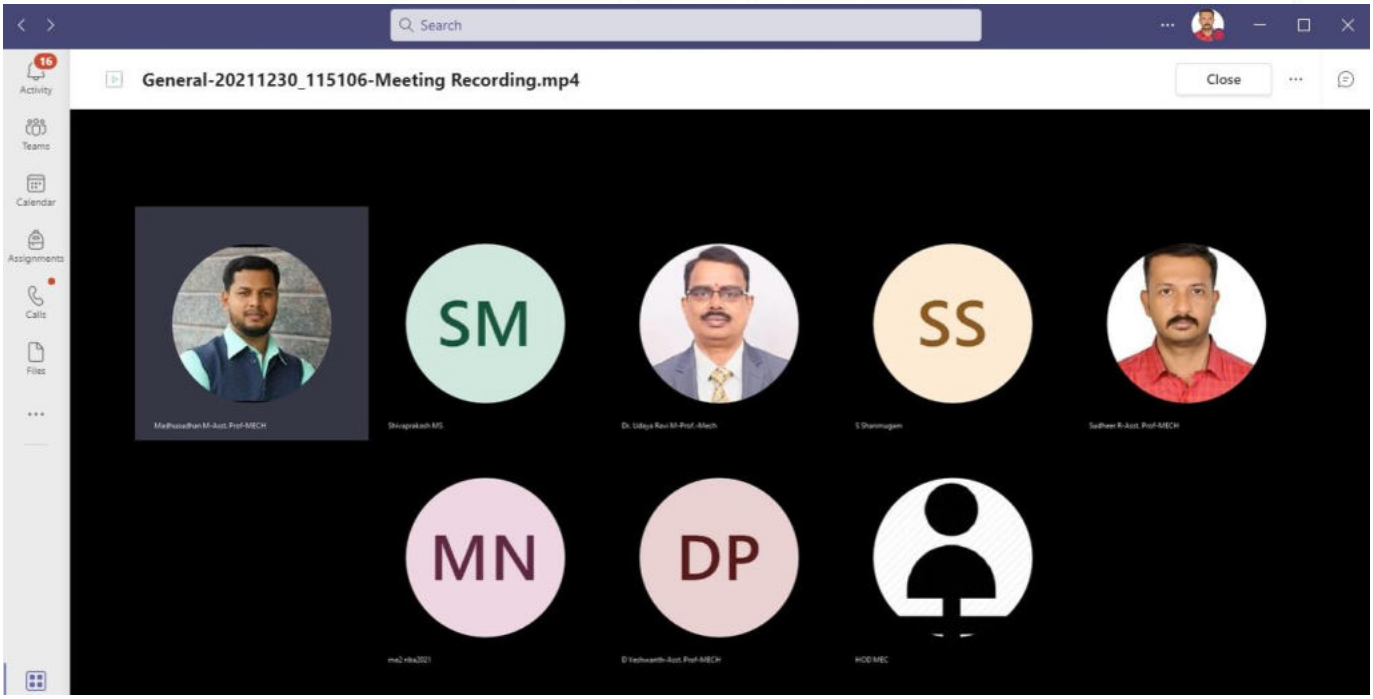
The BOS Chairperson has assured that the decisions taken during the 13th BoS meeting for Mechanical Engineering will be implemented as early as possible and will be conveyed. The Chairperson and member secretary had expressed special thanks to all the members and requested to extend the same support for the future activities.

The meeting ended with Vote of Thanks by Dr. Satish Babu Boppanna..

BoS Committee Members

Sl No	Name	Position	Signature with Date
1.	Dr. Abdul Sharief	Chairman	
2.	Dr. Satish Babu Boppanna	Head of the Department & Professor	
3.	Mr. Shivaprakash M S	Deputy General Manager, Kennametal Shared Services Pvt. Ltd., Bengaluru	
4.	Dr. Shanmugam S	Professor, Department of Mechanical Engineering, National Institute of Technology, Trichy	
5.	Dr. M. P. Maiya	Professor, Mechanical Engineering Dept., IIT Madras, Chennai	
6.	Dr. Ramesh C S	Dean, R&I, PU	
7.	Dr. Udaya Ravi M	Professor	
8.	Dr. Sudheer R	Assistant Professor	
9.	Dr. Madhusudhan M	Assistant Professor	



Video Link:
https://presidencyuniversityin.sharepoint.com/:v:/r/sites/13thMECBoSMeeting/Shared%20Documents/General/Recordings/General-20211230_115106-Meeting%20Recording.mp4?csf=1&web=1&e=RFxSw7

REGISTRAR

PRESIDENCY UNIVERSITY Registrar BANGALORE

SCHOOL OF ENGINEERING

Department of Mechanical Engineering

Ref. No.: PU/SOE/MEC/BOS-14/2021-22/MOM-01 Date 25th March, 2022

Minutes of the 14th Meeting of the Board of Studies (Mechanical Engineering)

The 14th meeting of the Board of Studies of the Mechanical Engineering was held on 22-03-2022 at 11.00 AM in Online mode via the MS Teams link, https://ind01.safelinks.protection.outlook.com/ap/t-59584e83/?url=https%3A%2F%2Fteams.microsoft.com%2Fl%2Fmeetup-join%2F19%253aaiUYteN3dA5RsblUVhkKCaylulQ8hX6t4OO2GUVGAAg1%2540thread.tacv2%2F1647882468133%3Fcontext%3D%257b%2522Tid%2522%253a%2522bf93bb5e-ecf0-4e3d-be0e-79b5cc527a48%2522%252c%2522Oid%2522%253a%2522380108ba-f4ce-4418-acc5-d0d9acb30dd5%2522%257d&data=04%7C01%7Csudheer.r%40presidencyuniversity.in%7C7b894cd16b074faca91f08da0b5dcdf7%7Cbf93bb5eecf04e3dbe0e79b5cc527a48%7C0%7C0%7C637834794767261917%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C3000&sdata=MJbOG2jE3XT0rYqaDNYOMiAm5Pac%2BmNZmWfXD908QRE%3D&reserved=0, hosted by Presidency University Itgalpur, Rajankunte, Yelahanka, Bengaluru.

The following members were present:

Sl. No	Name	Designation with Affiliation	Position
1	Dr. Abdul Sharief	Dean, School of Engineering, Presidency University	Chairperson
2	Dr. Satish Babu Boppana	Head of the Department In Charge, Department of Mechanical Engineering, School of Engineering, Presidency University	Member Secretary
3	Mr. Shivaprakash M S	Deputy General Manager, Kennametal Shared Services Pvt. Ltd., Bengaluru	External Member (Industry)
4	Dr. Shanmugam S	Professor, Department of Mechanical Engineering, National Institute of Technology, Trichy	External Member (Academic)
5	Dr. M. P. Maiya	Professor, Mechanical Engineering Dept., IIT Madras, Chennai	External Member (Academic)
6	Dr. Ramesh C S	Dean, R&I, School of Engineering, Presidency University	Special Invitee
7	Dr. Udaya Ravi M	Professor, Department of Mechanical Engineering, School of Engineering, Presidency University.	Special Invitee
8	Dr. Sudheer R	Assistant Professor, Department of Mechanical Engineering, School of Engineering, Presidency University.	Special Invitee

9	Dr. Madhusudhan M	Assistant Professor, Department of Mechanical Engineering, School of Engineering, Presidency University.	Member

The member secretary & HoD extended a warm welcome to the members, particularly to the external members and introduced all the members in the committee. The chairman of 14th BoS meeting, Dr Abdul Sharief delivered the opening remarks by requesting BoS members to deliberate on each agenda and to provide constructive suggestions for the effective implementation of the proposed CBCS system.

With the permission of chairperson, the member secretary presented the agenda points and deliberations were recorded.

- **Agenda SOE-MEC 14.1: To approve the minutes of 13th Board of Studies Meeting held on 29th December 2021.**

Resolution SOE-MEC 14.1: The Minutes of the 13th BoS meeting held on 29th December 2021 and its Action Taken Report (ATR) was discussed and approved by the members.

- **Agenda SOE-MEC 14.2: Approval of the changes in the CBCS superstructure of the B. Tech. Program of 2021-2025 Batch- Annexure 1**

Resolution SOE-MEC 14.2: The proposed changes in 11 courses for the 2021 admitted students was presented as Annexure 1 by the member secretary. Two new courses, Product Life Cycle Management (MEC 701) and Mechatronics (MEC 3001) were included and the same was discussed and approved.

Mr. Shivaprakash suggested for a feedback from the student community (Alumnus) to propose courses more suitable for placements. This suggestion was supported by Prof. Maiyya too.

Prof. Shanmugham observed that for the Lab-Theory integrated courses, the inclusion of L-T-C structure along with the course title is a better method.

Both the suggestions were appreciated by all the panel members. The HoD assured to consider the suggestions.

- **Agenda SOE-MEC 14.3: Approval of the changes in the PRC of the B. Tech. Program of 2019-2023 Batch- Annexure 2**

Resolution SOE-MEC 14.3: The member secretary presented the Program Regulations & Curriculum [PRC] for the 2019-2023 Batch as listed in Annexure-2. Two new courses "Product Life Cycle Management" (MEC 701) and Supply Chain Management" (MEC 3001) were introduced and the same was approved.

Agenda SOE-MEC 14.4: Approval of the changes in the PRC of the B. Tech. Program of 2020-2024 Batch- Annexure 3

Resolution SOE-MEC 14.4: The member secretary presented the Program Regulations & Curriculum [PRC] for the 2020-2024 batch students as listed in Annexure-3. Courses Product Life Cycle Management

(MEC 701) and Mechatronics (MEC 3001) were included in the PRC; The course Machine Shop Practice (MEC2014) was shifted from 5th Semester to 4th Semester while the course Electric Vehicle & Battery Technology was removed from the Open elective list.

Further, the feedback on the curriculum provided by the faculty, students and alumni was discussed. The members also noted the procedure followed to collect the feedback from the stake holders and appreciated it.

Course Catalogues prepared by the Instructor In Charges were shown to the expert members along with course handouts for the courses offered in the even Semester of 2021-2022 batch for B.Tech and M.Tech Programs. The members approved the course handouts for the said Programs.

The HoD the assured members that the decisions taken during the 14th BoS meeting for Mechanical Engineering would be implemented as early as possible and would be conveyed. The Chairperson and member secretary expressed special thanks to all the members and requested to extend the same support for the future activities.
The meeting ended with Vote of Thanks by HOD, Dr. Satish Babu Boppana.

Attendance of 14th BoS:

Sl. No	Name	Position	Signature
1	Dr. Abdul Sharief	Chairperson	
2	Dr. Satish Babu Boppanna	Member Secretary	
3	Mr. Shivaprakash M S	External Member (Industry)	
4	Dr. Shanmugam S	External Member (Academic)	
5	Dr. M. P. Maiya	External Member (Academic)	
6	Dr. Ramesh C S	Special Invitee	
7	Dr. Udaya Ravi M	Special Invitee	
8	Dr. Sudheer R	Special Invitee	
9	Dr. Madhusudhan M	Member	

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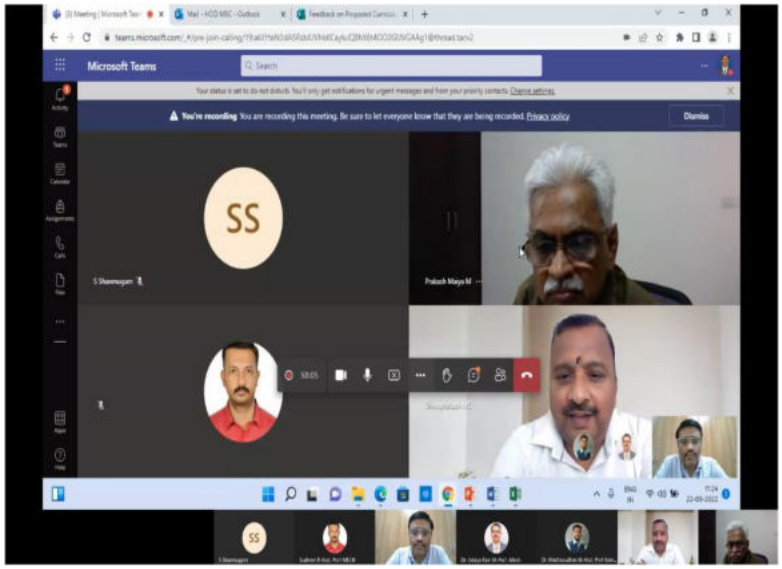

Video Link: https://presidencyuniversityin.sharepoint.com/sites/13thMECBoSMeeting/Shared Documents/Forms/AllItems.aspx?id=%2Fsites%2F13thMECBoSMeeting%2FShared Documents%2FGeneral%2FRecordings%2FMeeting in General -20220322 110331-Meeting Recording%2Emp4&parent=%2Fsites%2F13thMECBoSMeeting%2FShared Documents%2FGeneral%2FRecordings

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SCHOOL OF ENGINEERING

Department of Mechanical Engineering

Ref: PU-SOE-MEC/2022-2023/BOS-15/CIR01 Date: 22-07-2022

15th BOS MEETING NOTICE

15th Meeting of the Board of Studies of the Department of Mechanical Engineering, Presidency University - School of Engineering, is convened on Friday, **29th July, 2022, at 10.00 AM** and hosted in hybrid mode from Presidency University Campus, Itgalpura, Rajankunte, Yelahanka, Bengaluru.
Kindly make it convenient to attend the meeting.

AGENDA

MEC 15.1	To approve the minutes & ATR of 14th Board of Studies Meeting held on 22nd March 2022
MEC 15.2	Discussion on the CBCS course grid, Credit Structure and Curriculum structure for 2022 admitted students.
MEC 15.3	Discussion on the CBCS course grid, Credit Structure and Curriculum structure for 2021 admitted students.
MEC 15.4	Discussion on the Program Regulations & Curriculum [PRC] for the 2020 admitted students.
MEC 15.5	Discussion on the Program Regulations & Curriculum [PRC] for the 2019 admitted students.
MEC 15.6	Feedback analysis of stake holders and Action plan for the same.
MEC 15.7	Approval of NPTEL course list for DE / OE credit transfer.
MEC 15.8	Ratification of the list of Value Added Courses for the AY 2021-2022.
MEC 15.9	Approval of external and internal examiners list.
MEC 15.10	Approval of previous semester Course Handouts approved by Department Academic Committee.
MEC 15.11	Any other discussions with the permission of chair.

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To,
Members & Invitees

Sl. No.	Name of the Member	Designation with Affiliation	Status
1	Dr. Abdul Sharief	Chairman	Dean, School of Engineering
2	Dr. Satish Babu Boppana	Head of the Department	Member Secretary
3	Mr. Shivaprakash M S	Deputy General Manager, Kennametal Shared Services Pvt. Ltd., Bengaluru	Senior Professional (Industry)
4	Dr. Shanmugam S	Professor, Department of Mechanical Engineering, National Institute of Technology, Trichy	External Expert (Academic)
5	Dr. M. P. Maiya	Professor, Mechanical Engineering Dept., IIT Madras, Chennai	External Expert (Academic)
6	Dr. Shilpa Mehta	Dean academics- PU	Special Invitee
7	Dr. Ramesh C S	Dean, R&I, PU	Special Invitee
8	Dr. Udaya Ravi M	Professor	Special Invitee
9	Dr. Ramachandra C G	Asso. Professor- Selection Grade	Special Invitee
10	Dr. Madhusudhan M	Assistant Professor	Member

Permanent Invitees
Shri. Nissar Ahmed, Hon'ble Chancellor, Presidency University
Shri. Salman Ahmed, Hon'ble Board Member, PGI
Dr. D. Subhakar, Hon'ble Vice Chancellor, Presidency University
Dr. Surendra Kumar A M, Hon'ble Pro Vice Chancellor, Academics and Examination, Presidency University
Dr. Nakka Thrivikrama Rao , Hon'ble Pro Vice Chancellor, School of Engineering and School of Design, Presidency University,

SatishBabuB 22-07-2022
Member Secretary

Chairperson

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Ref. No.: PU/SOE/MEC/BOS-15/2022-23/MOM-01 Date 29th July, 2022

Minutes of the 15th Meeting of Board of Studies (Mechanical Engineering)

The 15th Meeting of the Board of Studies of the Department of Mechanical Engineering, Presidency University - School of Engineering, is convened on Friday, **29 th July, 2022, at 10.00 AM** and hosted in hybrid mode from Presidency University Campus, Itgalpura, Rajankunte, Yelahanka, Bengaluru.

Virtual Meeting Link: https://teams.microsoft.com/l/meetup-join/19%3a1qZgs00eX2nkOqw5Cluuo4dXLX5cYAkO6xJ7veYi_pA1%40thread.tacv2/1658563368188?context=%7b%22Tid%22%3a%22bf93bb5e-ecf0-4e3d-be0e-79b5cc527a48%22%2c%22Oid%22%3a%22cc727981-1362-42c3-9175-f28f7c75ec19%22%7d

15th BoS committee members:

The member secretary/ HoD extended a warm welcome to the members, particularly to the external members and introduced all the members in the committee. The chairman of 15th BoS meeting, Dr. Abdul Sharief delivered the opening remarks by requesting BoS members to deliberate on each agenda.

Sl. No.	Name of the Member	Designation with Affiliation	Status
1	Dr. Abdul Sharief	Chairman	Dean, School of Engineering
2	Dr. Satish Babu Boppana	Head of the Department	Member Secretary
3	Mr. Shivaprakash M S	Deputy General Manager, Kennametal Shared Services Pvt. Ltd., Bengaluru	Senior Professional (Industry)
4	Dr. Shanmugam S	Professor, Department of Mechanical Engineering, National Institute of Technology, Trichy	External Expert (Academic)
5	Dr. M. P. Maiya	Professor, Mechanical Engineering Dept., IIT Madras, Chennai	External Expert (Academic)
6	Dr. Shilpa Mehta	Dean academics- PU	Special Invitee
7	Dr. Ramesh C S	Dean, R&I, PU	Special Invitee
8	Dr. Udaya Ravi M	Professor	Special Invitee
9	Dr. Ramachandra C G	Asso. Professor- Selection Grade	Special Invitee
10	Dr. Madhusudhan M	Assistant Professor	Member

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With the permission of chairperson, the member secretary had presented the following agenda points and deliberations were recorded.

Agenda SOE-MEC 15.1: To approve the minutes & ATR of 14th Board of Studies Meeting held on 22nd March 2022.

The Minutes of 14th BoS meeting held on 22nd March 2021 and its Action taken report (ATR) was discussed.

The changes were approved and implemented in the Curriculum and the decisions were all implemented in the academic year 2021-22.

15.1.1 Approval of the minutes of the 14th Board of Studies meeting held on 22nd March 2021.
15.1.2 Discussion on the modifications in the Proposed CBCS Course Grid and the Course Catalogues for the 2021 admitted students.
The details are in Annexure 15.1

Resolution SOE-MEC 15.1: The members approved the Minutes of the 14th BoS and its Action taken report.

Agenda SOE-MEC 15.2: Discussion on the CBCS course grid, Credit Structure and Curriculum Structure for 2022 admitted students.

The Member Secretary presented the outcome of CBCS implementation assessed by various stakeholders and based on the feedback received. A committee formed by the Chancellor suggested to modify the Curriculum structure of 2022-2023 batch admitted students. Member Secretary then presented the salient features of the AY 2022-2023 course grid and curriculum structure (Annexure MEC 15.2.1, Annexure 15.2.2 and Annexure 15.2.3) for both B. Tech. Program in Mechanical Engineering and M. Tech. Program in Product Design and Development (Annexure MEC 15.2.4, Annexure 15.2.5 and Annexure 15.2.6) respectively. The same was duly approved by the members.

B.Tech Program with specialization in Mechatronics was retained for 2022-23 batch students while B.Tech Program with specialization in Additive Manufacturing was removed for 2022-23 batch students. It would however continue for the previous batches. "Engineering Graphics" (Course Code: MEC 1006) has been included as a 2 credit course in School Core.

Resolution SOE-MEC 15.2: The proposed changes in CBCS course grid, Credit Structure and Curriculum structure for the 2022 admitted students were approved.

Agenda SOE-MEC 15.3: Discussion on the CBCS course grid, Credit Structure and Curriculum Structure for 2021 admitted students.

The member secretary presented the course grid, credit structure and Curriculum Structure for the 2021 admitted students for B.Tech (Annexure 15.3.1, 15.3.2, 15.3.3) and M.Tech Program (Annexure 15.3.4, 15.3.5 and 15.3.6). The content of some of the courses were revised based on the feedback received from students, alumni and faculty. Sample catalogues with revisions carried out were shown to the members. Dr. Maiya advised that unless the changes in content are more than 20% the decision to revise content could be taken internally in the Department.

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Resolution SOE-MEC 15.3: The Program Regulations and Curriculum for SOE-MEC 2021 Batch for

B.Tech in Mechanical Engineering were approved with minor changes.

The Program Regulations and Curriculum for SOE-MEC 2021 Batch for M. Tech.in Product Design and Development were approved without any changes.

Agenda SOE-MEC 15.4: Discussion on the Program Regulations &Curriculum [PRC] for the 2020 admitted students

The Member Secretary presented the Program Regulations & Curriculum [PRC] for the 2020 admitted students as listed in Annexure 15.4 for B.Tech Program. For B. Tech 2020-24 Batch, the course codes, course names and contents of some of the courses have been revised. Asper the feedback received from stakeholders, some courses were revised. The revisions in the catalogues were presented and Dr. Maiya appreciated the same. Few new courses were introduced as discipline electives depending upon the feedback received.

Resolution SOE-MEC 15.4: The Program Regulations and Curriculum (Annexure MEC 15.4) for SOE-MEC 2020 Batch for B. Tech in Mechanical Engineering was approved with minor changes.

Agenda SOE-MEC 15.5: Discussion on the Program Regulations & Curriculum [PRC] for the 2019 admitted students.

Proposal: For B.Tech MEC 2019-20 batch, the contents of some of the courses were revised as per the feedback received from stake holders. Sample course handouts with changes/revisions in content were presented.

The members appreciated the efforts taken to revise the content of courses as per the feedback received from stake holders. The students of 2019-20 batch were offered a course "Programming in Java" (Course code: CSE 408) as an Open Elective. The course was considered as a prerequisite for studying the course "Product Life Cycle Management" (Course code: MEC 701) in their 6th Semester.

Resolution SOE-MEC 15.5: The Program Regulations and Curriculum (Annexure MEC 15.5) for SOE-MEC 2019 Batch for B. Tech in Mechanical Engineering was approved with minor changes. The course "Programming in Java" was ratified by the members of the Board of Studies.

Agenda SOE-MEC 15.6 Feedback analysis of stake holders and Action plan for the same.

The Member Secretary presented the gist of feedback (Annexure 15.6.1) obtained on existing curriculum from all the stake holders and highlighted the necessity of revising certain courses (Annexure 15.6.2) and adding few new courses (Annexure 15.6.3) depending on industry need.

Resolution SOE-MEC 15.6: The members appreciated the effort to revise the content of few courses and addition of few new courses in Program core/Discipline Electives and the changes were approved.

Agenda SOE-MEC 15.7: Approval of NPTEL course list for DE / OE credit transfer.

The member secretary explained the University's policy on transfer of Credits through SWAYAM-NPTEL to the members and presented the list of Discipline Elective Courses and Open Elective Courses

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approved by the Department for the odd semester of this academic year. These Courses are listed in Annexure 15.7.

Dr. Maiya questioned about the credit transfer policy and the process of credit transfer was then discussed. The member secretary informed about 12 week courses being considered for the electives being offered from NPTEL which were suitable for a credit transfer of 3.

Resolution SOE-MEC 15.7: The above courses have been approved and it was conveyed that more number of courses could be added as per the need with the approval from the Chairperson.

Agenda SOE-MEC 15.8: Ratification of the list of Value Added Courses for the AY 2021-2022

The Member Secretary conveyed the members that the Department offers Value Added Courses for its students. The Chairperson displayed the list of Value Added Courses offered during the academic year 2021-22. These Courses are listed in Annexure 15.8.1. The Value Added Courses offered for the academic year 2022-23 were also displayed as Annexure 15.8.2.

Resolution SOE-MEC 15.8: The members approved the Value Added Courses for the academic year 2021 and 2022-23.

Agenda SOE-MEC 15.9: Approval of external and internal examiners list.

The Member Secretary presented an updated list of Examiners (Appended as Annexure 15.9.1 and 15.9.2) to the members of the Board of Studies.

Resolution SOE-MEC 15.9: The members approved the updated list of Examiners.

Agenda SOE-MEC 15.10: Approval of previous semester Course Handouts approved by Department Academic Committee.

The Member Secretary presented few course handouts of the previous Semester (Annexure 15.10) for B.Tech and M.Tech Programs.

Resolution SOE-MEC 15.10: The members approved the course handouts for the said Programs

Agenda SOE-MEC 15.11: Any other discussions with the permission of chair

The Chairperson, requested approval from the committee to incorporate modifications/alterations, if any, approved by the BOS committee of other Departments for the existing batches in Mechanical Engineering. The BOS Committee for Mechanical Engineering has approved the proposal unanimously. The BOS Committee authorized the BOS Chairperson and the Sub-Committee consisting of the Internal Members of the Board of Studies of Mechanical Engineering to incorporate minor corrections/edits, if required.

The BOS Chairperson has assured that the decisions taken during the 15th BoS meeting for Mechanical Engineering will be implemented as early as possible and will be conveyed. The Chairperson and member secretary had expressed special thanks to all the members and requested to extend the same support for the future activities.

The meeting ended with Vote of Thanks by Dr. Satish Babu Boppanna, Member secretary MEC BOS Committee and HoD Department of Mechanical Engineering.

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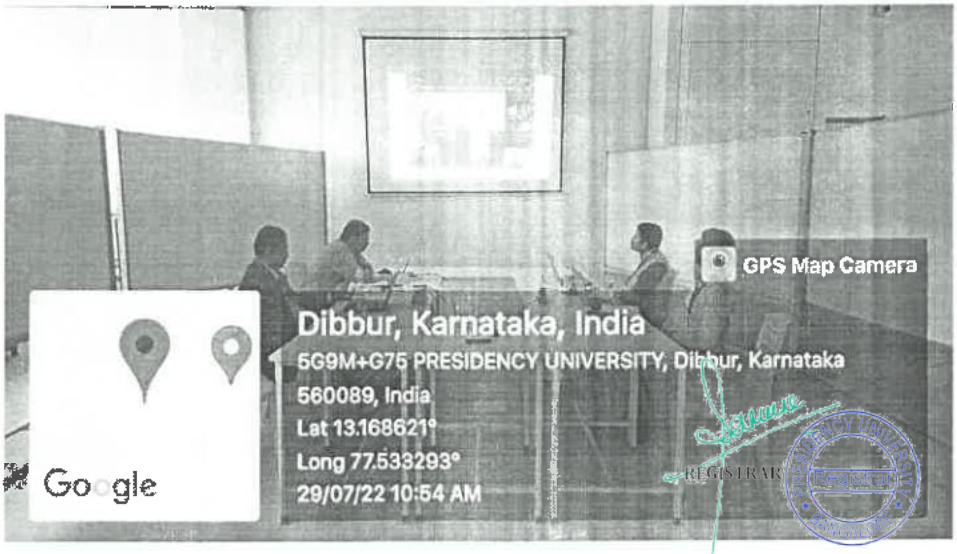
BoS Committee Members:

Sl. No.	Name of the Member	Designation with Affiliation	Status	Signature
1	Dr. Abdul Sharief	Chairman	Dean, School of Engineering	
2	Dr. Satish Babu Boppana	Head of the Department	Member Secretary	
3	Mr. Shivaprakash M S	Deputy General Manager, Kennametal Shared Services Pvt. Ltd., Bengaluru	Senior Professional (Industry)	
4	Dr. Shanmugam S	Professor, Department of Mechanical Engineering, NIT, Trichy	External Expert (Academic)	
5	Dr. M. P. Maiya	Professor, Mechanical Engineering Dept., IIT Madras, Chennai	External Expert (Academic)	01/8/22
6	Dr. Shilpa Mehta	Dean academics- PU	Special Invitee	
7	Dr. Ramesh C S	Dean, R&I, PU	Special Invitee	
8	Dr. Udaya Ravi M	Professor	Special Invitee	
9	Dr. Ramachandra C G	Asso. Professor- Selection Grade	Special Invitee	
10	Dr. Madhusudhan M	Assistant Professor	Member	



Video Link of the recording: Meeting in _General_-20220729_101031-Meeting Recording.mp4 (sharepoint.com)

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SCHOOL OF ENGINEERING
Department of Mechanical Engineering

14.02.2023

The 16th Meeting of the Board of Studies (BoS) for Mechanical Engineering, School of Engineering, Presidency University, Bengaluru was held on 27th December, 2022 at 11:00 AM. 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 - MEC 16.1	To approve the minutes & ATR of 15th Board of Studies Meeting held on 29th July, 2022
SOE - MEC 16.2	Deliberation and approval for replacement of course PIP 102 for 2019-2023 batch
SOE - MEC 16.3	Approval of DE courses
SOE - MEC 16.4	Approval of NPTEL course list for DE / OE credit transfer
SOE - MEC 16.5	Any other discussions with the permission of chair

Recommended for Approval to the Academic Council:

Vice Chancellor	
Pro-Vice Chancellor	
Dean - Academics	
Dean SOE	
Associate Dean SOE	
HOD – Mechanical Engineering	

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City Office: University House, 8/1, King Street, Richmond Town, Bengaluru 560025
Campus: Presidency University, Itgalpur, Rajanakunte, Yelahanka, Bengaluru 560 089
Phone: +91 80 4925 5533 / 5599 Email ID: info@presidencyuniversity.in
www.presidencyuniversity.in

SCHOOL OF ENGINEERING

DEPARTMENT OF MECHANICAL ENGINEERING

Ref. No. PU/SOE-MEC/BOS-16/2022-23/N0TICE-01 Date:26th December 2022

16th BOS Meeting Notice

The 16th Meeting of the Board of studies of the Department of Mechanical Engineering, Presidency University-School of Engineering, is convened on Tuesday, **27th Dec, 2022, at 11.00 AM** and hosted in hybrid mode from Presidency University Campus, Itgalpura, Rajankunte, Yelahanka, Bengaluru. Internal members will attend from HOD MEC Cabin, and external members may join online at the link here:

https://teams.microsoft.com/l/meetup-join/19%3aaiUYteN3dA5RsblUVhkKCayIulQ8hX6t4OO2GUVGAAg1%40thread.tacv2/1672064403634?context=%7b%22Tid%22%3a%22bf93bb5e-ecf0-4e3d-be0e79b5cc527a48%22%2c%22Oid%22%3a%22380108ba-f4ce-4418-acc5-d0d9acb30dd5%22%7d

Kindly make it convenient to attend the meeting.

AGENDA

Agenda SOE-MEC 16.1	To approve the minutes & ATR of 15th Board of Studies Meeting held on 29th July, 2022
Agenda SOE-MEC 16.2	Deliberation and approval for replacement of course PIP 102 for 2019-2023 batch
Agenda SOE-MEC 16.3	Approval of DE courses
Agenda SOE-MEC 16.4	Approval of NPTEL course list for DE / OE credit transfer
Agenda SOE-MEC 16.5	Any other discussions with the permission of chair

Member Secretary **Chairperson**

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Copy to:

- Honorable Chancellor, PU
- Honorable Vice President, PU
- Honorable Vice Chancellor, PU
- Honorable Pro Vice Chancellor, PU
- Dean – Academics, PU
- Office of the Registrar, PU
- Members of the BOS-MEC Committee
- Special Invitees

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PRESIDENCY UNIVERSITY Registrar BANGALORE

SCHOOL OF ENGINEERING

DEPARTMENT OF MECHANICAL ENGINEERING

Ref. No. PU/SOE-MEC/BOS-16/2022-23/MOM-01 Date:27th December 2022

Minutes of the 16th Meeting of Board of studies (Mechanical Engineering)

The 16th Meeting of the Board of Studies of the Department of Mechanical Engineering, Presidency University-School of Engineering, was convened on Tuesday, 27th Dec, 2022, at 11.00 AM and hosted in hybrid mode from Presidency University Campus, Itgalpura, Rajankunte, Yelahanka, Bengaluru. The Member Secretary extended a warm welcome to the members, particularly to the external members and introduced all the members in the committee. The chairperson of 16th BoS meeting, delivered the opening remarks by requesting BoS members to deliberate on each agenda.

16th BoS committee members:

Sl. No.	Name of the Member	Position	Designation with Affiliation
1	Dr. Abdul Sharief	Chairman	Dean, School of Engineering
2	Dr.Satish Babu Boppana	Head of the Department	Member Secretary
3	Mr. Shivaprakash M S	General Manager, Kennametal Shared Service Pvt. Ltd., Bengaluru	Senior Professional (Industry)
4	Dr. Shanmugam S	Professor, Department of Mechanical Engineering, NIT, Trichy	External Expert (Academic)
5	Dr. M.P. Maiya	Professor, Mechanical Engineering Dept., IIT Madras, Chennai	External Expert (Academic)
6	Dr. Shilpa Mehta	Dean Academics - PU	Special Invitee
7	Dr. Ramesh CS	Dean, R & I, PU	Special Invitee
8	Dr. Udaya Ravi M	Professor	Special Invitee
9	Dr. Ramachandra C G	Asso. Professor- Selection Grade	Special Invitee
10	Dr. Madhusudhan M	Assistant Professor	Member

With the permission of chairperson, the member secretary had presented the following agenda points and deliberations were recorded.

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Agenda SOE-MEC 16.1: To approve the Minutes & ATR of 15th Board of Studies Meeting held on 29th July 2022

The member secretary displayed the MOM and ATR of previous meeting and the same was discussed. (included in **Annexure SOE-MECH 16.1**)

Resolution SOE-MEC 16.1: The members approved the MOM and ATR of the 15th BoS.

Agenda SOE-MEC 16.2: Deliberation & approval for replacement of course PIP 102 for 2019-2023 batch

The member secretary presented the proposal for replacement of course PIP 102 Professional Practice-II (PIP 102) with the course list (**Annexure SOE-MECH 16.2**). The members approved the breakup in lieu of PIP 102 as in Annexure 16.2

Resolution SOE-MEC 16.2: The changes are approved by the committee.

Agenda SOE-MEC 16.3 Approval of DE courses

The member secretary presented the courses to be included in Discipline Elective (**Annexure SOE-MECH 16.3**)

Resolution SOE-MEC 16.3: The proposal was approved

Agenda SOE-MEC 16.4: Approval of NPTEL course list for DE/OE credit transfer

The list of NPTEL courses proposed for credits required for Discipline Elective/Open Electives were presented by the member secretary as listed in **Annexure SOE-MECH 16.4.1** and **Annexure SOE-MECH 16.4.2.**

Resolution SOE-MEC 16.4: The committee approved the list of NPTEL courses proposed for credits after due deliberation.

Agenda SOE-MEC 16.5: Any other discussion with the permission of chair

Mr. Shivaprakash opined about the need for improving skills among the students Mechanical Engineering & stressed that in the forth coming years, the demand for the course would increase.

Resolution SOE-MEC 16.5: The member secretary informed the committee about various initiatives taken by the Department to improve skills of the students.

The BOS Chairperson has assured that the decision taken during the 16th BOS meeting for Mechanical Engineering will be implemented as early as possible and will be conveyed.

The meeting ended with the vote of thanks by Dr. Satish Babu Boppana, Member Secretary MEC, BOS committee and HoD, Department of Mechanical Engineering.

Video Link of the recording: Meeting in _General_-20221227_110242-Meeting Recording.mp4 (sharepoint.com)

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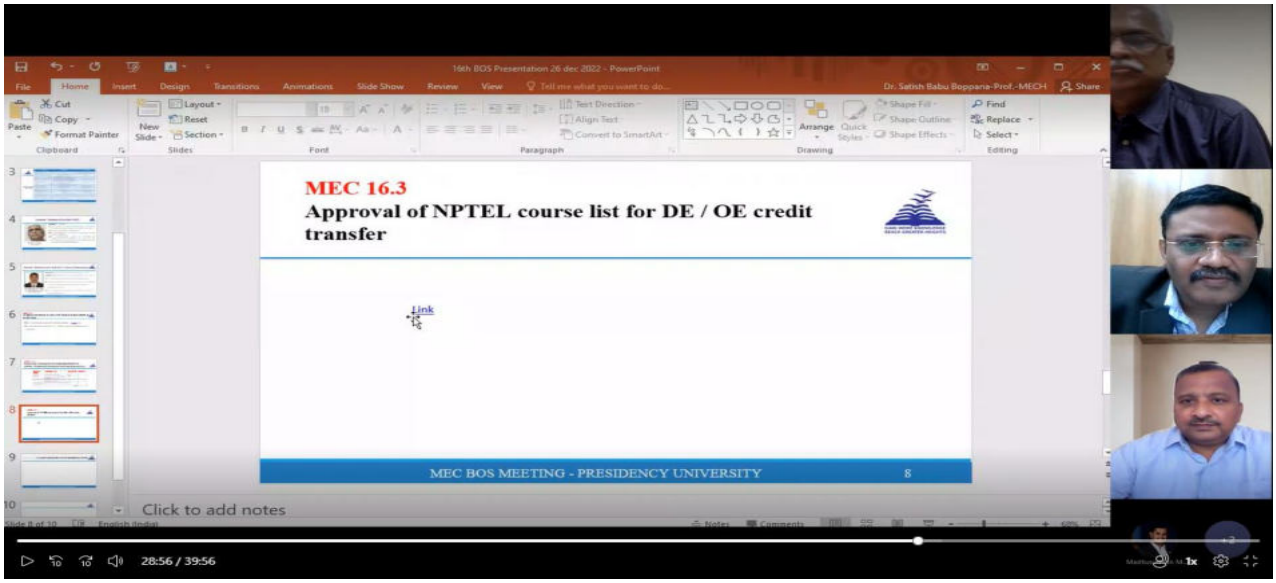
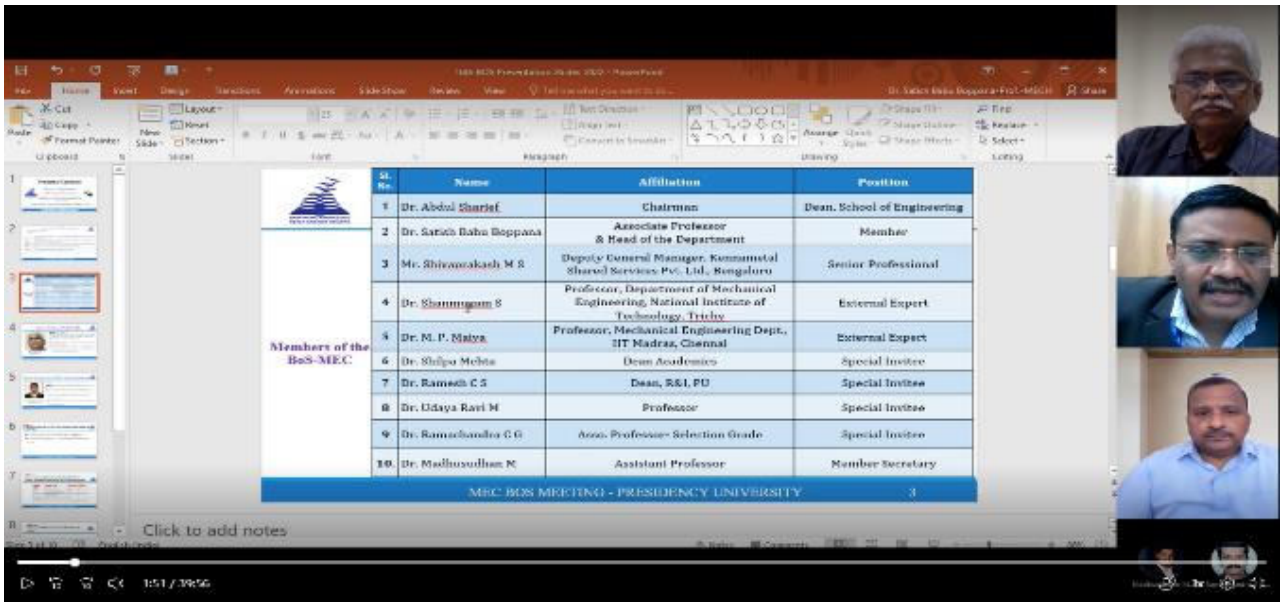
Sample Screenshots





Sl. No.	Name	Affiliation	Position
1	Dr. Abdul Sharief	Chairman	Dean, School of Engineering
2	Dr. Satish Babu Boppana	Associate Professor & Head of the Department	Member
3	Mr. Shivanakash M S	Deputy General Manager, Kennametal Shared Services Pvt. Ltd., Bengaluru	Senior Professional
4	Dr. Shanmugam S	Professor, Department of Mechanical Engineering, National Institute of Technology, Trichy	External Expert
5	Dr. M. P. Maiya	Professor, Mechanical Engineering Dept., IIT Madras, Chennai	External Expert
6	Dr. Shilpa Mehta	Dean Academics	Special Invitee
7	Dr. Ramesh C S	Dean, R&I, PU	Special Invitee
8	Dr. Udaya Ravi M	Professor	Special Invitee
9	Dr. Ramachandra C G	Asso. Professor- Selection Grade	Special Invitee
10	Dr. Madhusudhan N	Assistant Professor	Member Secretary

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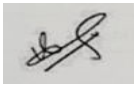
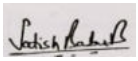
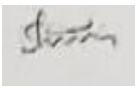
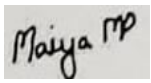
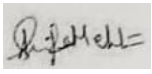
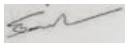
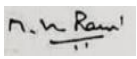
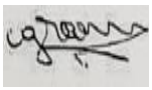
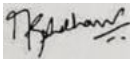
16th BOS Committee Members:

Sl. No	Name of the Member	Designation with Affiliation	Status	Signature
1	Dr. Abdul Sharief	Chairman	Dean, School of Engineering	
2	Dr. Satish Babu Boppana	Head of the Department	Member Secretary	
3	Mr. Shivaprakash M S	General Manager, Kennametal Shared Service Pvt. Ltd., Bengaluru	Senior Professional (Industry)	
4	Dr. Shanmugam S	Professor, Department of Mechanical Engineering, NIT, Trichy	External Expert (Academic)	Absent
5	Dr. M.P. Maiya	Professor Mechanical Engineering Dept, IIT Madras, Chennai	External Expert (Academic)	
6	Dr. Shilpa Mehta	Dean academics-PU	Special Invitee	
7	Dr. Ramesh C S	Dean, R&I. PU	Special Invitee	
8	Dr. Udaya Ravi M	Professor	Special Invitee	
9	Dr. Ramachandra C G	Asso. Professor-Selection Grade	Special Invitee	
10	Dr. Madhusudhan M	Assistant Professor	Member	

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Annexure SOE-MECH 16.1

15th BoS MOM and ATR

SCHOOL OF ENGINEERING

DEPARTMENT OF MECHANICAL ENGINEERING

Ref. No.: PU/SOE/MEC/BOS-15/2022-23/MOM-01 Date 29th July 2022

Minutes of the 15th Meeting of Board of Studies (Mechanical Engineering)

The 15th Meeting of the Board of Studies of the Department of Mechanical Engineering, Presidency University - School of Engineering, is convened on Friday, **29th July, 2022, at 10.00 AM** and hosted in hybrid mode from Presidency University Campus, Itgalpura, Rajankunte, Yelahanka, Bengaluru. The member secretary/ HoD extended a warm welcome to the members, particularly to the external members and introduced all the members in the committee. The chairman of 15th BoS meeting, Dr. Abdul Sharief delivered the opening remarks by requesting BoS members to deliberate on each agenda.

15th BoS committee members:

Sl. No.	Name of the Member	Position	Designation with Affiliation
1	Dr. Abdul Sharief	Chairman	Dean, School of Engineering
2	Dr. Satish Babu Boppana	Head of the Department	Member Secretary
3	Mr. Shivaprakash M S	Deputy General Manager, Kennametal Shared Services Pvt. Ltd., Bengaluru	Senior Professional (Industry)
4	Dr. Shanmugam S	Professor, Department of Mechanical Engineering, National Institute of Technology, Trichy	External Expert (Academic)
5	Dr. M. P. Maiya	Professor, Mechanical Engineering Dept., IIT Madras, Chennai	External Expert (Academic)
6	Dr. Shilpa Mehta	Dean academics- PU	Special Invitee
7	Dr. Ramesh C S	Dean, R&I, PU	Special Invitee

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8	Dr. Udaya Ravi M	Professor	Special Invitee
9	Dr. Ramachandra C G	Asso. Professor- Selection Grade	Special Invitee
10	Dr. Madhusudhan M	Assistant Professor	Member

With the permission of chairperson, the member secretary had presented the following agenda points and deliberations were recorded.

Agenda SOE-MEC 15.1: To approve the minutes & ATR of 14th Board of Studies Meeting held on 22nd March 2022

The Minutes of 14th BoS meeting held on 22nd March 2021 and its Action taken report (ATR) was discussed.

The changes were approved and implemented in the Curriculum and the decisions were all implemented in the academic year 2021-22.

15.1.1 Approval of the minutes of the 14th Board of Studies meeting held on 22nd March 2021.

15.1.2 Discussion on the modifications in the Proposed CBCS Course Grid and the Course Catalogues for the 2021 admitted students.

The details are in Annexure 15.1

Resolution SOE-MEC 15.1: The members approved the Minutes of the 14th BoS and its Action taken report.

Agenda SOE-MEC 15.2:_Discussion on the CBCS course grid, Credit Structure and Curriculum Structure for 2022 admitted students

The Member Secretary presented the outcome of CBCS implementation assessed by various stakeholders and based on the feedback received. A committee formed by the Chancellor suggested to modify the Curriculum structure of 2022-2023 batch admitted students. Member Secretary then presented the salient features of the AY 2022-2023 course grid and curriculum structure (Annexure MEC 15.2.1, Annexure 15.2.2 and Annexure 15.2.3) for both B. Tech. Program in Mechanical Engineering and M. Tech. Program in Product Design and Development (Annexure MEC 15.2.4, Annexure 15.2.5 and Annexure 15.2.6) respectively. The same was duly approved by the members.

B.Tech Program with specialization in Mechatronics was retained for 2022-23 batch students while B.Tech Program with specialization in Additive Manufacturing was removed for 2022-23 batch students. It would however continue for the previous batches. "Engineering Graphics" (Course Code: MEC 1006) has been included as a 2 credit course in School Core.

Resolution SOE-MEC 15.2: The proposed changes in CBCS course grid, Credit Structure and Curriculum structure for the 2022 admitted students were approved.

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Agenda SOE-MEC 15.3: Discussion on the CBCS course grid, Credit Structure and Curriculum Structure for 2021 admitted students

The member secretary presented the course grid, credit structure and Curriculum Structure for the 2021 admitted students for B.Tech (Annexure 15.3.1, 15.3.2, 15.3.3) and M.Tech Program (Annexure 15.3.4, 15.3.5 and 15.3.6). The content of some of the courses were revised based on the feedback received from students, alumni and faculty. Sample catalogues with revisions carried out were shown to the members. Dr. Maiya advised that unless the changes in content are more than 20%, the decision to revise content could be taken internally in the Department.

Resolution SOE-MEC 15.3: The Program Regulations and Curriculum for SOE-MEC 2021 Batch for B.Tech in Mechanical Engineering were approved with minor changes.

The Program Regulations and Curriculum for SOE-MEC 2021 Batch for M. Tech.in Product Design and Development were approved without any changes.

Agenda SOE-MEC 15.4: Discussion on the Program Regulations &Curriculum [PRC] for the 2020 admitted students

The Member Secretary presented the Program Regulations & Curriculum [PRC] for the 2020 admitted students as listed in Annexure 15.4.1 and Annexure 15.4.2 for B.Tech and M.Tech Programs. For B. Tech 2020-24 Batch, the course codes, course names and contents of some of the courses have been revised. As per the feedback received from stakeholders, some courses were revised. The revisions in the catalogues were presented and Dr. Maiya appreciated the same. Few new courses were introduced as discipline electives depending upon the feedback received.

Resolution SOE-MEC 15.4: The Program Regulations and Curriculum (Annexure MEC 15.4) for SOE-MEC 2020 Batch for B. Tech in Mechanical Engineering was approved with minor changes.

Agenda SOE-MEC 15.5: Discussion on the Program Regulations & Curriculum [PRC] for the 2019 admitted students.

Proposal: For B.Tech MEC 2019-20 batch, the contents of some of the courses were revised as per the feedback received from stake holders. Sample course handouts with changes/revisions in content were presented.

The members appreciated the efforts taken to revise the content of courses as per the feedback received from stake holders. The students of 2019-20 batch were offered a course "Programming in Java" (Course code: CSE 408) as an Open Elective. The course was considered as a prerequisite for studying the course "Product Life Cycle Management" (Course code: MEC 701) in their 6th Semester.

Resolution SOE-MEC 15.5: The Program Regulations and Curriculum (Annexure MEC 15.5) for SOE-MEC 2019 Batch for B. Tech in Mechanical Engineering was approved with minor changes. The course "Programming in Java" was ratified by the members of the Board of Studies.

Agenda SOE-MEC 15.6 Feedback analysis of stake holders and Action plan for the same.

The Member Secretary presented the gist of feedback (Annexure 15.6.1) obtained on existing curriculum from all the stake holders and highlighted the necessity of revising certain courses (Annexure 15.6.2) and adding few new courses (Annexure 15.6.3) depending on industry need.

Resolution SOE-MEC 15.6: The members appreciated the effort to revise the content of few courses and addition of few new courses in Program core/Discipline Electives and the changes were approved.

Agenda SOE-MEC 15.7: Approval of NPTEL course list for DE/OE credit transfer,

The member secretary explained the University's policy on transfer of Credits through SWAYAM-NPTEL to the members and presented the list of Discipline Elective Courses and Open Elective Courses approved by the Department for the odd semester of this academic year. These Courses are listed in Annexure 15.7.

Dr. Maiya questioned about the credit transfer policy and the process of credit transfer was then discussed. The member secretary informed about 12 week courses being considered for the electives being offered from NPTEL which were suitable for a credit transfer of 3.

Resolution SOE-MEC 15.7: The above courses have been approved and it was conveyed that more number of courses could be added as per the need with the approval from the Chairperson.

Agenda SOE-MEC 15.8: Ratification of the list of Value Added Courses for the AY 2021-2022

The Member Secretary conveyed the members that the Department offers Value Added Courses for its students. The Chairperson displayed the list of Value Added Courses offered during the academic year 2021-22. These Courses are listed in Annexure 15.8.1. The Value Added Courses offered for the academic year 2022-23 were also displayed as Annexure 15.8.2.

Resolution SOE-MEC 15.8: The members approved the Value Added Courses for the academic year 2021 and 2022-23.

Agenda SOE-MEC 15.9: Approval of external and internal examiners list.

The Member Secretary presented an updated list of Examiners (Appended as Annexure 15.9.1 and 15.9.2) to the members of the Board of Studies.

Resolution SOE-MEC 15.9: The members approved the updated list of Examiners.

Agenda SOE-MEC 15.10: Approval of previous semester Course Handouts approved by Department Academic Committee.

The Member Secretary presented few course handouts of the previous Semester (Annexure 15.10) for B.Tech and M.Tech Programs.

Resolution SOE-MEC 15.10: The members approved the course handouts for the said Programs

Agenda SOE-MEC 15.11: Any other discussions with the permission of chair

The Chairperson, requested approval from the committee to incorporate modifications/alterations, if any, approved by the BOS committee of other Departments for the existing batches in Mechanical Engineering. The BOS Committee for Mechanical Engineering has approved the proposal unanimously. The BOS Committee authorized the BOS Chairperson and the Sub-Committee consisting of the Internal Members of the Board of Studies of Mechanical Engineering to incorporate minor corrections/edits if required.

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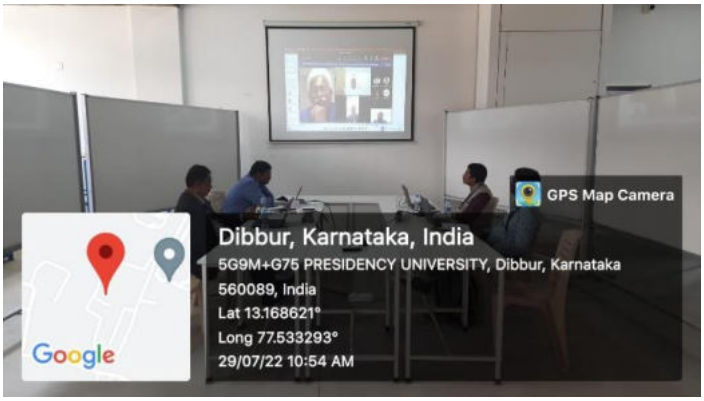
The BOS Chairperson has assured that the decisions taken during the 15th BoS meeting for Mechanical

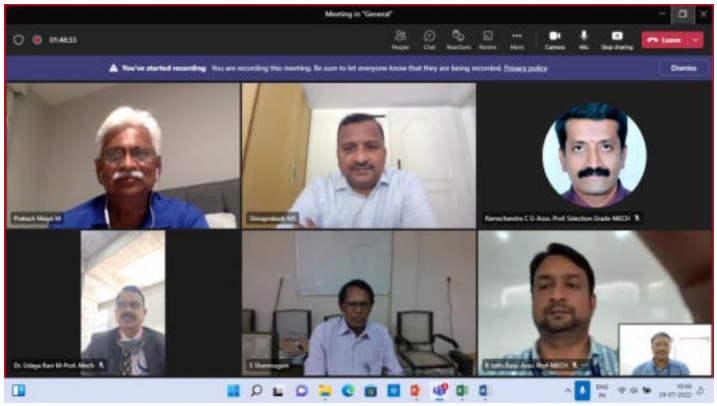
Engineering will be implemented as early as possible and will be conveyed. The Chairperson and member secretary had expressed special thanks to all the members and requested to extend the same support for the future activities.

The meeting ended with Vote of Thanks by Dr. Satish Babu Boppanna, Member secretary MEC BOS Committee and HoD Department of Mechanical Engineering.

Video Link of the recording: Meeting in _General_-20220729_101031-Meeting Recording.mp4 (sharepoint.com)

Sample Screenshots





15th BoS Committee Members:

Sl. No.	Name of the Member	Designation with Affiliation	Status	Signature
1	Dr. Abdul Sharief	Chairman	Dean, School of Engineering	
2	Dr. Satish Babu Boppana	Head of the Department	Member Secretary	

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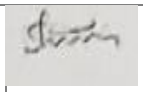
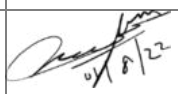
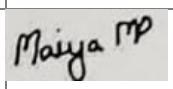
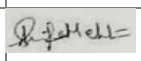
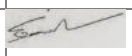
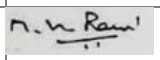
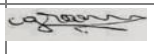
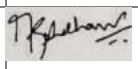
3	Mr. Shivaprakash M S	Deputy General Manager, Kennametal Shared Services Pvt. Ltd., Bengaluru	Senior Professional (Industry)	
4	Dr. Shanmugam S	Professor, Department of Mechanical Engineering, NIT, Trichy	External Expert (Academic)	
5	Dr. M. P. Maiya	Professor, Mechanical Engineering Dept., IIT Madras, Chennai	External Expert (Academic)	
6	Dr. Shilpa Mehta	Dean academics- PU	Special Invitee	
7	Dr. Ramesh C S	Dean, R&I, PU	Special Invitee	
8	Dr. Udaya Ravi M	Professor	Special Invitee	
9	Dr. Ramachandra C G	Asso. Professor- Selection Grade	Special Invitee	
10	Dr. Madhusudhan M	Assistant Professor	Member	

15th BOS Meeting ATR

The 15th Meeting of the Board of Studies (BOS) in Mechanical Engineering, School of Engineering, Presidency University, Bengaluru was convened on Friday, **29th July, 2022, at 10.00 AM**. The following points were discussed and actions taken accordingly.

Agenda Point No	**Topic**	**Action taken**
Agenda SOE-MEC 15.1	To approve the minutes & ATR of 14th Board of Studies Meeting held on 22nd March 2022	Approved
Agenda SOE-MEC 15.2	Discussion on the CBCS course grid, Credit Structure and Curriculum structure for 2022 admitted students.	The changes approved by the committee in the 15th BOS meeting were implemented in PRCs and put into operation
Agenda SOE-MEC 15.3	Discussion on the CBCS course grid, Credit Structure and Curriculum structure for 2021 admitted students.	The changes approved by the committee in the 15th BOS meeting were implemented

		in PRCs and put into operation
Agenda SOE-MEC 15.4	Discussion on the Program Regulations & Curriculum [PRC] for the 2020 admitted students.	The changes approved by the committee in the 15th BOS meeting were implemented in PRCs and put into operation
Agenda SOE-MEC 15.5	Discussion on the Program Regulations & Curriculum [PRC] for the 2019 admitted students.	The changes approved by the committee in the 15th BOS meeting were implemented in PRCs and put into operation
Agenda SOE-MEC 15.6	Feedback analysis of stake holders and Action plan for the same.	The feedback analysis was used to bring changes in curriculum
Agenda SOE-MEC 15.7	Approval of NPTEL course list for DE / OE credit transfer.	The lists were circulated to students
Agenda SOE-MEC 15.8	Ratification of the list of Value Added Courses for the AY 2021-2022.	No Action required
Agenda SOE-MEC 15.9	Approval of external and internal examiners list.	Approved
Agenda SOE-MEC 15.10	Approval of previous semester Course Handouts approved by Department Academic Committee	Approved
Agenda SOE-MEC 15.11	Any other discussions with the permission of chair.	No action required

Member Secretary **Chairperson**

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Annexure SOE-MECH 16.2

Proposed Breakup of PIP102

Sl.No	Course Code	Name of the Courses	Semester to be Offered	Credits	L-T-P-C
1	CSE 501	Technical Training (Open Elective-III)	VIII	3	0-0-6-3
2	MEC XXX	Discipline Elective course-V	VIII	2	2-0-0-2
3	MEC XXX	Discipline Elective course-VI	VIII	2	2-0-0-2
4	PIP 103	Professional Practice-II	VIII	8	-

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Annexure SOE-MECH 16.3

List of new Discipline Elective Courses for 2019-2023 Batch

S. No.	Course Code	Course Name	Credit Structure				Contact Hours
			L	T	P	Credits	
1	MEC 332	Manufacturing Guidelines for Product Design	2	0	0	2	2
2	MEC 333	Product Engineering & Design Thinking	2	0	0	2	2

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Annexure SOE-MECH 16.4.1

NPTEL Discipline Elective Courses for B.Tech (Mechanical Engineering)

Sl. No	Course Id	Course Name	Duration
1	noc23-me06	Principles of Industrial Engineering	12 Weeks
2	noc23-mel0	Turbulent Combustion: Theory And Modelling	12 Weeks
3	noc23-mel l	Experimental Stress Analysis	12 Weeks
4	noc23-me27	Fundamentals of Combustion	12 Weeks
5	noc23-me28	Oil Hydraulics and Pneumatics	12 Weeks
6	noc23-me29	Explosions and Safety	12 Weeks
7	noc23-me32	Inverse Methods in Heat Transfer	12 Weeks
8	noc23-me56	Nonlinear Vibration	12 Weeks
9	noc23-me57	Viscous Fluid Flow	12 Weeks
10	noc23-me64	Noise Management & Control	12 Weeks
11	noc23-me69	Statistical Thermodynamics for Engineers	12 Weeks

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Annexure SOE-MECH 16.4.2

NPTEL Open Elective Courses for B.Tech (Mechanical Engineering)

Sl. No	Course Id	Course Name	Duration
1	noc23-cs03	Design and Analysis of VLSI Subsystems	12 Weeks
2	noc23-ee05	Data Analysis and Decision Making - I	12 Weeks
3	noc23-ee06	Financial Management For Managers	12 Weeks
4	noc23-ee08	Production and Operation Management	12 Weeks
5	noc23-eel4	Business Statistics	12 Weeks
6	noc23-ee15	Leadership for India Inc: Practical Concepts and Constructs	12 Weeks
7	noc23-ee28	Leadership and Team Effectiveness	12 Weeks
8	noc23-ee35	Financial Derivatives & Risk Management	12 Weeks
9	noc23-ee78	Financial Institutions And Markets	12 Weeks
10	noe23-ee40	E-Business	12 Weeks
11	noc23-mg50	Management of Inventory Systems	12 Weeks

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