

# Department of Mechanical Engineering

KPR Institute of Engineering and Technology



## Fourth Board of Studies Meeting

Venue: The Legend (Online)

Date: 05.05.2021

Meeting ID: axz-vzxj-sws

Time: 10 am

### Agenda:

To discuss and pass

1. Action taken on the minutes of the 3<sup>rd</sup> BOS meeting
2. The Curriculum and syllabi for V to VIII Semesters of UG Programme under Regulations 2019
3. The Curriculum and syllabi for I to IV Semesters of PG Programme under Regulations 2019
4. Open Electives
5. Online Courses
6. Industrial Training / Internship
7. Industry Oriented Courses (One Credit Courses)
8. Value Added Courses
9. Methodologies for innovative teaching and evaluation
10. Panel of examiners for autonomous evaluation
11. Any other subject

### **Members Present:**

S.No	Name of the member with Designation	Category	Signature
1.	<b>Dr. S.Ramesh Babu,</b> Professor and Head Mechanical Engineering, KPRIET	Chairman	Online
2.	<b>Dr. M.Om Kumar</b> Professor, Mechanical Engineering, Anna University, Chennai.	University Nominee	Online
3.	<b>Dr.-Ing. M. Duraiselvam</b> Professor, Production Engineering, NIT Tiruchirappalli.	Academic Expert-1	Online
4.	<b>Dr. K.Rameshkumar</b> Professor, Mechanical Engineering, Amrita Vishwa Vidyapeetham, Coimbatore	Academic Expert-2	Online
5.	<b>Dr. G.Balamurugan,</b> Principal Scientist, National Aeronautics Limited, Bengaluru.	Industry Expert	Online
6.	<b>Dr. V.S.Saravanan,</b> Jr. Vice President (Foundry) Indo Shell Cast Private Limited Coimbatore	Industry Expert (Special Invitee - 1)	Online

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7.	<b>Dr. M.Suresh</b> Associate Professor, Robotics and Automation Engineering, PSG Tech, Coimbatore	Academic Expert (Special Invitee - 2)	Online
8.	<b>Dr. S.Radhakrishnan</b> Team Lead – Product Development and DPF calibration, Mahindra & Mahindra, Chennai	Industry Expert (Special Invitee - 3)	Online
9.	<b>Mr. S.Vinoth Kumar</b> Engineer, Craftsman Autmation, Coimbatore	Industry Expert (Special Invitee - 4)	Online
10.	<b>Dr. K.Ramkumar</b> Post Doctoral Fellow, IIT Madras	Alumnus	Online
11.	<b>Dr. N. Gunasekaran</b> Professor MECH, KPRIET	Faculty Member	Online
12.	<b>Dr. K.Ravikumar</b> Professor MECH, KPRIET	Faculty Member	Online
13.	<b>Dr. S.Ravishankar</b> Associate Professor, MECH, KPRIET	Faculty Member	Online
14.	<b>Dr. M Kumar</b> Associate Professor, MECH, KPRIET	Faculty Member	Online
15.	<b>Dr. L.Rajeshkumar</b> Assistant Professor (Sl. G), MECH, KPRIET	Faculty Member	Online
16.	<b>Dr. B.Arulmurugan</b> Assistant Professor (Sl. G), MECH, KPRIET	Faculty Member	Online
17.	<b>Dr.D.Balaji</b> Assistant Professor (Sl. G), MECH, KPRIET	Faculty Member	Online
18.	<b>Dr.P.ManojKumar</b> Assistant Professor (Sl. G), MECH, KPRIET	Faculty Member	Online
19.	<b>Dr.M.Makeshkumar</b> Assistant Professor (Sl. G), MECH, KPRIET	Faculty Member	Online
20.	<b>Mr.R.Anandkumar</b> Assistant Professor (SR. G), MECH, KPRIET	Faculty Member	Online
21.	<b>Mr.L.Prabhu</b> Assistant Professor (SR. G), MECH, KPRIET	Faculty Member	Online
22.	<b>Mrs.V.Bhuvaneshwari</b> Assistant Professor (SR. G), MECH, KPRIET	Faculty Member	Online
23.	<b>Dr.S.Sathish</b> Assistant Professor (SR. G), MECH, KPRIET	Faculty Member	Online

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24.	<b>Mr. N.Udhayakumar</b> Assistant Professor (SR. G), MECH, KPRIET	Faculty Member	Online
25.	<b>Mr. S.Vasanthaseelan</b> Assistant Professor (SR. G), MECH, KPRIET	Faculty Member	Online
26.	<b>Mr. C.Senthilkumar</b> Assistant Professor (SR. G), MECH, KPRIET	Faculty Member	Online
27.	<b>Mr. N.Vigneshkumar</b> Assistant Professor (SR. G), MECH, KPRIET	Faculty Member	Online
28.	<b>Mr. G.Krishnamoorthi</b> Assistant Professor (SR. G), MECH, KPRIET	Faculty Member	Online
29.	<b>Dr. P.Sabarinathan</b> Assistant Professor (SR. G), MECH, KPRIET	Faculty Member	Online
30.	<b>Mr. S.Deepan</b> Assistant Professor, MECH, KPRIET	Faculty Member	Online
31.	<b>Mr. P.Boobalakashnan</b> Assistant Professor, MECH, KPRIET	Faculty Member	Online
32.	<b>Mr. S.Gokulkumar</b> Assistant Professor, MECH, KPRIET	Faculty Member	Online
33.	<b>Mr. T.Kannan</b> Assistant Professor, MECH, KPRIET	Faculty Member	Online
34.	<b>Mr. S.N.Dinesh</b> Assistant Professor, MECH, KPRIET	Faculty Member	Online
35.	<b>Mr. N.Karthi</b> Assistant Professor, MECH, KPRIET	Faculty Member	Online
36.	<b>Mr. E.Joel</b> Assistant Professor, MECH, KPRIET	Faculty Member	Online
37.	<b>Mr. D.Mohankumar</b> Assistant Professor, MECH, KPRIET	Faculty Member	Online
38.	<b>Mr. B.K.Saravanan</b> Assistant Professor, MECH, KPRIET	Faculty Member	Online
39.	<b>Mr. R.Vishnuvardhan</b> Assistant Professor, MECH, KPRIET	Faculty Member	Online

40.	<b>Mr. P.Arunkumar</b> Assistant Professor, MECH, KPRIET	Faculty Member	Online
41.	<b>Ms. B. Harini</b> MECH, KPRIET	Final Year student	Online
42.	<b>Mr. K.C. Kesab</b> MECH, KPRIET	Final Year student	Online

## Minutes of the 4<sup>th</sup> Meeting of The Board of Studies:

The meeting started with the Chairman, Department of Mechanical Engineering welcoming the members of the Board of Studies and meeting started with a Presentation on Vision, Mission, POs, PEOs, PSOs, Syllabus content of Curriculum under Regulations 2019 and the various features of the curriculum.

Following points were discussed at the Board of Studies.

### RESOLUTIONS:

#### 1. Action taken on the minutes of the 3<sup>rd</sup> BOS meeting:

The minutes of the 3<sup>rd</sup> BoS meeting and the action taken thereon are approved

#### 2. The Curriculum and syllabi for I to VIII Semesters of UG Programme under Regulations 2019

Resolved to approve that the following recommendation may be passed to the standing committee of the Academic Council that the Choice based Credit System based curriculum and syllabi for the B.E Mechanical Engineering and Engineering program under Regulations 2019 be passed with the following suggestions.

- (i) Dr. V.S.Saravanan, Special Invitee, suggested changes in the syllabi of Non-Destructive Testing of Materials. He suggested adding ultra-sonic testing and calibration of the same has to be added upon the syllabus.
- (ii) Dr. S.Radhakrishnan, Special Invitee, discussed about the facilities available in thermal engineering laboratory. He also suggested adding BS VI engines, which may be the subject of research for next few years in automobile industry.
- (iii) Dr. M.Suresh, Special Invitee, insisted to interchange the UNIT –III and UNIT – I in Fundamentals of Automation course, acquiring knowledge on components of automation has to be given prior to the hydraulic and pneumatic. The number of hours for Hydraulics and pneumatics seems insufficient and more hours can be given for it reducing the hours for components of automation without compromising the total 45 hours.

- (iv) Mr. S.Vinoth Kumar, Special Invitee, also agreed with Dr. M. Suresh in interchanging of Units I and III in Fundamentals of Automation Course.
- (v) Mr. S.Vinoth Kumar, Special Invitee, suggested buying retrofitted robots than fresh unpacked robots. He added that the knowledge and skill acquisition is high in retro-fitted robots since it makes way to integration of controllers, tuning and back-end programming.
- (vi) Mr. A.Vinoth Kumar, Special Invitee, suggested to establish a separate lab for cell oriented Automation like palletizing, sorting, packing, robot welding. The students may work on these machines for projects, gain skills and get into automation companies.
- (vii) Dr. M.Suesh, Special Invitee, discussed the syllabus of Mechatronics Laboratory. He suggested adding one or two experiments on hydraulics.
- (viii) Dr. M.Omkumar, University Nominee, reviewed the entire syllabus of UG and added that the syllabus seems refined and can be recommended for further proceedings.
- (ix) Dr. G.Balamurugan, Special Invitee, reviewed the syllabus of Design Thinking. He also suggested adding visualization into the Design Thinking course makes it complete.
- (x) Dr. M.Duraiselvam, Subject Expert, reviewed the syllabus of Design Thinking and enquired about the facilities available in the Institution regarding design thinking and product development.
- (xi) Dr. K.Rameshkumar, Subject Expert, reviewed the syllabus of Design Thinking and suggested to add frugal engineering into the syllabus.
- (xii) Dr. M.Suresh, Special Invitee, reviewed the syllabus of Design Thinking and suggested adding documentation as the last topic in UNIT – I to complete the Shigley model of design process.
- (xiii) Dr. M.Omkumar, University Nominee, reviewed the syllabus of Design Thinking and insisted upon adding implementation part into the Course.
- (xiv) Dr. K.Rameshkumar, Subject Expert, suggested offering elective courses particularly in 8<sup>th</sup> semester can be offered through online mode, so that the students involved in industry projects and internships may not miss the classes.
- (xv) The syllabus of Machine drawing have been reframed from 3 units to 5 units without changing contents in order to make the process of CO mapping and question paper setting easier.

### 3. The Curriculum and syllabi for I to IV Semesters of PG Programme under Regulations 2019

Following are the suggestions given by BoS members regarding Curriculum and syllabi for M.E CAD/CAM program under Regulation 2019 which shall be presented to the standing committee of the Academic Council for discussions:

- (i) Dr. M.Duraiselvam, Subject Expert, insisted to change the Course title of Additive Manufacturing and 3D Printing as either Additive Manufacturing or 3D Printing.
- ✓ (ii) Dr. G.Balamurugan, Special Invitee, discussed the syllabus of Finite Element Analysis in Manufacturing. The basis of the finite element method in manufacturing highlights the application for manufacturing modelling problems, principles of plasticity, as used in modelling of machining and forming processes. He suggested introducing the subject as Generic, which caters design, as well as Manufacturing disciplines.
- (iii) Dr. M.Omkumar, University Nominee, reviews the syllabus and added that fundamental knowledge on subjects have to be imparted to the PG students without exceeding the total lecture hours.
- ✓ (iv) Dr. G.Balamurugan, Special Invitee, discussed about the additive manufacturing facilities available in the institution. He also added to procure more machines for printing more materials like composites and there is a huge scope of research for metal 3D printing.

### 4. Open Electives offered to other branches

Following are the suggestions given by BoS members regarding Open Electives offered by the department of Mechanical Engineering which shall be presented to the standing committee of the Academic Council for discussions:

- (i) Dr. K.Rameshkumar, Subject Expert, appreciated the method followed in the institution regarding the enrolment of open elective courses.

### 5. Online Courses

Board recommended the following Online Courses to the standing committee of the Academic Council for discussions:

- (i) Dr. K.Rameshkumar, Subject Expert, discussed the method of evaluation and prescription of MOOC courses and recommended the inclusion of MOOC courses in the curriculum through CBCS.

- (ii) Dr. G.Balamurugan, Special Invitee, discussed about the NPTEL course – Introduction to Mechanical Micro Machining. He insisted to provide introductory course on micro manufacturing in the broader sense and then to move into micro machining.
- (iii) Dr. G.Balamurugan, Special Invitee, suggested for procuring machines upto micron level accuracy to enrich the knowledge on micro machining course.

## 6. Industrial Training / Internship

Following are the suggestions given by BoS members regarding Industrial Training / Internship which shall be presented to the standing committee of the Academic Council for discussions:

- (i) Dr. K.Rameshkumar, Subject Expert, insisted the internships would be made to four to five weeks to have a better exposure to industries, than the present system of two weeks.
- (ii) Dr. S.Radhakrishnan, Special Invitee, suggested utilizing the opportunities provided by IITs and NITs regarding student internships.
- (iii) Dr. M.Duraiselvam, Subject Expert, insisted to change the method of grading based on Internships as the physical mode of internship may be difficult for the next few years due to pandemic.

## 7. Industry Oriented Courses (One Credit Courses)

Board recommended the following One Credit Courses to the standing committee of the Academic Council for discussions:

S. NO.	COURSE CODE	COURSE TITLE
1	U19MEA01	Geometrical Dimensioning and Tolerances
2	U19MEA02	Advanced Cast Iron Technologies and Foundry Processes
3	U19MEA03	Electronics for Industrial Automation
4	U19MEA04	Surface Engineering
5	U19MEA05	Automotive Engine Diagnostics
6	U19MEA06	AC and Electrical Systems for Modern Cars
7	U19MEA07	Cooling of Electronic Components
8	U19MEA08	Practical CFD
9	U19MEA09	5S

10	U19MEA10	Measurement of Vibration and Sound
11	U19MEA11	Ethics in Engineering
12	U19MEA12	Vehicle Styling
13	U19MEA13	IoT Using Raspberry Pi
14	U19MEA14	Mechanical, Electrical and Plumbing
15	U19MEA15	Material Characterization
16	U19MEA16	Advanced Automotive systems
17	U19MEA17	Design and Inspection of Pumps

- ✓ (i) Dr. G.Balamurugan, Special Invitee, insisted to introduce size tolerancing and the industry practices prior to the form tolerancing and GD&T.
- ✓ (ii) Dr. V.S.Saravanan, Special Invitee, insisted to change the pre requisite for GD&T to Metrology. He also added that CMM machine available in the Institution can be used to provide Hands-On training to the students based on industrial drawings.

## 8. Value Added Courses:

Board recommended the following Value Added Courses to the standing committee of the Academic Council for discussions:

SI NO	TITLE
1.	Non Destructive Testing
2.	Geometric Dimensioning and Tolerance
3.	Heating Ventilating and Air Conditioning
4.	Python Programming
5.	Computational Fluid Dynamics
6.	Fusion 360
7.	MATLAB Simulink
8.	Solid works

- ✓ (i) Dr. G.Balamurugan, Special Invitee, suggested to introduce value added courses on CATIA, Uni-Graphics and ADAMS as the scope for these courses in Industries and R&D organizations are high. These software can be added through educational versions.



### **9. Methodologies for innovative teaching and evaluation**

It is resolved that the following recommendations may be passed to the standing committee of the Academic Council:

- (i) The Board members appreciated the methodology like, capstone projects, Design Thinking course projects and open electives with career choice.
- (ii) Dr. M.Duraiselvam, Subject Expert insisted adding course projects to the PG courses.

### **10. Panel of examiners for autonomous evaluation**

Following are the suggestions given by BoS members regarding Panel of examiners for autonomous related activities:

- (i) The Board members approved the list of colleges from which the examiners may be chosen.

### **11. Any other subject**

It is resolved that the following recommendations may be passed to the standing committee of the Academic Council.

- (i) Dr. K.Rameshkumar, Subject Expert, discussed the mapping in Program Articulation Matrix and Course Articulation Matrix. He insisted to have program specific outcomes to be very specific explicitly rather than being generic. The PSO's can be reformulated or new PSO can be added with very specific outcomes considering the strength and skill set of the Department.
- (ii) Dr. S.Radha Krishnan, Special Invitee discussed the guidance offered by the department towards students interested in higher education and towards unplaced students. He appreciated the efforts taken by the Department.



5/5/2021

**Chairman – BoS/MECH**

