

# **ERODE SENGUNTHAR ENGINEERING COLLEGE**

(An Autonomous Institution, Affiliated to Anna University, Chennai)

PERUNDURAI, ERODE - 638 057



## **Department of Biomedical Engineering 3<sup>rd</sup> BOARD OF STUDIES MEETING**

**6<sup>th</sup> November 2020 @ 10.30 a.m.**

**GOOGLE ONLINE MEET**

Link: **<https://meet.google.com/wfh-hasx-kvf>**



DEPARTMENT OF BIOMEDICAL ENGINEERING

**Third Board of Studies Meeting**

**Mode: Through Online (Meeting Link: <https://meet.google.com/wfh-hasx-kvf> )**

Date & Time: 06.11.2020 & 10.30 a.m.

**AGENDA**

The Third Board of Studies Meeting is convened to get the approval for the Curriculum and Syllabi for the Semesters V to VI, Open Electives offered by BME, Industry supported Electives (Infosys Limited) and NPTEL courses to be offered.

|               |                                                                                                                                                                                             |
|---------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| BoS / BME 3.1 | <b>Welcome address</b> and opening remarks by Chairman, Board of Studies in the Department of Biomedical Engineering                                                                        |
| BoS / BME 3.2 | Confirmation of the 2 <sup>nd</sup> Board of Studies Meeting Minutes of the Department of Biomedical Engineering and <b>Action taken report of 2<sup>nd</sup> Board of Studies meeting.</b> |
| BoS / BME 3.3 | To consider and approve the <b>curriculum: V and VI Semester for B.E. BME Programme.</b>                                                                                                    |
| BoS / BME 3.4 | To consider and approve the <b>Syllabi: V and VI Semester courses for B.E. BME Programme</b>                                                                                                |
| BoS / BME 3.5 | To consider and approve <b>Open Electives</b> offered by Biomedical Engineering Department                                                                                                  |
| BoS / BME 3.6 | To consider and approve syllabi for <b>Infosys Limited supported courses</b>                                                                                                                |
| BoS / BME 3.7 | To consider and approve <b>NPTEL Courses</b> to be offered                                                                                                                                  |
| BoS / BME 3.8 | Any other Matter                                                                                                                                                                            |

## DEPARTMENT OF BIOMEDICAL ENGINEERING

### MINUTES OF THE MEETING

The Third Board of Studies meeting of Department of Biomedical Engineering was held on 6<sup>th</sup> November 2020 at 10.30 a.m. through online.

1. The following members were present:

|    |                                                                                                                                                                                                   |                       |
|----|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|
| 1  | <b>Dr. S. Karthick</b><br>Associate Professor & Head<br>Department of Biomedical Engineering,<br>Erode Sengunthar Engineering College, Perundurai.                                                | Chairman              |
| 2  | <b>Dr. V. Venkatachalam</b><br>Principal,<br>Erode Sengunthar Engineering College, Perundurai.                                                                                                    | Member                |
| 3  | <b>Dr. R. Kalaivani,</b><br>Professor,<br>Department of Electronics and Communication Engineering,<br>Erode Sengunthar Engineering College, Perundurai.                                           | Member                |
| 4  | <b>Dr. M. Ramasubba Reddy,</b><br>Professor,<br>Department of Applied Mechanics,<br>Indian Institute of Technology,<br>Chennai                                                                    | University<br>Nominee |
| 5  | <b>Dr. J. Krishnan,</b><br>Professor,<br>Department of Instrumentation Engineering,<br>Annamalai University, Chidambaram,<br>Cuddalore District.                                                  | Academic<br>Experts   |
| 6  | <b>Dr. P. Manimegalai,</b><br>Associate Professor,<br>Department of Biomedical Engineering,<br>School of Engineering and Technology,<br>Karunya Institute of Technology and Sciences, Coimbatore. |                       |
| 7  | <b>Mr. V. Angappa,</b><br>Managing Director,<br>Mega Tech Scientific Instruments,<br>70, Rajunaidu Street, Sivanandha Colony, Coimbatore.                                                         | Industry<br>Expert    |
| 8  | <b>Dr. V. Premchandran,</b><br>Associate Professor / BME<br>Erode Sengunthar Engineering College, Perundurai                                                                                      | Internal Members      |
| 9  | <b>Dr. M. N. Saravana Kumar,</b><br>Associate Professor / BME<br>Erode Sengunthar Engineering College, Perundurai                                                                                 |                       |
| 10 | <b>Mr. K. Balasubramanian,</b><br>Assistant Professor / BME<br>Erode Sengunthar Engineering College, Perundurai                                                                                   |                       |

|    |                                                                                                        |                  |
|----|--------------------------------------------------------------------------------------------------------|------------------|
| 11 | <b>Mr. R.Shankar,</b><br>Assistant Professor / BME<br>Erode Sengunthar Engineering College, Perundurai | Internal Members |
| 12 | <b>Mrs. T.Yamuna,</b><br>Assistant Professor / BME<br>Erode Sengunthar Engineering College, Perundurai |                  |
| 13 | <b>Mrs. M. Divya,</b><br>Assistant Professor / BME<br>Erode Sengunthar Engineering College, Perundurai |                  |
| 14 | <b>Mrs. K.K.Leka,</b><br>Assistant Professor / BME<br>Erode Sengunthar Engineering College, Perundurai |                  |

|               |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
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| BoS / BME 3.1 | : | <b>WELCOME ADDRESS AND OPENING REMARKS BY CHAIRMAN, BOARD OF STUDIES IN THE DEPARTMENT OF BIOMEDICAL ENGINEERING.</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|               |   | The Chairman, BOS of the Biomedical Engineering welcomed the members of Board of Studies and thanked each of them for spending their valuable time to attend the meeting.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| BoS / BME 3.2 | : | <b>CONFIRMATION OF THE 2<sup>nd</sup> BOARD OF STUDIES MEETING MINUTES OF THE DEPARTMENT OF BIOMEDICAL ENGINEERING AND ACTION TAKEN REPORT OF 2<sup>nd</sup> BOARD OF STUDIES MEETING.</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|               |   | The Chairman, BOS of the Biomedical Engineering briefed about the changes made in the Regulation 2019 Semester I to IV syllabus of B.E. BME and action taken report of the 2 <sup>nd</sup> Board of Studies Meeting.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| BoS / BME 3.3 | : | <b>TO CONSIDER AND APPROVE THE CURRICULUM: V AND VI SEMESTER FOR B.E. BME PROGRAMME</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|               |   | <p>The Chairman, BOS of the Biomedical Engineering presented the Regulation 2019 curriculum of V and VI Semester B.E.BME among the Board of Studies members.</p> <p>The BoS members suggested the following:</p> <ul style="list-style-type: none"> <li>• Dr. M. Rammasubba Reddy suggested to remove the Bio Control System Subject from Semester IV to Semester V,</li> <li>• Dr. J. Krishnan agreed to have the Bio control System Subject Semester V,</li> <li>• Mr. V. Angappa suggested to give more importance to Subject related to GATE examinations,</li> <li>• Dr. M. Rammasubba Reddy agreed to include Syllabi for Infosys Limited Supported Courses in IV semester. All Bos members agreed the same,</li> <li>• All BoS members suggested to remove the title in the subjects like “supported by Infosys” in the curriculum but can be included in the syllabus by specifying within the brackets,</li> <li>• Dr. M. Rammasubba Reddy &amp; Mr. V. Angappa suggested to remove open elective subject in V semester to reduce the total number of credits in the range of 163 to 160 for UG curriculum,</li> <li>• Dr. M. Rammasubba Reddy suggested to change the Professional Elective paper ‘Body Area Networks’ as ‘Human Body Area Network’.</li> </ul> |

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| BoS / BME 3.4 | : | TO CONSIDER AND APPROVE THE <b>SYLLABI: V AND VI SEMESTER COURSES FOR B.E. BME PROGRAMME.</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|               |   | <p>The Chairman, BOS of the Biomedical Engineering presented the Syllabi of the Regulation 2019 for Semesters V and VI of BME among the Board of Study members.</p> <p>The BoS members suggested the following:</p> <ul style="list-style-type: none"> <li>• Dr. M. Rammasubba Reddy suggested to include Biomedical Waste Management syllabus in one of the unit in Hospital Waste Management.</li> <li>• Dr. M. Rammasubba Reddy &amp; Mr. V. Angappa suggested to have medical related syllabus in Disaster Management of Unit IV and V,</li> <li>• Dr. J. Krishnan and Dr. M. Rammasubba Reddy suggested to include Covid – 19 related management topics in Disaster management,</li> <li>• For the remaining Professional Elective subjects all the BoS members accepted.</li> </ul>                                                                                                                                                                                                                                                                                                                                |
| BoS / BME 3.5 | : | TO CONSIDER AND APPROVE <b>OPEN ELECTIVES OFFERED BY COMPUTER SCIENCE AND ENGINEERING DEPARTMENT</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|               |   | <p>The Chairman, BOS of the Biomedical Engineering presented the Open Electives of the Regulation 2019 offered by BME Department among the Board of Study members.</p> <p>The BoS members suggested the following:</p> <ul style="list-style-type: none"> <li>• Dr. M. Rammasubba Reddy suggested to show variations in the subject title and syllabus of the Open Electives from the BME department subjects</li> <li>• Dr. M. Rammasubba Reddy and Dr. J. Krishnan suggested to change the title of the subjects Biomedical Waste Management as Hospital Waste Management.</li> <li>• Mr. V. Angappa suggested to include the following subjects as Open Electives: <ul style="list-style-type: none"> <li>✓ Bio MEMS</li> <li>✓ Biometric System</li> <li>✓ Telemedicine</li> <li>✓ Basics of Bioinformatics</li> <li>✓ Design of Medical Instruments</li> </ul> </li> <li>• Dr. M. Rammasubba Reddy suggested to increase the number of Professional Electives and decrease the number of Open Electives,</li> <li>• Dr. J. Krishnan suggested to include the prerequisite of the Open Elective subjects.</li> </ul> |

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|---------------|---|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| BoS / BME 3.6 | : | TO CONSIDER AND APPROVE SYLLABI FOR <b>INFOSYS LIMITED SUPPORTED COURSES</b> .                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|               |   | <p>The Chairman, BOS of the Biomedical Engineering presented the Syllabi for Infosys Limited Supported Courses of the Regulation 2019 offered by BME Department among the Board of Study members.</p> <p>The BoS members suggested the following:</p> <ul style="list-style-type: none"> <li>• All BoS members agreed to have the Infosys Limited Supported Courses.</li> <li>• All BoS members agreed to replace existing Soft Skills – I (Semester I) and Soft Skills – II (Semester II) Course of R2019 B.E. BME curriculum. The modification is applicable to the students who admitted in the academic year 2020-2021 onwards.</li> </ul>                                                                                                                                                                                                                                                                                                    |
| BoS / BME 3.7 | : | TO CONSIDER AND APPROVE <b>NPTEL COURSES</b> TO BE OFFERED.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|               |   | <p>The Chairman, BOS of the Biomedical Engineering presented the NPTEL Courses to be offered among the Board of Study members.</p> <p>The BoS members suggested the following:</p> <ul style="list-style-type: none"> <li>• The Chairman, BoS of CSE presented the following NPTEL courses <ul style="list-style-type: none"> <li>✓ Medical Biomaterials</li> <li>✓ Tissue Engineering</li> <li>✓ Bioinformatics Algorithm and Applications</li> <li>✓ Biomedical Nanotechnology</li> <li>✓ Bio Analytical Techniques and Bioinformatics</li> <li>✓ Basic Electronics</li> <li>✓ Digital Signal Processing</li> </ul> </li> <li>• All BoS members suggested to include either two 8 week courses or one 12 week course. Also they suggested to consider 4 week course also,</li> <li>• All BoS members suggested to consider NPTEL course for open electives. Also they insisted to keenly watch that subjects should not be repeated.</li> </ul> |
| BoS / BME 3.8 | : | VOTE OF THANKS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|               |   | <p>❖ <b>Dr. S. Karthick</b>, Associate Professor / BME, proposed the vote of thanks for the 3<sup>rd</sup> BoS meeting conducted on 06.11.2020. She thanked everyone for their valuable presence over online mode and for their valuable suggestions to improve the curriculum and syllabi of B.E. Biomedical Engineering.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |

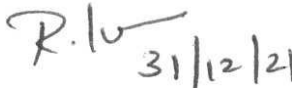


CHAIRMAN  
BOARD OF STUDIES

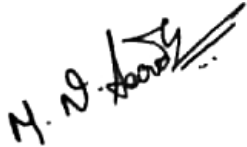
**MEMBERS PRESENT IN ONLINE**

|    |                                                                                                                                                                                                   |                       |
|----|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|
| 1. | <b>Dr. S. Karthick,</b><br>Professor & Head<br>Department of Biomedical Engineering,<br>Erode Sengunthar Engineering College, Perundurai.                                                         | Chairman              |
| 2. | <b>Dr. M. Ramasubba Reddy,</b><br>Professor,<br>Department of Applied Mechanics,<br>Indian Institute of Technology,<br>Chennai                                                                    | University<br>Nominee |
| 3. | <b>Dr. J. Krishnan,</b><br>Professor,<br>Department of Instrumentation Engineering,<br>Annamalai University, Chidambaram,<br>Cuddalore District.                                                  | Academic<br>Experts   |
| 4. | <b>Dr. P. Manimegalai,</b><br>Associate Professor,<br>Department of Biomedical Engineering,<br>School of Engineering and Technology,<br>Karunya Institute of Technology and Sciences, Coimbatore. |                       |
| 5. | <b>Mr. V. Angappa,</b><br>Managing Director,<br>Mega Tech Scientific Instruments,<br>70, Rajunaidu Street, Sivanandha Colony, Coimbatore.                                                         | Industry<br>Expert    |

**MEMBERS PRESENT**

|    |                                                                                                                                                         |                                                                                       |
|----|---------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| 1. | <b>Dr. V. Venkatachalam</b><br>Principal,<br>Erode Sengunthar Engineering College, Perundurai.                                                          |  |
| 2. | <b>Dr. S. Karthick,</b><br>Professor & Head<br>Department of Biomedical Engineering,<br>Erode Sengunthar Engineering College, Perundurai.               |  |
| 3. | <b>Dr. R. Kalaivani,</b><br>Professor,<br>Department of Electronics and Communication Engineering,<br>Erode Sengunthar Engineering College, Perundurai. |  |
| 4. | <b>Dr. M. Sundaram,</b><br>Professor / BME<br>Department of Biomedical Engineering,<br>Erode Sengunthar Engineering College, Perundurai                 |  |



|     |                                                                                                                                                         |                                                                                       |
|-----|---------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| 5.  | <b>Dr.V.Premchandran,</b><br>Associate Professor / BME<br>Department of Biomedical Engineering,<br>Erode Sengunthar Engineering College, Perundurai     |     |
| 6.  | <b>Dr.M.N.Saravana Kumar,</b><br>Associate Professor / BME<br>Department of Biomedical Engineering,<br>Erode Sengunthar Engineering College, Perundurai |    |
| 7.  | <b>Mr.K.Balasubramanian,</b><br>Assistant Professor,<br>Department of Biomedical Engineering,<br>Erode Sengunthar Engineering College, Perundurai.      |    |
| 8.  | <b>Mr. R.Shankar,</b><br>Assistant Professor / BME,<br>Department of Biomedical Engineering,<br>Erode Sengunthar Engineering College, Perundurai        |    |
| 9.  | <b>Mrs. T.Yamuna,</b><br>Assistant Professor / BME,<br>Department of Biomedical Engineering,<br>Erode Sengunthar Engineering College, Perundurai        |    |
| 10. | <b>Mrs.M.Dhivya,</b><br>Assistant Professor,<br>Department of Biomedical Engineering,<br>Erode Sengunthar Engineering College, Perundurai.              |  |
| 11. | <b>Mrs. K.K.Leka,</b><br>Assistant Professor / BME<br>Department of Biomedical Engineering,<br>Erode Sengunthar Engineering College, Perundurai         |  |

# Department of Biomedical Engineering

The 03<sup>rd</sup> Board of studies meeting held on 06.11.2020 through the following link:

Google online meet link <https://meet.google.com/wfh-hasx-kvf>

The screenshot shows a Google Meet interface with a presentation slide titled "OPEN ELECTIVES OFFERED BY BIOMEDICAL ENGINEERING". The slide contains a table with 10 rows of elective courses. The table has columns for Code No, Course, Objective & Outcomes (PEOs, POs & PSOs), and credit hours (L, T, P, C). The meeting details panel on the right shows 5 participants, including the host HOD BME ESEC (You) and other attendees like Angappa Mogutich, poolani shivamur, and Raktasiddha Reddy M ITM.

| Code No       | Course                              | Objective & Outcomes |                        |      | L | T | P | C |
|---------------|-------------------------------------|----------------------|------------------------|------|---|---|---|---|
|               |                                     | PEOs                 | POs &                  | PSOs |   |   |   |   |
| OPEN ELECTIVE |                                     |                      |                        |      |   |   |   |   |
| 19BMV01       | Basic of Biomedical Instrumentation | I, IV                | 1, 6, 8, 9, 10         | -    | 3 | 0 | 0 | 3 |
| 19BMV02       | Medical Electronics                 | I, III               | 1, 6, 7, 10, 11        | 2    | 3 | 0 | 0 | 3 |
| 19BMV03       | Biotechnology & Telemedicine        | III, IV              | 1, 2, 3, 7             | -    | 3 | 0 | 0 | 3 |
| 19BMV04       | Design of Biomedical Instruments    | I, IV                | 6, 7, 8, 9, 10, 11, 12 | -    | 3 | 0 | 0 | 3 |
| 19BMV05       | Human Assist Devices                | IV                   | 1, 2, 3                | 1    | 3 | 0 | 0 | 3 |
| 19BMV06       | Robotics and Automation in medicine | III, IV              | 1, 2, 3, 7             | -    | 3 | 0 | 0 | 3 |
| 19BMV07       | Medical Informatics                 | IV                   | 1, 2, 3                | -    | 3 | 0 | 0 | 3 |
| 19BMV08       | Telehealth Technology               | IV                   | 1, 2, 3, 7             | -    | 3 | 0 | 0 | 3 |
| 19BMV09       | Hospital Management                 | IV                   | 1, 2, 3                | 1    | 3 | 0 | 0 | 3 |
| 19BMV10       | Biomedical Waste Management         | IV                   | 1, 2, 3, 7             | -    | 3 | 0 | 0 | 3 |

