



# NANDHA ENGINEERING COLLEGE

(AUTONOMOUS)

(Approved by AICTE, New Delhi and Affiliated to Anna University, Chennai)

ERODE – 638 052 TAMILNADU

## Department of Biomedical Engineering

### Agenda for 7<sup>th</sup> BOARD OF STUDIES MEETING

<b>Name of the Body</b>	Board of Studies
<b>Name of the Board</b>	Biomedical Engineering
<b>Meeting No</b>	7
<b>Date &amp; Time</b>	31.05.2024, 11.30 AM
<b>Venue</b>	Board Room



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## Department of Biomedical Engineering

<b>BoS- 7</b>	<b>Date:31.05.2024</b>
Board: Biomedical Engineering	Mode of meeting: Offline
<b>AGENDA</b>	
Item 7.01	Welcome Address and Introduction to members
Item 7.02	Review of Institute Vision and Mission
Item 7.03	Review of Department Vision, Mission, PEOs and PSOs
Item 7.04	Review of the 6 <sup>th</sup> BoS meeting minutes and Action Taken Report
Item 7.05	Review of the PAC and DAB meeting minutes and Action Taken Report
Item 7.06	Approval of V, VI, VII & VIII semester syllabi for B.E- BME and verticals with CO-PO/PSO mapping
Item 7.07	Review of Ratification in R17 curriculum
Item 7.08	Review of Program Evaluation and Assessment
Item 7.09	Review of One Credit Courses.
Item 7.10	Review of TLP Pedagogy Implementation
Item 7.11	Review of Panel of Examiners
Item 7.12	Review on Placement and Training activities.
Item 7.13	Any other matter
Item 7.14	Vote of Thanks



  
CHAIRMAN - BOS



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### MINUTES OF BOARD OF STUDIES MEETING

<b>Name of the Body</b>	<b>Board of Studies (BoS)</b>	
<b>Department</b>	Biomedical Engineering	
<b>Meeting No.</b>	07	2023-24
<b>Date &amp; Time</b>	31.05.2024 & 11.30 AM	



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The proceedings of 7<sup>th</sup> BOS started and the minutes of the meeting are recorded as follows:

**Date & Time of Meeting:** 31.05.2024 (11.30 AM)

**Venue:** Board Room, Block III, Nandha Engineering College.

The members attended the meeting are given in Annexure I.

AGENDA	
<b>Item 7.01</b>	Welcome Address and Introduction to members.
<b>Item 7.02</b>	Review of Institute Vision and Mission.
<b>Item 7.03</b>	Review of Department Vision, Mission, PEOs and PSOs.
<b>Item 7.04</b>	Review of the 6th BoS meeting minutes and Action Taken Report.
<b>Item 7.05</b>	Review of the PAC and DAB meeting minutes and Action Taken Report.
<b>Item 7.06</b>	Approval of V, VI, VII & VIII semester syllabi for B.E- BME and verticals with CO-PO/PSO mapping.
<b>Item 7.07</b>	Review of Ratification in R17 curriculum.
<b>Item 7.08</b>	Review of Program Evaluation and Assessment.
<b>Item 7.09</b>	Review of One Credit Courses.
<b>Item 7.10</b>	Review of TLP Pedagogy Implementation.
<b>Item 7.11</b>	Review of Panel of Examiners.
<b>Item 7.12</b>	Review on Placement and Training activities.
<b>Item 7.13</b>	Any other matter.
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<b>Item 7.01</b>	Welcome Address and Introduction to members
	The Chairman of the BoS Dr. M. Dhipa, HoD-BME, commenced the meeting with welcome address and introduced the members.
<b>Item 7.02</b>	Review of Institute Vision and Mission.
Discussion	Dr. M. Dhipa presented the Institute Vision and Mission.
Resolution	Review and Approve
<b>Item 7.03</b>	Review of Department Vision, Mission, PEOs and PSOs.
Discussion	Dr. M. Dhipa presented the Department Vision, Mission, PEOs and PSOs.
Resolution	Review and Approve
<b>Item 7.04</b>	Review of the 6th BoS meeting minutes and Action Taken Report.
Discussion	Dr. M. Dhipa presented the 6th BoS meeting minutes and Action Taken Report.
Resolution	Resolved to record
<b>Item 7.05</b>	Review of the PAC and DAB meeting minutes and Action Taken Report.
Discussion	Dr. M. Dhipa presented the previous PAC and DAB meeting minutes and Action Taken Report.
Resolution	Resolved to record
<b>Item 7.06</b>	Approval of V, VI, VII & VIII semester syllabi for B.E- BME and verticals with CO-PO/PSO mapping.
Discussion	<p>Dr. M. Dhipa presented V, VI, VII &amp; VIII semester syllabi for B.E- BME and verticals with CO-PO/PSO mapping for approval.</p> <ul style="list-style-type: none"><li>• <b>General Suggestions</b><ul style="list-style-type: none"><li>✓ Vertical Titles to be changed:<ul style="list-style-type: none"><li>▪ Vertical 2 as WEARABLE TECHNOLOGY.</li><li>▪ Vertical 3 as ARTIFICIAL INTELLIGENCE IN MEDICINE.</li><li>▪ Vertical 6 as MODERN HEALTHCARE DEVICES</li></ul></li><li>✓ Reduce 7 Verticals to 6 Verticals.</li><li>✓ Create a unique syllabus with different fields in biomedical engineering like biotechnology, regenerative medicine and drug delivery.</li></ul></li></ul>



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• **Course wise Suggestions made by the External members**

S. No	Course Title	Suggestions	Suggested by
1	22BMC08 - Microprocessors and Microcontrollers Interfacing	<ul style="list-style-type: none"> <li>▪ The term 'interfacing' is not necessary in the title.</li> <li>▪ In Unit IV – Specify the sensor for Biosensor interfacing.</li> <li>▪ Remove unit-V. It can be given as certification course separately.</li> <li>▪ Unit I – 8085; Unit II – 8051; Unit III – 8051 Programming; Unit IV – PIC Microcontroller; Unit V – Communication Peripherals.</li> </ul>	Er. Muhammadu Sathik Raja & Dr. K. Hariharan
2	22BMC09 - Radiology Equipment	<ul style="list-style-type: none"> <li>▪ Unit I – include X-ray types.</li> <li>▪ Unit II – include CT Scan slice.</li> </ul>	Dr. S. Esakkirajan
3	22BMP05 - Microprocessors and Microcontrollers Interfacing Laboratory	Remove study experiments.	Dr. K. Hariharan & Dr. A. Karthika
4	22BMP06 - Diagnostic and Therapeutic Equipment Laboratory	Experiments should not be entitled as 'Study'	Dr. K. Hariharan
5	22BMC12 - Medical Image Processing	<ul style="list-style-type: none"> <li>▪ Add Morphology, DICOM in Medical Image Processing.</li> <li>▪ Remove basic image model.</li> <li>▪ Add feature extraction (can be given as a separate unit if possible).</li> <li>▪ Compression to be reduced. Remove, DCT &amp; Wavelet transform based image compression.</li> </ul>	Dr. S. Esakkirajan
6	22BMP07 - Medical Image Processing Laboratory	<ul style="list-style-type: none"> <li>▪ Remove experiments 2, 5 &amp; 15.</li> <li>▪ Combine experiments 8 &amp; 9.</li> <li>▪ Include ITK tool for image segmentation.</li> </ul>	Dr. K. Hariharan
7	Biometric Systems	Include Viola Jones algorithm in Unit III.	Dr. S. Esakkirajan & Dr. S. Thomas George.
8	Radiotherapy Basics and Application	The term BASICS to be removed from course title.	Dr. K. Hariharan & Dr. S. Thomas George.



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9	Medical Optics	Include light applications in Biomedical Engineering. Also, include Optical Coherence Tomography (OCT) and Retinal Imaging.	Dr. S. Esakkirajan & Dr. S. Thomas George.
10	Telemedicine and Medical IoT	Introduce IoMT, Medical edge devices. ARM Cortex might be a heavy topic.	Dr. S. Esakkirajan
11	Medical Informatics	Instead of Bioethics, it can be given as Medical ethics.	Dr. S. Esakkirajan
12	Brain Computer Interface and Applications	Remove PSD.	Dr. S. Esakkirajan
13	Ergonomics	Case studies can be tailored and modified to focus on specific hospital applications. Like, Ergonomic chair design for lumbar pain; Assistive design for back support.	Dr. S. Esakkirajan & Er. Muhammadu Sathik Raja
14	Finite Element Methods for Biomechanical Analysis	Reduce the content. Try to rephrase with CAD design.	Dr. S. Esakkirajan & Er. Muhammadu Sathik Raja
15	Physiological Modeling	Unit III to be rephrased.	Dr. S. Esakkirajan & Dr. S. Thomas George.
16	Haptics	<ul style="list-style-type: none"> <li>▪ Elaborate the topics.</li> <li>▪ Limit text books to 2.</li> </ul>	Dr. S. Esakkirajan & Dr. S. Thomas George.
17	Hospital Planning, Organization and Management	Include PACs in Unit V.	Dr. S. Esakkirajan & Dr. S. Thomas George.
18	Robotics in Healthcare	<ul style="list-style-type: none"> <li>▪ Reduce contents of Unit II.</li> <li>▪ Remove the topic 'Differential relationship'.</li> </ul>	Dr. S. Esakkirajan & Dr. A. Karthika

Resolution Review and Incorporate suitably.

**Item 7.07** Review of Ratification in R17 curriculum.

Discussion Dr. M. Dhipa presented the revisions made in the R17 curriculum for the purpose of placement.

Course Code	Course Title	Changes Made
17ITX37	Problem Solving using Java	Moved from OE to PSE

Resolution Resolved to approve in R17 Curriculum

**Item 7.08** Review of Program Evaluation and Assessment.

Discussion Dr. M. Dhipa presented the Program Evaluation and Assessment schemes for all the courses.

Resolution Reviewed and approved

**Item 7.09** Review of One Credit Courses.



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Discussion	<p>Dr. M. Dhipa presented the one-credit courses, identified certified courses and online courses completed by the students.</p> <ul style="list-style-type: none"> <li><b>Offered One – Credit Courses:</b></li> </ul> <table border="1" data-bbox="224 588 1523 709"> <thead> <tr> <th>S. No</th> <th>COURSE CODE</th> <th>BATCH</th> <th>Course Title</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>17BMI04</td> <td>[2021 - 2025]</td> <td>Embedded System for Biomedical Application</td> </tr> <tr> <td>2</td> <td>22BMI01</td> <td>[2022 - 2026]</td> <td>Embedded Product Design and IoT</td> </tr> </tbody> </table> <ul style="list-style-type: none"> <li><b>NPTEL Courses:</b></li> </ul> <p>Elite + Silver = 1; Elite = 17</p> <table border="1" data-bbox="383 844 1455 1029"> <thead> <tr> <th>S. No</th> <th>Course Title</th> <th>No. of Students Completed</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Genetic Engineering: Theory and Application</td> <td>4</td> </tr> <tr> <td>2</td> <td>Biophotonics</td> <td>29</td> </tr> <tr> <td>3</td> <td>Entrepreneurship Essentials</td> <td>9</td> </tr> </tbody> </table>	S. No	COURSE CODE	BATCH	Course Title	1	17BMI04	[2021 - 2025]	Embedded System for Biomedical Application	2	22BMI01	[2022 - 2026]	Embedded Product Design and IoT	S. No	Course Title	No. of Students Completed	1	Genetic Engineering: Theory and Application	4	2	Biophotonics	29	3	Entrepreneurship Essentials	9
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Resolution	Reviewed and approved																								
<b>Item 7.10</b>	Review of TLP Pedagogy Implementation.																								
Discussion	<p>Dr. M. Dhipa presented the TLP Pedagogy implementations in the department</p> <ul style="list-style-type: none"> <li><b>Activity Based Learning</b> Engaging students in active learning by applying theoretical knowledge in practical scenarios, promoting analysis, critical thinking and collaborative learning.</li> <li><b>Hands-On Laboratory Sessions</b> Enabling students to understand and apply theoretical concepts by conducting hands-on experiments using discrete components, fostering analytical thinking and problem-solving skills.</li> <li><b>Field Visits</b> Enhancing students' understanding of theoretical concepts through real-world exposure and practical insights by organizing field visits related to their subjects.</li> <li><b>Assignments involving case study</b> Reinforcing students' understanding of theoretical concepts and their practical applications by analyzing real-world scenarios through case studies.</li> </ul>																								
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Discussion	<p>Dr. M. Dhipa – Chairman, presented the placement status of IV Year (2024 batch) students and training plan for 2021-2025 batch students.</p> <p><b>IV YEAR PLACEMENT STATUS:</b></p> <p>Total No. of Students Placed: 37 [CORE - 22 &amp; IT - 15].</p>
Resolution	Reviewed and approved
<b>Item 7.13</b>	Any other matter
	<ul style="list-style-type: none"><li>✓ Dr. Thomas George suggested initiating product development through PBL course.</li><li>✓ Dr. S. Esakkirajan suggested offering training to solve real-time problems and acquire hands-on training.</li></ul>
<b>Item 7.14</b>	Vote of Thanks
	Dr. M. Dhipa proposed the Vote of Thanks.



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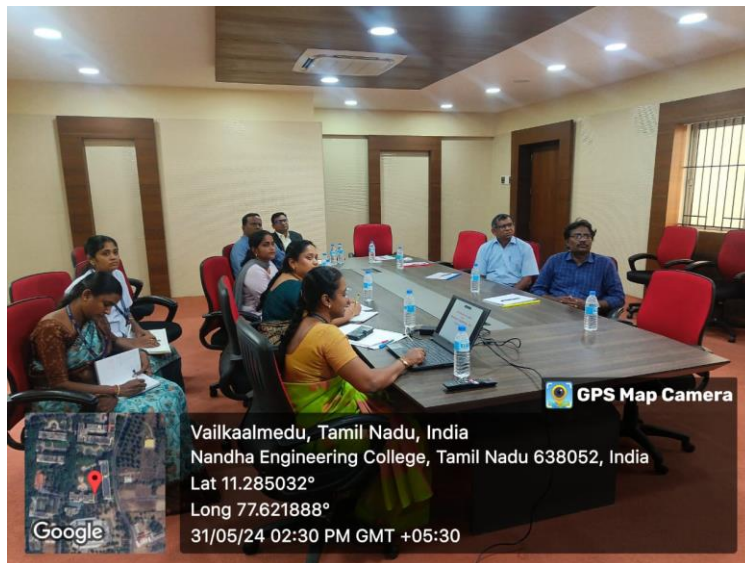
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## Department of Biomedical Engineering

### 7<sup>th</sup> Board of Studies Meeting



*Handwritten signature in green ink*  
 31/5/24

*Handwritten signature in blue ink*  
 CHAIRMAN – BOS

[Dr. M. DHIPA, Head of the Department – BME]



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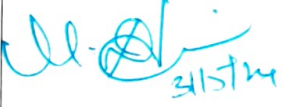
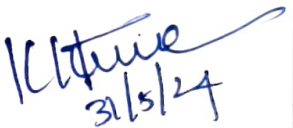
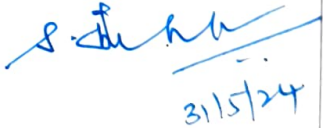
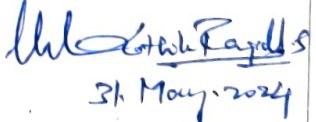
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Department of Biomedical Engineering

Email : [hodbmec@nandhaengg.org](mailto:hodbmec@nandhaengg.org)

## ANNEXURE-II

Name of the Board	Meeting No.	Academic year
Biomedical Engineering	07	2023-24

Meeting Attendance			
S.No	Members	Representation	Signature with date
1	Dr. M. Dhipa Associate Professor & Head Biomedical Engineering, Nandha Engineering College (Autonomous), Erode – 638 052.	Chairman	 31/5/24
2	Dr. K. Hariharan, Professor, Department of Electronics and Communication Engineering, Thiagarajar College of Engineering, Madurai – 625 015.	University Nominee	 31/5/24
3	Dr.P.Palanisamy, Professor, Department of Electronics and Communication Engineering, National Institute of technology, Trichirappalli - 620 015.	Expert Nominee (Nominated by Academic Council)	LEAVE OF ABSENCE
4	Dr. S. Thomas George, Professor & Head, Department of Biomedical Engineering, Karunya Institute of Technology & Science (Deemed University), Coimbatore - 641 114.	Expert Nominee (Nominated by Academic Council)	 31/5/24
5	Er. Muhammadu Sathik Raja, HR & CR Medingers Healthcare Solutions, Erode – 638 009.	Member (Expert from Industry)	 31 May 2024



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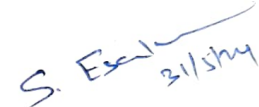
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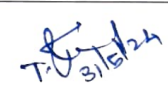



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Email : [hodbme@nandhaengg.org](mailto:hodbme@nandhaengg.org)

6	Dr. A. Karthika, Assistant Professor, Department of Biomedical Engineering, SNS College of Technology, Coimbatore - 641 035.	Alumni	
7	Dr. S. Esakkirajan, Professor, Department of Instrumentation and Control Systems Engineering, PSG College of Technology, Coimbatore – 641 005.	Special Invitee	

## Meeting Attendance- Internal members

S. No	Members	Representation	Signature with date
1	Ms. B. Sowparnika, Assistant Professor - Biomedical Engineering.	Member	
2	Dr. T. Jayakumar, Associate Professor - Biomedical Engineering.	Member	
3	Mr. A. Amarnath Prabhakaran, Assistant Professor - Biomedical Engineering.	Member	
4	Ms. K. Thivyabrabha, Assistant Professor - Biomedical Engineering.	Member	
5	Ms. C. Saranya, Assistant Professor - Biomedical Engineering.	Member	

  
Chairman BOS

