SETHU INSTITUTE OF TECHNOLOGY

(An Autonomous Institution)

Estd : 1995

MINUTES OF THE MEETING
Board of Studies of Biomedical
Engineering

Pulloor, Kariapatti – 626 115, Virudhunagar District

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SETHU INSTITUTE OF TECHNOLOGY,
PULLOOR, KARIAPATTI – 626115
5th MEETING OF BOARD OF STUDIES
DEPARTMENT OF BIOMEDICAL ENGINEERING
HELD ON 19.09.2020

MINUTES OF MEETING

The Fifth Meeting of the Board of Studies in the Department of Biomedical Engineering held on 19.09.2020 at 02.30 p.m. through online mode using the Microsoft Teams platform. The following members were present:

S. No	Name	Designation	Status
1.	Dr.R.Arangasamy	Dean, Professor & HOD/BME	Chairman
2.	Dr.G.Uma	Professor, Department of Instrumentation and Control Engineering, National Institute of Technology, Tiruchirappalli.	Anna University Nominee
3.	Dr.S.P. Angeline Kirubha	Assistant Professor (Selection Grade) Department of Biomedical Engg., SRM Institute of Science and Technology, Chennai.	Academic Expert Member (External)
4.	Dr. A. Umarani	Professor, Department of EIE, KLN College of Engineering, Pottapalayam, Sivaganga Dist.	Academic Expert Member (External)
5.	Mr. S. Kumar	Sr.Manager, Biomedical Application, T&M, TMI Systems, Bangalore	Industry Nominee
6.	Dr. K. Hemalatha	Professor & Dean (Academics)	Member
7.	Dr.N.Kins Burk Sunil	Assistant Professor (Sr. Gr.)	Member
8.	K.Kalanithi	Assistant Professor (Sr. Gr.)	Member
9.	Dr.E.Maheswaran	Assistant Professor (Sr. Gr.)	Member
10.	M. Manimaran	Assistant Professor	Member
11.	R.Nageshwari	Assistant Professor	Member
12.	R.Vasantharani	Assistant Professor	Member
13.	R.Sushmitha	Assistant Professor	Member
14.	C.Bilna	Assistant Professor	Member
15.	M.Monica	Assistant Professor	Member
16.	S.S.Aarthi @ Priyadharshini	Assistant Professor	Member

The Agenda for the meeting is
1. To consider and recommend the revised Department Vision, Mission, PEOs, POs, and PSOs of the UG and PG Programmes.
2. To present the analysis of the Stakeholders feedback regarding curriculum and syllabi
3. To present Mapping of Curriculum and syllabi with Programme Specific Criteria
4. To present the classification of courses having the focus on employability/ entrepreneurship/ skill development
5. To consider and approve for the list of examiners from other colleges who could be invited for conducting practical examination/Project Viva, Question Paper Setting, Paper evaluation, Exam invigilation duties.
6. To consider and approve the value-added courses imparting transferable and life skills (beyond the curriculum and with 30 or more contact hours)
7. To approve the list of New Courses under Regulation 2019 and approve the suggestions for improving the R2019 curriculum structure.
8. Percentage of change in the Curriculum and for each course in Regulation 2019

The Chairman welcomed the members and presented as per the agenda given above for the Curriculum under Regulation 2019 and Syllabi for the third and fourth semesters which is to be followed from 2019-20 batch under Autonomous Regulation for B.E. Biomedical Engineering.

1. Consider and recommend the proposed Department Vision, Mission, PEOs, POs and PSOs

The Vision, Mission, PEOs, POs, and PSOs of the B.E Biomedical
Engineering Programme are discussed.

1.1 The BOS resolved to approve the Vision, Mission, PEOs, Pos and PSOs.

2. Analysis of Stakeholders feedback regarding curriculum and syllabi

The stakeholders' feedback was obtained regarding curricula and syllabi in various formats and sources. The stakeholder's feedbacks and their suggestions are presented and discussed thoroughly. Based on their suggestions and following resolutions are made.

2.1 The BOS resolved to include a new course Medical Instrumentation System Design and Calibration (19UBM930) in the Professional elective.

3. Mapping of Curriculum and syllabi with Programme Specific Criteria

Mapping of curriculum components with PEOs, POs, and Programme - Specific Criteria is presented and discussed.

3.1 The BoS resolved to approve and recommend the mapping of curriculum components with PEOs, POs and Program specific criteria.

4. Classification of courses having focus on Employability/ Entrepreneurship/ Skill development.

The categorization of courses in curriculum R2019 based on the employability/ entrepreneurship/ skill development is presented and discussed in detail.

4.1 The BoS resolved to approve the classification of R2019 courses which focus on employability/ entrepreneurship/ skill development.

5. **Approval for the list of examiners from other colleges who could be invited for conducting practical examination/Project Viva, Question Paper Setting, Paper evaluation, Exam invigilation duties.**

The list of examiners is identified from other colleges for conducting practical examination/Project Viva, Question Paper Setting, Paper evaluation, and Exam invigilation duties.

5.1 The BoS resolved to approve the list of examiners proposed by the Chairperson.

6. **Approval of value added courses imparting transferable and life skills**
The chairman has presented the list of value added courses beyond curriculum and with 30 or more contact hours.

6.1 The BoS recommended to introduce the following value added courses
   - ➢ Materialise Mimics - Image processing software for 3D design and modeling.
   - ➢ Arduino based design of Basic Medical Equipments.
   - ➢ Biomedical Laboratory Diagnostics
   - ➢ Biomedical Computing
   - ➢ Embedded C programming
   - ➢ PCB Design and Testing

7. **To approve the list of New Courses under Regulation 2019 for B.E Biomedical Engineering and approve the suggestions for improving the R2019 curriculum**

The List of Courses included under Regulation 2019 is presented and discussed.

7.1 The BOS resolved to introduce the following core courses in the curriculum:
   - ➢ 19UBM408 - Sensors and Biomedical Instrumentation Laboratory
   - ➢ 19UME701 - Project Management and Finance

7.2 The BOS resolved to introduce the following elective courses in the curriculum:
   - ➢ 19UBM927 - Big Data and IoT in Medical Applications
   - ➢ 19UBM928 - Medical Coding and Transcription
   - ➢ 19UBM929 - Medical Waste management
   - ➢ 19UBM930 - Medical Instrumentation System Design and Calibration
   - ➢ 19UBM931 - Bio-Signal Processing
   - ➢ 19UBM932 - Principles of Machine Learning
   - ➢ 19UBM933 - Bio Statistics
   - ➢ 19UBM934 - Digital System Design
   - ➢ 19UBM935 - VLSI System Design for Biomedical Applications

7.3 The BOS resolved to introduce the following one credit courses in the curriculum:
  - ➤ 19UBM875 - Introduction to International Medical Data Banks
  - ➤ 19UBM876 - Role of Biomedical Engineers in Disaster Management

7.4 The BOS resolved to modify the following core courses in the curriculum:
  - ➤ Human Physiology experiments are added with 'Biochemistry Laboratory' and renamed as 'Biochemistry Human Physiology Laboratory' (19UBM308).

  - ➤ A core course 'Pattern Recognition and Neural Networks' is shifted to professional elective and the experiments regarding 'Pattern Recognition' are removed from the laboratory course 'Image Processing and Pattern Recognition Laboratory' and renamed as 'Image Processing Laboratory' (19UBM709).

7.5 The proposed syllabi for Third and Fourth semester professional core courses offered by the department are presented and discussed. The BOS resolved to approve the syllabi for third and fourth semester professional core courses.

7.6 The BOS resolved to introduce the following Mandatory courses in the curriculum for various undergraduate programmes:

Semester	Course code	Name of the Course	Applicable Programmes
III	19UGM331	Biology for Engineers	Bio Medical Engineering Bio Technology
	19UGM332	Biology for Engineering Applications	Agriculture Engineering Civil Engineering Chemical Engineering Electronics and Communication Engg. Electrical and Electronics Engineering Information Technology
IV	19UGM432	Basics of Biology for Engineering Applications	Computer Science and Engineering Mechanical Engineering Computer Science and Business Systems

8. **Percentage of change in the overall curriculum and Syllabi for third and fourth semester courses in Regulation 2019.**

    8.1 The Percentage of change in the curriculum for Regulation 2019 is proposed and discussed. The BOS resolved to approve the changes listed below (comparison from R-2015):

Course Category	No. of courses in the curriculum	No. of courses modified/newly introduced	Percentage of change
Humanities and Social Sciences (HS)	7	2	28.6 %
Basic Science courses (BS)	9	2	22.2 %
Engineering Science courses (ES)	8	3	37.5 %
Professional Core courses (PC)	28	4	14.3 %
Professional Elective (PE)	34	17	50 %
Open Elective (OE)	5	1	20 %
Project work (P)	5	3	60 %
Mandatory Courses (MC)	5	3	60 %
One Credit Courses	16	9	56.3 %
Inter Disciplinary Courses	2	-	-
TOTAL	119	44	34.9 %

8.2 The percentage change in the proposed syllabi for III semester professional core courses offered by the department are presented and discussed. The BOS resolved to approve the changes listed below:

Course code	Name of the Course	% Change in Syllabus
19UBM302	Human Anatomy and Physiology	20 %
19UBM303	Biochemistry	11 %
19UBM304	Biomedical Instrumentation	08 %
19UBM305	Semiconductor Devices and Circuits	04 %
19UBM306	Sensors and Measuring Techniques	36 %
19UBM307	Semiconductor Devices and Circuits Laboratory	35 %
19UBM308	Biochemistry and Human Physiology Laboratory	44 %
	Consolidated Changes	22.57 %

8.3 The percentage change in the proposed syllabi for IV semester professional core courses offered by the department are presented and discussed. The BOS resolved to approve the changes listed below:

Course code	Name of the Course	% Change in Syllabus
19UBM402	Analog and Digital Integrated Circuits	16 %
19UBM403	Medical Physics	12 %
19UBM404	Principles of Signals and Systems	--
19UBM405	Pathology and Microbiology	16 %
19UBM406	Diagnostic and Therapeutic Equipments – I	10 %
19UBM407	Analog and Digital Integrated Circuits Laboratory	20 %
19UBM408	Sensors and Biomedical Instrumentation Laboratory	100 %
19UBM409	Pathology and Microbiology Laboratory	38 %
	Consolidated Changes	26.5 %

Chairman
Board of Studies/BME

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DEPARTMENT OF BIOMEDICAL ENGINEERING

BOARD OF STUDIES MEETING HELD ON 19.09.2020

ACTION TAKEN REPORT

S.No.	Faculty Name	Suggestions Given	Action Taken
1.	**Dr.G.Uma,** Professor, Department of Instrumentation and Control Engineering, National Institute of Technology, Tiruchirappalli. **(Member – Anna University)**	Suggested to shift the course Biomedical Instrumentation from 3rd semester to 4th/5th semester for better understanding of the students.	Biomedical Instrumentation Laboratory course is shifted to 4th semester. Biomedical Instrumentation Theory course will be shifted in the next regulation.
2.	**Dr.S.P. Angeline Kirubha,** Assistant Professor (Selection Grade) Department of Biomedical Engg., SRM Institute of Science and Technology, Chennai. **(Academic Expert Member – External)**	Suggested to include biomedical sensors experiments in the laboratory course.	Sensors experiments were added with Biomedical Instrumentation Laboratory and named as Sensors and Biomedical Instrumentation Laboratory (19UBM408) in the 4th semester.
		Suggested to include Bio-Statistics course in the curriculum.	A new course '19UBM933 - Bio Statistics' was introduced in the core elective.
		Suggested to include topics regarding emergency/disaster management	One credit Course '19UBM876 Role of Biomedical Engineers in Disaster Management' was introduced in the curriculum.
3.	**Dr.A.Umarani** Professor, Department of EIE, KLN College of Engineering, Sivaganga Dist. **Academic Expert Member – (External)**	Suggested to introduce courses regarding Machine Learning.	A new course '19UBM932 Principles of Machine Learning' was introduced in the core elective.
4.	**Mr. S. Kumar,** Sr.Manager, Biomedical Application, T&M, TMI Systems, Bangalore **(Industry Expert)**	Suggested to include 'Integrated circuit design' related course in the curriculum.	A new course '19UBM935 VLSI System Design for Biomedical Applications' was introduced in the core elective.
		Suggested to include Big Data and IoT related course in the curriculum.	A new course '19UBM927 Big Data and IOT in Medical Applications' was introduced in the core elective.
		Suggested to include PCB Design in the curriculum	'PCB Design and Testing' was introduced as value added course.

R.

HOD/BME
Chairperson
Board of Studies
Bio Medical Engineering
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