



MINUTES OF THE 23RD BOARD OF STUDIES MEETING FOR THE UG B.E. BIOMEDICAL ENGINEERING PROGRAMME HELD ON 02.04.2026 AT 02.30 PM IN THE DEPARTMENT OF BIOMEDICAL ENGINEERING

The following members attended the above meeting.

- | | | |
|-----|-----------------------|---|
| 1. | Dr. N.Sathish Kumar | Chairperson |
| 2. | Dr. E. S. Gopi | University Nominee |
| 3. | Mr. Sabarikannan. D | Industry Expert |
| 4. | Dr. Vidyalakshmi. S | Subject Expert from parent University |
| 5. | Dr. Arockiarajan. A | Subject Expert from outside parent University |
| 6. | Mr. Janak Y. Dave | Alumni Representative |
| 7. | Dr. V. Radhika | Internal Member |
| 8. | Mrs. G. Lavanya | Internal Member |
| 9. | Dr. R. Saranya | Internal Member |
| 10. | Mr. S. Vigneshwaran | Internal Member |
| 11. | Mrs. Rasheedha. A | Internal Member |
| 12. | Dr. D. Narmadha | Internal Member (Mathematics department) |
| 13. | Dr. L. Dhiviyalakshmi | Department BoS Coordinator |

Prof. N. Sathish Kumar, Chairperson, Board of Studies, chaired the meeting and welcomed all the members to the 23rd BoS meeting. After a brief introduction, the agenda items listed were taken up for discussion and the following resolutions were passed.

ITEM No.1

- It is resolved that Revised Regulation 2020 (Learning Outcome based Curriculum through Choice based Credit) will be followed for B.E. Biomedical Engineering programme for students admitted in the Academic year 2022, 2023 & 2024.

ITEM No.2

- It is resolved that Regulations 2025 (Outcome based Curriculum through Choice based Credit System) will be followed for B.E. Biomedical Engineering programme for students admitted in the Academic year 2025 and onwards.

ITEM No.3

- It is resolved that the syllabi be approved for the following professional elective under Revised Regulation 2020.

S.No	Course Code	Course Title	Credits
1	20BM2E38	Biomedical Waste Management	3

ITEM No.4

- It is resolved that the Curriculum and Syllabi for the following courses under Regulation 2025 be approved and passed.

Category	Semester								Total Credits
	I	II	III	IV	V	VI	VII	VIII	
HSSM	7	3			2		2		14
BS	10	5	3						18
ES	3	8	6						17
PC		3	10	12	8	11	9		53
PE					3	3	6	6	18
OE				3	3				6
MMC				3	3	3			9
AEC		2	2						4
SEC			2		2				4
VAC				2	2				4
LAC						2			2
ELC				2		2	2	6	12
Total Credits	20	21	23	22	23	21	19	12	161

SEMESTER I

S. No	Course Code	Course Title	Category	L	T	P	C
THEORY							
1.	25BM2103	Hospital System Management	HSSM	3	0	0	3
2.	25MA2101	Linear Algebra and Differential Equations	BSC	3	1	0	4
3.	25PH2100	Applied Physics	BSC	2	0	0	2
4.	25BM2102	Biochemistry	BSC	2	0	0	2
5.	25TA2100	HERITAGE OF TAMILS- தமிழர்மரபு	HSSM	1	0	0	1
THEORY CUM LABORATORY							
6.	25EN2150	Business and Corporate Communication	HSSM	2	0	2	3
7.	25CS2151	C Programming	ESC	2	0	2	3
PRACTICALS							
8.	25PH2170	Applied Physics lab	BSC	0	0	2	1
9.	25BM2170	Biochemistry Laboratory	BSC	0	0	2	1
10.	25BM2171	Hospital Training - I	ESC	-	-	2	-
Total							20

SEMESTER II

S. No	Course Code	Course Title	Category	L	T	P	C
THEORY							
1.	25HS2101	Social Science -Indian Knowledge System	HSSM	2	0	0	2
2.	25MA2109	Probability, Statistics and Transforms	BSC	2	1	0	3
3.	25PH2106	Medical Physics	BSC	2	0	0	2
4.	25BM2104	Circuits & Devices	ESC	3	0	0	3
5.	25TA2101	Tamils and Technology- தமிழரும் தொழில்நுட்பமும்	HSSM	1	0	0	1
THEORY CUM LABORATORY							
6.	25IT2150	Python Programming	ESC	2	0	2	3
7.	25BM2250	Human Anatomy & Physiology	PCC	2	0	2	3
PRACTICALS							
8.	25BM2172	Circuits & Devices Laboratory	ESC	0	0	2	1
9.	25BM2171	Hospital Training - I	ESC	0	0	2	1
10.	25EN2170	Functional English	AEC-1	0	0	4	2
Total							21

SEMESTER III

S. No	Course Code	Course Title	Category	L	T	P	C
THEORY							
1.	25MA2118	Numerical methods	BSC	2	1	0	3
2.	25BM2200	Digital Electronics	PCC	2	1	0	3
3.	25BM2201	Pathophysiology	PCC	2	0	0	2
4.	25BM2202	Biomedical materials	PCC	2	0	0	2
THEORY CUM LABORATORY							
5.	25CS2261	Data Structures and Algorithm	ESC	2	0	2	3
6.	25BM2251	Sensors and Transducers in Healthcare	ESC	2	0	2	3
	PRACTICALS						
7.	25BM2270	Digital Electronics Lab	PCC	0	0	2	1
8.	25BM2271	Pathophysiology Lab	PCC	0	0	2	1
9.	25BM2272	Biomedical materials Lab	PCC	0	0	2	1
10.	CIA	Foreign language	AEC-2	2	0	0	2
11.	25BM2370	PCB Designing	SEC-1	0	0	2	2
	25BM2371	Computational Biology Techniques					
	25BM2372	MATLAB Training Program					
Total							23

SEMESTER IV

S. No	Course Code	Course Title	Category	L	T	P	C
THEORY							
1.	25BM2203	Signals & Systems for Bioengineers	PCC	2	1	0	3
2.	25BM2204	Biomechanics	PCC	3	0	0	3
3.		Open Elective I	OE	3	0	0	3
4.	25BM2105	Biomedical Engineering for Sustainable Health Well-being	VAC-1	2	0	0	2
THEORY CUM LABORATORY							
5.	25BM2252	Medical Instrumentation Electronics	PCC	3	0	2	4
6.	25XXXXXX	Artificial Intelligence for Healthcare	MMC	2	0	2	3
PRACTICALS							
7.	25BM2273	Signals & System for Bioengineers Lab	PCC	0	0	2	1
8.	25BM2274	Biomechanics Lab	PCC	0	0	2	1
9.	25BM2275	Mini Project	ELC	0	0	2	2
Total							22

SEMESTER V

S. No	Course Code	Course Title	Category	L	T	P	C
THEORY							
1.	25BM2205	Regulatory Affairs, Bioethics & IPR	HSSM	2	0	0	2
2.	25BM2300	Microcontroller and its application	PCC	3	0	0	3
3.	25BM2301	Diagnostic & Therapeutic Equipment	PCC	3	0	0	3
4.	25BMxxxx	Professional Elective I	PE	3	0	0	3
5.	25xxxxxx	Open Elective II	OE	3	0	0	3
6.	25BM2106	Quality Management and Patient Safety in Healthcare	VAC-2	2	0	0	2
THEORY CUM LABORATORY							
6.	25xxxxxx	1. Mobile App Development 2. Java Programming	MMC	1	0	4	3
PRACTICALS							
7.	25BM2373	Microcontroller and its application Lab	PCC	0	0	2	1
8.	25BM2374	Diagnostic & Therapeutic Equipment Lab	PCC	0	0	2	1
9.	25BM2375	Multidisciplinary Project	ELC	0	0	2	2
Total							23

SEMESTER VI

S. No	Course Code	Course Title	Category	L	T	P	C
THEORY							
1.	25BM2302	Radiological Equipment and Nuclear Medicine	PCC	3	0	0	3
2.	25BM2400	Medical Data Analytics	PCC	3	0	0	3
3.	25BM2401	Medical Image Processing	PCC	3	0	0	3
4.		Professional Elective II	PE	3	0	0	3
THEORY CUM LABORATORY							
5.	25xxxxxx	1. Embedded and Internet of Things 2. Medical Robotics 3. ARVR	MMC	2	0	2	3
PRACTICALS							
6.	25BM2470	Medical Data Analytics Lab	PCC	0	0	2	1
7.	25BM2471	Medical Image Processing Lab	PCC	0	0	2	1
9.	CIA	Vedic Mathematics/ Cultural heritage of India/ Dance / Music/ Yoga	LAC	2	0	0	2
10.	25BM2376	3D Modeling and Simulation Tools	SEC-2	0	0	2	2
Total							21

ITEM No.5

- It is resolved that the syllabi for the following new Professional Core Courses under Regulation 2025 for the Semester V and VI be approved and passed.

- 25BM2300 – Microcontroller and Its application
- 25BM2301 – Diagnostic & Therapeutic Equipment
- 25BM2373 – Microcontroller and Its Applications Laboratory
- 25BM2374 – Diagnostic and Therapeutic Equipment Laboratory
- 25BM2303 – Radiological Equipment and Nuclear Medicine
- 25BM2400 – Medical Data Analytics
- 25BM2401 – Medical Image Processing
- 25BM2470 – Medical Data Analytics Laboratory
- 25BM2471 – Medical Image Processing Laboratory

ITEM No.6

- It is resolved that the syllabi for the following new Professional Elective courses under Regulation 2025 be approved and passed.

- 25BM2xxx - Critical Care Equipment
- 25BM2xxx - Biomedical Photonics
- 25BM2xxx - Introduction to Brain and Neuroscience
- 25BM2xxx - Bio-inspired Soft Computing
- 25BM2xxx - Computational Neuroscience
- 25BM2xxx - Biofluid Dynamics
- 25BM2xxx - Sports Biomechanics
- 25BM2xxx - Cell and Cancer Biology
- 25BM2xxx - Elements of Biotechnology
- 25BM2xxx - Molecular Diagnostics
- 25BM2xxx - Drug designing and drug delivery system
- 25BM2xxx - Bioprocessing and Bioinformatics
- 25BM2xxx - Nanotechnology in medicine
- 25BM2xxx - Engineering Economics
- 25BM2xxx - Biomedical Waste Management
- 25BM2xxx - Biomedical Sports Management

ITEM No. 7

- It is resolved that the syllabi for the following new Skill Enhancement courses (SEC) under regulation 2025 be approved and passed.

- 25BM2376 – 3D Modeling and Simulation Tools

ITEM No. 8

- It is resolved that the syllabi for the following new Value Added courses (VAC) under regulation 2025 be approved and passed.

- 25BM2106 - Quality Management and Patient Safety in Healthcare

ITEM No. 9

- It is resolved that the following NPTEL courses are approved for credit transfer during Apr/May 2026.

S. No	NPTEL Course Code	NPTEL Course Title	Credits	Course Duration (weeks)	Equivalent Professional / Open Elective in SREC Curriculum
1	noc26-bt34	Bioinformatics: Algorithms and Applications	3	12	20BM2E20 -Bioinformatics and Drug Design
2	noc26-bt39	Computational Genomics	3	12	20BM2E25 Genomic Data Analysis
3	noc26-cs54	Embedded Systems Design	3	12	20BM2E02-Embedded System Architecture
4	noc26-ee11	Neural Science for Engineers	3	12	20BM2E36- Neural Engineering
5	noc26-de06	Understanding Incubation and Entrepreneurship	3	12	20BM2E22- Bio entrepreneurship

6	noc26- ee92	Medical Image Analysis	1	4	20BM2E08 -Advanced Medical Image Analysis
7	noc26- ce70	Geographic Information Systems	3	12	20CE2E53 -Geographical Information System
8	noc26- ge27	Introduction To Environmental Engineering and Science - Fundamental and Sustainability Concepts	3	12	20CH2E54 -Environmental Science And Sustainability
9	noc26- cs80	Python for Data Science	1	4	20CS2E61 - Python for Data Science
10	noc26- cs36	Programming In Java	3	12	20CS2E63- Java Programming
11	noc26- cs74	Introduction to Machine Learning	3	12	20CS2E64 -Machine Learning
12	noc26- cs37	Introduction To Internet Of Things	3	12	20EC2E54 - Internet of Things
13	noc26- cs65	Data Science for Engineers	2	8	20IT2E54 - Introduction to Data Science
14	noc26- hs84	Intellectual Property	3	12	20ME2E01 - Intellectual Property Rights for Engineers
15	noc26- ge38	Non-conventional energy Resources	3	12	20PH2E02 - Non-Conventional Energy Resources
16	noc26- ee31	Computer Vision and Image Processing - Fundamentals and Applications	3	12	20EC2E53-Image Processing and Applications
17	noc26- cs72	Introduction to Database Systems	3	12	20IT2E52-Database Systems

ITEM No. 10

- It is resolved that the Result Analysis for the Academic Year 2025 – 2026 (Semesters VII/ V/ III) are approved and passed.

ITEM No. 11

- It is resolved that the following Mandatory courses be approved for the student in B.E. Biomedical Engineering degree programme

Batch: 2024 - 2028

S.No	Mandatory Course	Course Code	No. of Students Completed
1.	Technical Certification	20MC275	53

Batch: 2025 - 2029

S.No	Mandatory Course	Course Code	No. of Students Completed
1.	Sports and Games	25MCE01	14
2.	Youth Red Cross	25MCE02	7
3.	National Cadet Corps	25MCE03	0
4.	National Service Scheme	25MCE04	22
5.	Empowerment through Yoga	25MCE05	12
6.	Fine Art Club	25MCE06	5

ITEM No.12

- It is resolved that the following students had completed 4/6 weeks of Internship/Inplant training be approved for the student in B.E. Biomedical Engineering degree programme

Batch: 2024 - 2028

S.No	Industry	No. of Students Completed
1.	Spinos Life science	16
2.	litz tech private limited	7
3.	Sri Ramakrishna Hospital, Coimbatore	9
4.	stigmata techno solutions	8
5.	Biovision medical systems	7
6.	Royal Care Hospital	4
Total		51

Suggestions/Comments from External Expert Members and University Nominee to be recorded

The vision, Mission, PEOs and PSOs of the department is good and shall be followed.

Dr. E.S. Gopi, University Nominee, observed that the curriculum and syllabi for Semesters V and VI are adequate and well-structured.

Dr. A. Arockiarajan, Subject Expert from Outside Parent University, appreciated that the courses Sports Mechanics and Sports Management are well designed. He further suggested that the Clinical Biomechanics course would benefit from the involvement of a medical professional in its delivery to enhance practical understanding and effective knowledge transfer.

Dr. S. VidhyaLakshmi, Subject Expert from Parent University, proposed the following modifications:

- **Skill Enhancement Course: 3D Modeling and Simulation Tools**
 - Remove the topic on sequence analysis.
 - Include tools related to molecular dynamics, specifically the Growmax tool.

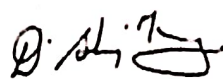
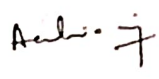
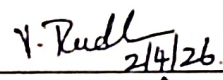
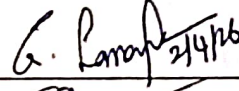
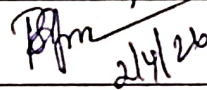
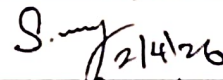
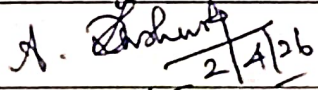
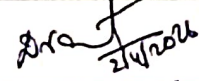
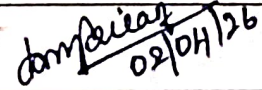
Professional Electives:

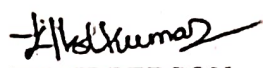
- **Drug Design and Drug Delivery System:**
 - The current syllabus lacks adequate coverage of drug design topics.
 - Considering the complexity of drug design for Biomedical Engineering students, it is recommended to focus exclusively on drug delivery systems.
 - The course may be retitled as Drug Delivery Systems or Principles of Drug Delivery Systems.
- **Bioprocessing and Bioinformatics:**
 - It is suggested to separate the combined course into two distinct areas.
 - As bioprocessing is more aligned with Biotechnology and may be challenging for Biomedical Engineering students, the course may be offered as Bioinformatics only, which is more relevant to the discipline.

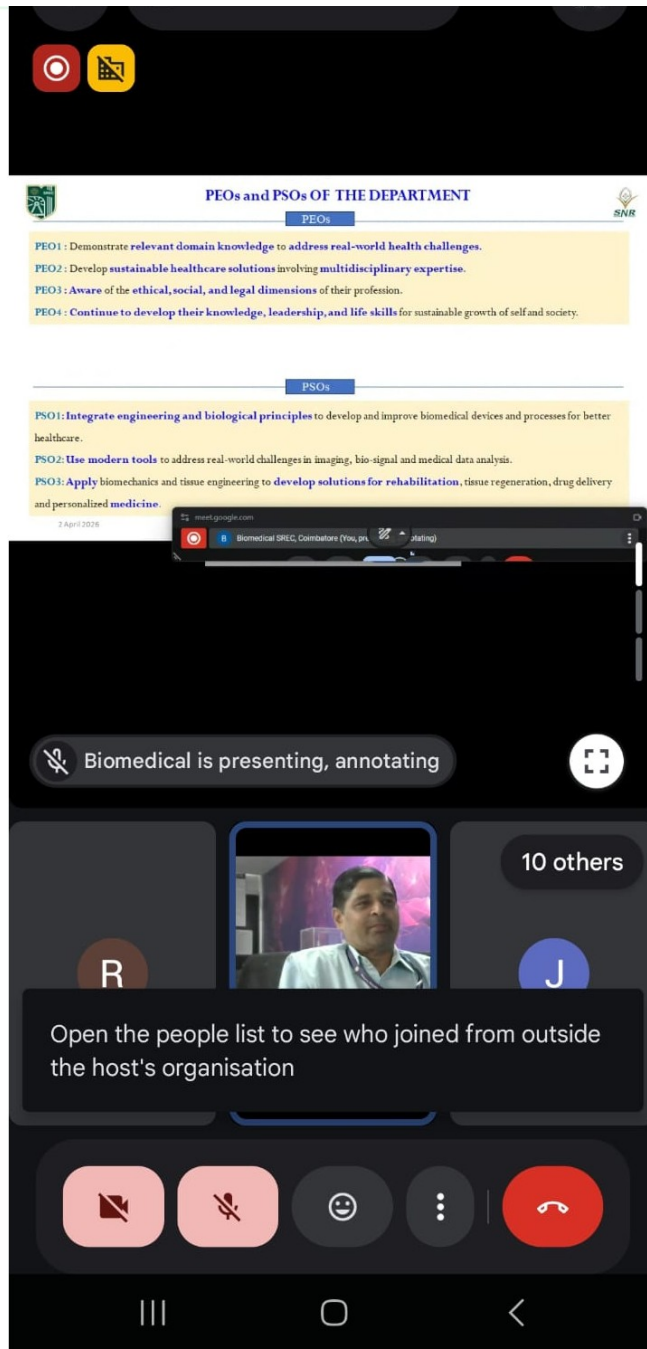
Mr. Janak Y. Dave, Alumni Representative, recommended the following:

- **25BM2400 – Medical Data Analytics:** The CNN content in Unit IV overlaps with Unit IV of **25BM2401 – Medical Image Processing**. It is suggested that 25BM2400 focus more on RNNs and LSTMs, while CNNs can be covered in depth in 25BM2401.
- **25BM2401 – Medical Image Processing:** The duration allotted to Unit III (Image Segmentation) may be redistributed to Units I and IV to strengthen fundamental concepts and industry-relevant applications. Unit IV would also benefit from a more architecture-focused teaching approach to enhance conceptual clarity.
- **25BM2471 and 25BM2470:** It is recommended to use Visual Studio Code (VS Code) as the IDE for Python programming, as it is widely adopted in industry practice.

Mr. SabariKannan D., Industry Expert, stated that the curriculum and syllabi are adequate and did not propose any modifications.

Name of the Member	Designation	Signature
Dr.N.Sathish Kumar	Chairperson	
Dr.E.S.Gopi	University Nominee	
Mr.Sabarikannan. D	Industry Expert	
Dr.Vidyalakshmi. S	Subject Expert from Parent University	
Dr.Arockiarajan. A	Subject Expert from Outside Parent University	
Mr.Janak Y. Dave	Alumni Representative	
Dr.V.Radhika	Internal Member	
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Dr.R.Saranya	Internal Member	
Mr.S.Vigneshwaran	Internal Member	
Mrs.Rasheedha.A	Internal Member	
Dr.D.Narmadha	Internal Member (Mathematics)	
Dr.L.Dhiviyalakshmi	Department BoS Coordinator	


CHAIRPERSON
BOARD OF STUDIES
Department of Biomedical Engineering



Development of individual model: X | (34) WhatsApp | Meet - 23rd BoS BME Meetin... | farm visit - radhika.senthil@srec.ac... | 172.16.113.15 | http://172.16.113.15:3000 - Google | X

https://meet.google.com/oxa-xiag-af

Biomedical SREC, Coimbatore (Presenting, annotating)

ITEM VI: NEW PROFESSIONAL ELECTIVE COURSES – REGULATION 2025

It is resolved that the syllabi for the following new Professional Elective courses under Regulation 2025 be approved and passed.

Advance Healthcare Devices and Management	Computational and Image Processing	Biomechanics	Bioengineering	Management & Ethics
•25BM2xxx - Critical Care Equipment •25BM2xxx - Biomedical Photonics	•25BM2xxx - Introduction to Brain and Neuroscience •25BM2xxx - Bio-inspired Soft Computing •25BM2xxx - Computational Neuroscience	•25BM2xxx - Biofluid Dynamics •25BM2xxx - Sports Biomechanics	•25BM2xxx - Cell and Cancer Biology •25BM2xxx - Elements of Biotechnology •25BM2xxx - Molecular Diagnostics •25BM2xxx - Drug designing and drug delivery system •25BM2xxx - Bioprocessing and Bioinformatics •25BM2xxx - Nanotechnology in medicine	•25BM2xxx - Engineering Economics •25BM2xxx - Biomedical Waste Management •25BM2xxx - Biomedical Sports Management

2 April 2026

2:43 PM | 23rd BoS BME Meeting -02.04.2026

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Development of individual model: X | WhatsApp | Meet - 23rd BoS BME Meetin... | farm visit - radhika.senthil@srec.ac... | 172.16.113.15 | http://172.16.113.15:3000 - Google | X

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Biomedical SREC, Coimbatore (Presenting, annotating)

23RD BoS Syllabus - Microsoft Word

25BM2xxx CRITICAL CARE EQUIPMENT 3003

COURSE OBJECTIVES

- To introduce the structure and functions of equipment used in Intensive Care Units (ICU) and drug delivery systems.
- To explain the working principle and components of critical care therapeutic equipment.
- To provide knowledge about different types of equipment and anesthesia systems used during surgical procedures.
- To familiarize students with centralized hospital systems including medical gas supply and surgical imaging equipment.

INTENSIVE CARE UNIT EQUIPMENT

12

Introduction to Intensive Care Units – Suction apparatus and its types – ICU ventilators: components and modes of ventilation – Patient monitoring systems (multi-parameter monitors) – Drug delivery systems – Infusion pumps and syringe pumps – Automated drug delivery systems – Components of drug infusion systems – Closed loop infusion control systems – Implantable infusion systems – Sterilization techniques: chemical sterilization, radiation sterilization, steam sterilization (autoclave).

OPERATION THEATRE EQUIPMENT

13

Surgical instruments used in operation theatre – Surgical aspirators – Electrosurgical analyzers – Smoke evacuation systems in electrosurgery – Boyle's apparatus – Anesthesia gas delivery and anesthesia gas monitors – Transfusion systems – Surgical microscopes – Endoscopy and laparoscopy systems – Surgical navigation systems (image-guided surgery) – Introduction to robotic surgical systems – Basic principles of radiation therapy (External OT) – Cryosurgery

Dr. Vishnu Vardhan P BME has left the meeting

3:03 PM | 23rd BoS BME Meeting -02.04.2026

1303 02-04-2026



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MINUTES OF THE 22nd BOARD OF STUDIES MEETING FOR THE B.E. BIOMEDICAL ENGINEERING PROGRAMME HELD ON 08.11.2025 AT 11.00 AM IN THE DEPARTMENT OF BIOMEDICAL ENGINEERING

The following members attended the above meeting.

- | | |
|----------------------------|---|
| 1. Dr. N.Sathish Kumar | Chairperson |
| 2. Dr. E. S. Gopi | University Nominee |
| 3. Mr. Sabarikannan. D | Industry Expert |
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| 9. Mrs. G. Lavanya | Internal Member |
| 10. Mrs. R. Saranya | Internal Member |
| 11. Mr. S. Vigneshwaran | Internal Member |
| 12. Dr. D. Narmadha | Internal Member (Mathematics department) |
| 13. Mrs. L. Dhiviyalakshmi | Department BoS Coordinator |

Prof. N. Sathish Kumar, Chairperson, Board of Studies, chaired the meeting and welcomed all the members to the 22nd BoS meeting. After a brief introduction, the agenda items listed were taken up for discussion and the following resolutions were passed.

ITEM No.1

- It is resolved that Revised Regulation 2020 (Learning Outcome based Curriculum through Choice based Credit) will be followed for B.E. Biomedical Engineering programme for students admitted in the Academic year 2022, 2023 & 2024.

ITEM No.2

- It is resolved that the syllabi for the following new Open Elective courses under (Revised) Regulations 2020 be approved and passed.

➤ 20BM2E38 – Bioinformatics for Beginners

ITEM No.3

- It is resolved that the following NPTEL courses are approved for credit transfer during Nov/Dec 2025.

S. No	NPTEL Course Code	NPTEL Course Title	Credits	Course Duration (weeks)	Equivalent Professional / Open Elective in SREC Curriculum
1	noc25-bt06	Bioinformatics: Algorithms and Applications	3	12	20BM2E20 -Bioinformatics and Drug Design
2	noc25-bt13	Computational Genomics	3	12	20BM2E25 Genomic Data Analysis
3	noc25-cs30	Embedded Systems Design	3	12	20BM2E02-Embedded System Architecture
4	noc25-ee55	Neural Science for Engineers	3	12	20BM2E31- Neural Engineering
5	noc25-de07	Understanding Incubation and Entrepreneurship	3	12	20BM2E22- Bio entrepreneurship
6	noc25-ee47	Medical Image Analysis	1	12	20BM2E08 -Advanced Medical Image Analysis
7	noc25-ce23	Geographic Information Systems	3	12	20CE2E53 -Geographical Information System
8	noc25-ge17	Introduction To Environmental Engineering and Science - Fundamental and Sustainability Concepts	3	12	20CH2E54 -Environmental Science And Sustainability
9	noc25-cs60	Python for Data Science	1	4	20CS2E61 - Python For Data Science
10	noc25-cs57	Programming In Java	3	12	20CS2E63- Java Programming
11	noc25-cs46	Introduction to Machine Learning	3	12	20CS2E64 -Machine Learning
12	noc25-cs44	Introduction To Internet Of Things	3	12	20EC2E54 - Internet Of Things
13	noc25-cs20	Data Science for Engineers	2	8	20IT2E54 - Introduction To Data Science
14	noc25-hs36	Intellectual Property	3	12	20ME2E01 - Intellectual Property Rights For Engineers
15	noc25-ge24	Non-conventional energy Resources	3	12	20PH2E02 - Non-Conventional Energy Resources

16	noc25- ee13	Computer Vision and Image Processing - Fundamentals and Applications	3	12	20EC2E53-Image Processing and Applications
17	noc25- cs40	Introduction to Database Systems	3	12	20IT2E52-Database Systems
18	noc25- ge53	Solar energy engineering and technology	3	12	20PH2E03-Solar Technology

ITEM No.4

- It is resolved that the Result Analysis for the Academic Year 2024 – 2025 (Semesters VIII/ VI/ II) are approved and passed.

ITEM No.5

- It is resolved that the following candidates who have registered for additional credits during May/June 2025 examination under the Specialization/Minor courses category Verticals shall be approved according to the communication from Anna University, Chennai via Letter No. 5749/AU/CAC/Honours/2022 dated 16.11.2022.

Specialization/ Minor Course Details	Course Code & Title	Register No. of the Candidate	Name	CGPA
Sensor Technology	20EI2E27 – Smart Factory	71812207006	Aravind M S K	8.75
		71812207026	Jokita Harini A D	8.75
		71812207027	Kaviyashree.A	8.50
	20EI2E28 – Automotive Sensors	71812207040	Sabarish Ananth K S	7.75
		71812207042	Sam Joshua A	8.75

ITEM No.6

- It is resolved that the following Mandatory courses be approved for the student in B.E. Biomedical Engineering degree programme

Batch: 2022 - 2026

S.No	Mandatory Course	Course Code	No. of Students Completed
1.	Technical Certification	20MC275	59

Batch: 2023 - 2027

S.No	Mandatory Course	Course Code	No. of Students Completed
1.	Technical Certification	20MC275	55

Batch: 2024 - 2026

S.No	Mandatory Course	Course Code	No. of Students Completed
1.	Uyir Club	20MC221	4
2.	Science Association	20MC210	1
3.	Tamil Mandram	20MC212	2
4.	Reading Club	20MC218	7
5.	Quiz Club	20MC216	4
6.	NSS	20MC204	10
7.	Soft Skills	20MC208	1
8.	Philatelic Club	20MC214	2
9.	Fine Arts Club	20MC217	2
10.	Biomed Social Outreach Club (BMSOC)	20MC073	20
11.	Empowerment Through Yoga	20MC202	3

ITEM No.7

- It is resolved that the following students had completed 4/6 weeks of Internship/Inplant training be approved for the student in B.E. Biomedical Engineering degree programme

Batch: 2022 - 2026

S.No	Industry	No. of Students Completed
1.	KP healthcare	2
2.	BIOD-WISE Healthcare India Pvt. Ltd	2
3.	BRJ Ortho and Mac hospital	5
4.	Lotus Medical Laboratory	3
5.	Prashan medical Technologies	1
6.	SriHari Medical Centre,Erode	1
7.	Webgeb Techsolutions	5

Batch: 2023 - 2027

S.No	Industry	No. of Students Completed
1.	Cyrix Healthcare Private Limited, Cochin	8
2.	UI Bridge Solutions Private Limited, Coimbatore	3
3.	Scinicorn Labs Private Limited, Kanyakumari	2
4.	Medsby Healthcare Solutions, Coimbatore	7
5.	Viyen Biotech, Coimbatore	2
6.	Evolute Bioscience, Trichy	3
7.	Emglitz Technologies, Coimbatore	5
8.	BRJ Ortho Centre & MAK Hospital, Coimbatore	5
9.	Spinos Life Science and Research Pvt. Ltd, Coimbatore	6
10.	Anchor Medical Devices, Salem	2
11.	AIMAS Technologies Pvt Ltd, Coimbatore	1
12.	Nxtlogic Software Solutions, Coimbatore	3
13.	Prashan Medical Technologies, Coimbatore	10
14.	Nalam Hospital, Coimbatore	2

ITEM No.8

- It is resolved that Regulations 2025 (Outcome based Curriculum through Choice based Credit System) will be followed for B.E. Biomedical Engineering programme for students admitted in the Academic year 2025 and onwards.

ITEM No. 9

- It is resolved that the Curriculum and Syllabi be approved for the following new courses.

S.No	Course Code	Course Title	Credits
1.	25XXXXXX	Digital Electronics	3
2.	25XXXXXX	Pathophysiology	2
3.	25XXXXXX	Biomaterials	2
4.	25XXXXXX	Sensors and Transducers in Healthcare	3

5.	25XXXXXX	Digital Electronics Lab	1
6.	25XXXXXX	Pathophysiology Lab	1
7.	25XXXXXX	Biomaterials Lab	1
8.	25XXXXXX	Signals & Systems for Bioengineers	3
9.	25XXXXXX	Biomechanics	3
10.	25XXXXXX	Medical Instrumentation Electronics	4
11.	25XXXXXX	Signals & System Lab	1
12.	25XXXXXX	Biomechanics Lab	1
13.	25XXXXXX	Mini Project I	2

ITEM No. 10

- It is resolved that the syllabi for the following new Open Elective courses under Regulations 2025 be approved and passed.

25XXXXXX – Bioinformatics for Beginners

ITEM No. 11

- It is resolved that the syllabi for the following new Multidisciplinary Elective courses (MDC) under Regulations 2025 be approved and passed.

25XXXXXX – Medical and Health Informatics

25XXXXXX – Computational Biology

ITEM No. 12

- It is resolved that the syllabi for the following new Skill Enhancement courses (SEC) under Regulations 2025 be approved and passed.

25XXXXXX - PCB Designing

25XXXXXX - Computational Biology

25XXXXXX - MATLAB Training Program

ITEM No. 13

- It is resolved that the syllabi for the following new Value Added courses (VAC) under Regulations 2025 be approved and passed.

25XXXXXX - Biomedical Engineering for Sustainable Health & Well-being

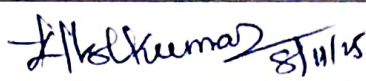
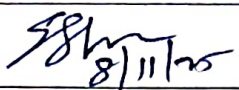
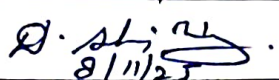
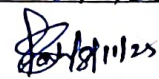
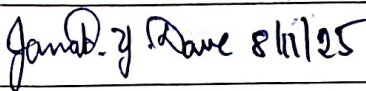
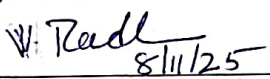
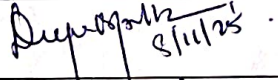
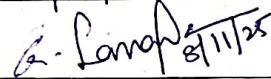
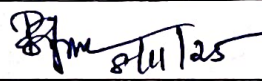
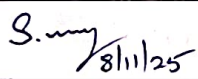
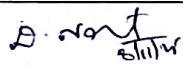
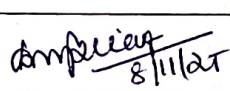
ITEM No. 14

- It is resolved that the following Mandatory courses be approved for the students in B.E. Biomedical Engineering programme.

- 25MCxxxxx – BioMed Social Outreach Club

The following suggestions/comments were made by the members of the Board of Studies.

- Dr. E. S. Gopi suggested that in all subjects, the course outcomes need not be written course wise, instead, they may address the subject module wise. The flexibility in framing the subject course outcomes may depend on the subject under consideration.
- Dr. Vidhyalakshmi suggested that module-wise course outcome framing will be helpful during attainment calculations. She enquired whether the facilities required for the conduct of the Pathophysiology lab are available in the department or if it is done in the hospital.
- Dr. E. S. Gopi also suggested that sampling theorem can be included in Signals and Systems in Bioengineers. Topics on continuous time domain analysis can be limited, instead, introduce sampling theorem and cover more topics on Digital Signal Processing. This will also support the lab exercises proposed.
- The members enquired whether any of the subjects were taught by medical doctors. In this context, the implementation of Hospital System Management and Hospital visit courses that are covered in the first and second semesters was discussed to understand how the course is managed and how it helps students to take up projects and to understand their roles as a biomedical engineer. Mr. Sabarikannan D. emphasized the importance of medical equipment calibration. He suggested that group activities may be conducted for students to present on their understanding of medical systems and processes gained as part of their hospital visit.
- The board members reviewed the higher studies, internship and placement details of the students in the 2021-25 batch and the current final year students.
- Mr. Dave mentioned that the resume of the students applying for the internships is not complete with details required for the application for a position, it would be helpful for students if focus is given on resume writing, presentation and addressing interview situations.
- The board members appreciated the performance of the students in GATE 2025. Dr. A. Arockiarajan pointed out the importance of creating awareness among students on the opportunities created through GATE examination including entry to higher education, eligibility for various PSUs and government jobs.

Name of the Member	Designation	Signature
Dr.N.Sathish Kumar	Chairperson	 8/11/25
Dr.E.S.Gopi	University Nominee	 8/11/25
Mr.Sabarikannan. D	Industry Expert	 8/11/25
Dr.Vidyalakshmi. S	Subject Expert from Parent University	 8/11/25
Dr.Arockiarajan. A	Subject Expert from Outside Parent University	 8/11/25
Mr.Janak Y. Dave	Alumni Representative	 8/11/25
Dr.V.Radhika	Internal Member	 8/11/25
Dr.Deepa.B. Prabhu	Internal Member	 8/11/25
Mrs.G.Lavanya	Internal Member	 8/11/25
Mrs.R.Saranya	Internal Member	 8/11/25
Mr.S.Vigneshwaran	Internal Member	 8/11/25
Dr.D.Narmadha	Internal Member (Mathematics)	 8/11/25
Mrs.L.Dhiviyalakshmi	Department BoS Coordinator	 8/11/25

 8/11/25

**CHAIRPERSON
BOARD OF STUDIES
Department of Biomedical Engineering**

**Chairman
Board of Studies**



SRI RAMAKRISHNA ENGINEERING COLLEGE

[Educational Service : SNR Sons Charitable Trust]

[Autonomous Institution, Reaccredited by NAAC with 'A+' Grade]

[Approved by AICTE and Permanently Affiliated to Anna University, Chennai]

[ISO 9001:2015 Certified and all eligible programmes Accredited by NBA]

VATTAMALAIPALAYAM, N.G.G.O. COLONY POST, COIMBATORE – 641 022.



MINUTES OF THE 21st BOARD OF STUDIES MEETING FOR THE B.E. BIOMEDICAL ENGINEERING PROGRAMME HELD ON 29.03.2025 AT 09.00 AM IN THE DEPARTMENT OF BIOMEDICAL ENGINEERING

The following members attended the above meeting.

- | | |
|----------------------------|---|
| 1. Dr. B. Sharmila | Chairperson |
| 2. Dr. E. S. Gopi | University Nominee |
| 3. Mr. Sabarikannan. D | Industry Expert |
| 4. Dr. Vidyalakshmi. S | Subject Expert from parent University |
| 5. Dr. Arockiarajan. A | Subject Expert from outside parent University |
| 6. Mr. Janak Y. Dave | Alumni Representative |
| 7. Dr. V. Radhika | Internal Member |
| 8. Dr. Deepa. B. Prabhu | Internal Member |
| 9. Mrs. G. Lavanya | Internal Member |
| 10. Mrs. R. Saranya | Internal Member |
| 11. Mr. S. Vigneshwaran | Internal Member |
| 12. Dr. D. Narmadha | Internal Member (Mathematics department) |
| 13. Mrs. L. Dhiviyalakshmi | Department BoS Coordinator |

Prof. B.Sharmila, Chairperson, Board of Studies, chaired the meeting and welcomed all the members to the 21st Board of Studies meeting. After a brief introduction of the Members of the Board, the milestones of the Department of Biomedical Engineering were presented. The New Vision and Mission of the Institution along with the Proposed/Drafted Vision, Mission, PEOs and PSOs of the Department was presented and suggestions on the reframing of the same were discussed.

The agenda items listed below were taken up for discussion and the following resolutions were passed.

ITEM No.1

- It is resolved that Revised Regulation 2020 (Learning Outcome based Curriculum through Choice based Credit) will be followed for B.E. Biomedical Engineering programme for students admitted in the Academic year 2022, 2023 & 2024.

ITEM No.2

- It is resolved that the following NPTEL courses are approved for credit transfer during April/ May 2025

S. No	NPTEL Course Code	NPTEL Course Title	Credits	Course Duration (weeks)	Equivalent Professional / Open Elective in SREC Curriculum
1	noc25-bt06	Bioinformatics: Algorithms and Applications	3	12	20BM2E20 -Bioinformatics and Drug Design
2	noc25-bt13	Computational Genomics	3	12	20BM2E25 Genomic Data Analysis
3	noc25-cs30	Embedded Systems Design	3	12	20BM2E02-Embedded System Architecture
4	noc25-ee55	Neural Science for Engineers	3	12	20BM2E31- Neural Engineering
5	noc25-de07	Understanding Incubation and Entrepreneurship	3	12	20BM2E22- Bio entrepreneurship
6	noc25-ee47	Medical Image Analysis	1	4	20BM2E08 -Advanced Medical Image Analysis
7	noc25-ce23	Geographic Information Systems	3	12	20CE2E53 -Geographical Information System
8	noc25-ge17	Introduction To Environmental Engineering and Science - Fundamental and Sustainability Concepts	3	12	20CH2E54 -Environmental Science And Sustainability
9	noc25-cs60	Python for Data Science	1	4	20CS2E61 - Python For Data Science
10	noc25-cs57	Programming In Java	3	12	20CS2E63- Java Programming
11	noc25-cs46	Introduction to Machine Learning	3	12	20CS2E64 -Machine Learning
12	noc25-cs44	Introduction To Internet Of Things	3	12	20EC2E54 - Internet Of Things
13	noc25-cs20	Data Science for Engineers	2	8	20IT2E54 - Introduction To Data Science
14	noc25-hs36	Intellectual Property	3	12	20ME2E01 - Intellectual Property Rights For Engineers

15	noc25-ge24	Non-conventional energy Resources	3	12	20PH2E02 - Non-Conventional Energy Resources
16	noc25-ee13	Computer Vision and Image Processing - Fundamentals and Applications	3	12	20EC2E53-Image Processing and Applications
17	noc25-cs40	Introduction to Database Systems	3	12	20IT2E52-Database Systems

ITEM No.3

- It is resolved that the Result Analysis for the Academic Year 2024 – 2025 (Semesters VII / V/ III/I) are approved and passed.

ITEM No.4

- The following candidates have registered for additional credits during Nov/Dec 2024 examination under the Specialization/Minor courses category Verticals shall be approved according to the communication from Anna University, Chennai via Letter No. 5749/AU/CAC/Honors/2022 dated 16.11.2022.

Specialization/ Minor Course Details	Course Code & Title	Register No. of the Candidate	Name	CGPA
Sensor Technology	20EI2E27 – Smart Factory	71812207006	Aravind M S K	8.43
		71812207026	Jokita Harini A D	8.48
		71812207027	Kaviyashree.A	7.47
	20EI2E28 – Automotive Sensors	71812207040	Sabarish Ananth K S	7.8
		71812207042	Sam Joshua A	8.33

ITEM No.5

- It is resolved that the following Mandatory courses be approved for the student in B.E. Biomedical degree programme



Batch: 2021 - 2025

S.No	Mandatory Course	Course Code	No. of Students Completed
1.	Technical Certification	20MC275	53

Batch: 2022 - 2026

S.No	Mandatory Course	Course Code	No. of Students Completed
1.	Soft Skills	20MC208	59

2.	BMSOC	20MC073	1
3.	Sports and games	20MC201	1
4.	Technical Certification	20MC275	59

Batch: 2023 - 2027

S.No	Mandatory Course	Course Code	No. of Students Completed
1.	Yuva Club	20MC222	14
2.	YRC	20MC205	7
3.	Tamil Mandram	20MC212	3
4.	Reading Club	20MC218	6
5.	Quiz Club	20MC216	4
6.	NSS	20MC004	9
7.	NCC	20MC203	1
8.	English Literary Society	20MC209	6
9.	Fine Arts Club	20MC217	1
10.	Phoratz	20MC215	2
11.	Empowerment Through Yoga	20MC202	2

ITEM No.6

- It is resolved that the following students had completed 4/6 weeks of Internship/Inplant training be approved for the student in B.E. Biomedical degree engineering programme

Batch: 2021 – 2025

S.No	Industry	No. of Students Completed
1.	Biocal	1
2.	Bioxplora , Coimbatore	7
3.	BRJ Ortho hospital and MAK center, Coimbatore	9
4.	Ciyes Systems Pvt Ltd, Coimbatore	2
5.	Edge Matrix Corporation, Madurai	1
6.	Finoseq, Madurai	4
7.	HTIC, Chennai	2
8.	IIT Palakad	1
9.	NIT Calicut	2
10.	Plasmid Innovation Centre	2

11.	RBG.AI, Coimbatore	9
12.	Spinos life science and private limited, Cbe	5
13.	Sri Ramakrishna hospital, Coimbatore	1
14.	The Scan Point, Coimbatore	1
15.	UI Bridge Solutions Pvt. Ltd, Coimbatore	5
16.	Vaxigen International Research Centre	4

Batch: 2022 – 2026

S.No	Industry	No. of Students Completed
1.	Atheenapandian private limited	5
2.	AviGen Bio Tech Pvt. Ltd	4
3.	Dogma center of life science (DCLS)	1
4.	Edge Matrix Corporation	5
5.	Enthu Tech	9
6.	Finoseq Bioinformatics	3
7.	Genolites Research and Development Laboratory	3
8.	St. Peter's Medical College, Hospital and Research Institute	1
9.	TANUVAS	4
10.	UI Bridge Solutions Pvt Ltd	3
11.	Vaxigen International Research Centre	4
12.	Zion Pathological laboratory	1

Batch: 2023 – 2027

S.No	Industry	No. of Students Completed
1.	Prashan Medical Technologies	6
2.	RBG AI. Coimbatore	8

ITEM No.7

- It is resolved that the Proposed Regulations 2025 (Outcome based Curriculum through Choice based Credit System) be approved and passed.
- It is resolved that Regulations 2025 (Outcome based Curriculum through Choice based Credit System,) shall be followed for B.E. Biomedical Engineering programme for students admitted in the Academic year 2025 and onwards.
- The Credit distribution was discussed and for first year it was decided to be 41 Credits

Category	Semester								Total Credits
	I	II	III	IV	V	VI	VII	VIII	
HSSM	6	2			2		2		12
BS	10	5	3						18
ES	3	8	6	1					18
PC		3	10	12	8	10	7		50
PE					3	3	6	6	18
OE				3	3				6
MMC				3	3	3			9
AEC		2		2		2			6
SEC			2		2				4
VAC			2		2				4
LAC	1	1				2			4
ELC				2		2	2	6	12
Total Credits	20	21	23	23	23	22	17	12	161

SEMESTER I

S.No	Course Title	Category	L	T	P	C
1	Business and Corporate Communication	HSSM	2	0	2	3
2	Indian Knowledge Systems (Social Science)	HSSM	3	0	0	3
3	Matrices, Differential Calculus and Transforms	BS	3	1	0	4
4	Applied Physics	BS	2	0	0	2
5	Biochemistry	BS	2	0	0	2
6	Programming in C	ES	2	0	2	3
7	Applied Physics lab	BS	0	0	2	1
8	Biochemistry Laboratory	BS	0	0	2	1
9	Tamil -I	LAC-1	1	0	0	1
10	Hospital Training - I	ES	-	-	-	-
Total			15	1	8	20

SEMESTER II

S.No	Course Title	Category	L	T	P	C
1	Hospital System Management	HSSM	2	0	0	2
2	Mathematics II	BS	3	0	0	3
3	Medical Physics (Radiological Physics)	BS	2	0	0	2
4	Programming Language – II (Python)	ES	1	0	2	3
5	Circuits & Devices	ES	3	0	0	3
6	Human Anatomy & Physiology	PC	2	0	2	3
7	Circuits & Devices Laboratory	ES	0	0	2	1
8	Hospital Training - I	ES	0	0	2	1
9	Lingual skills/ Foreign language/ Soft skills	AEC-1	0	0	2	2
10	Tamil –II	LAC-2	1	0	0	1
Total			15	0	10	21

ITEM No.8

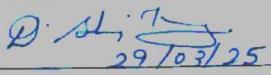
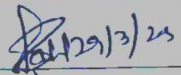
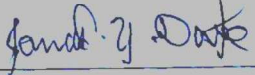
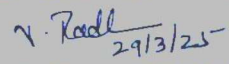
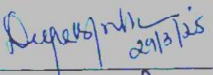
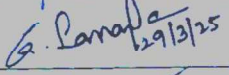
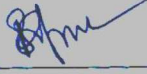
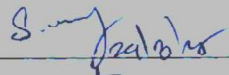
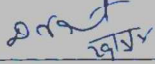
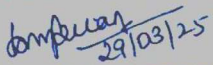
- It is resolved to follow the revised department vision, mission, PEOs and PSOs framed based on the new vision and mission of the institution.

Summary of Regulation and Curriculum Feedback:

- Dr.E.S.Gopi suggested to get prior opinion from Students for NPTEL Credit Transfer Courses.
- Since no evaluation was conducted for the GIAN course, the allocation of 3 credits seems inappropriate.
- The guide marks allocated for project work seem limited, and it may not be necessary to assign marks for paper publications.
- He suggested to include Radon transform in Radiological Equipment course.
- Suggested to include Mathematical concepts of imaging techniques as core course or elective course.
- Digital Signal Processing of Imaging Technique can be included as elective course.
- Image acquisition such as CT/MRI can be included as Skill Enhancement Course.
- Stochastic, Convex and Nonconvex optimisation concepts can be included mathematics courses either in main or self-learning component.
- Course Title for Signals and Systems course can be reframed as Discrete Signal Processing.

- Dr. A. Arockiarajan commented that the revised vision / mission statements look attractive and has included key terms such as “sustainability” which is the focus of all engineering domains for next decade.
- Suggested renaming Mathematics courses with general titles such as Mathematics I, Basic Mathematics, or Applied Mathematics I, instead of including specific module names in the course title and it will be discussed with respective chair persons of the boards.
- Radiological Physics: Consider renaming to Medical Physics for broader relevance and clarity.
- Diagnostic and Therapeutic Equipment course title can be reframed to more industry-relevant and appealing term instead of “equipment”.
- Recommended to include chapter on applications of AI in medical data within the Artificial Intelligence course.
- Dr. D. Narmada noted that course titles are sometimes varied to distinguish between different course offerings.
- Dr. S.Vidyalakshmi emphasized the importance of using different course codes for the same titled course if offered across different departments, to avoid confusion.
- She suggested to structure the programming curriculum as:
 - Programming Language I (C programming) – Semester 2
 - Programming Language II (Python programming) – Semester 3
- A module on MATLAB can be embedded in either the programming language courses or relevant core subjects.
- She suggested that the Biochemistry course outcomes can be mapped to higher-order Program Outcomes (POs).
- Update references and latest text books can be used for all the courses
- She noted whether 2 credits will be adequate for the Molecular Diagnostics Theory course.
- Discussion on the New Credits and Hours distribution was explained
- A comparison between the Finite Difference Method and Finite Volume Method can be included in mathematics-related courses.
- Mr.D.Sabarikannan suggested to include the concepts like Introduction to Fluid Mechanics and Biofluid Mechanics in the Biomechanics course.
- Since COMSOL uses the Finite Volume Method, the curriculum should include:
 - A basic introduction to the Finite Volume Method in theory-based courses.
- Mr. Janak Y. Dave suggested to introduce a module on how to approach a hospital as a researcher as part of the hospital visit curriculum.
- Concepts on Medical Electronics should be concentrated more in Higher semesters
- The course description should be rephrased for grammatical accuracy and clarity in English.

- The members of the Board of Studies appreciated the good performance of final and pre final year students in GATE 2025.

Name of the Member	Designation	Signature
Dr. B. Sharmila	Chairperson	
Dr. E. S. Gopi	University Nominee	
Mr. Sabarikannan. D	Industry Expert	 29/03/25
Dr. Vidyalakshmi. S	Subject Expert from Parent University	 29/3/25
Dr. Arockiarajan. A	Subject Expert from Outside Parent University	
Mr. Janak Y. Dave	Alumni Representative	 Janak Y. Dave
Dr. V. Radhika	Internal Member	 V. Radhika 29/3/25
Dr. Deepa. B. Prabhu	Internal Member	 Deepa B. Prabhu 29/3/25
Mrs. G. Lavanya	Internal Member	 G. Lavanya 29/3/25
Mrs. R. Saranya	Internal Member	
Mr. S. Vigneshwaran	Internal Member	 S. Vigneshwaran 29/3/25
Dr. D. Narmadha	Internal Member (Mathematics)	 Dr. D. Narmadha 29/3/25
Mrs. L. Dhiviyalakshmi	Department BoS Coordinator	 Dhiviyalakshmi 29/03/25


29/3/25

CHAIRPERSON
BOARD OF STUDIES

Department of Biomedical Engineering

Chairman
Board of Studies



SRI RAMAKRISHNA ENGINEERING COLLEGE, COIMBATORE – 22

[Educational Service : SNR Sons Charitable Trust]

[Autonomous Institution, Reaccredited by NAAC with 'A+' Grade]

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MINUTES OF THE 20th BOARD OF STUDIES MEETING FOR THE B.E. BIOMEDICAL ENGINEERING PROGRAMME HELD ON 19.11.2024 AT 02.00 PM IN THE DEPARTMENT OF BIOMEDICAL ENGINEERING

The following members attended the above meeting.

1. Dr.B.Sharmila	Chairperson
2. Dr.E.S.Gopi	University Nominee
3. Mr.Sabarikannan. D	Industry Expert
4. Dr.Vidyalakshmi. S	Subject Expert from parent University
5. Dr.Arockiarajan. A	Subject Expert from outside parent University
6. Mr.Janak Y. Dave	Alumni Representative
7. Dr.V.Radhika	Internal Member
8. Dr.Deepa.B. Prabhu	Internal Member
9. Mrs.G.Lavanya	Internal Member
10. Mrs.R.Saranya	Internal Member
11. Mr.S.Vigneshwaran	Internal Member
12. Dr.D.Narmadha	Internal Member (Mathematics department)
13. Mrs.L.Dhiviyalakshmi	Department BoS Coordinator

Prof. B.Sharmila, Chairperson, Board of Studies, chaired the meeting and welcomed all the members to the 20th Board of Studies meeting. After a brief introduction of the Members of the Board, the milestones of the Department of Biomedical Engineering were presented. The Vision

and Mission of the Institution along with the Vision, Mission, PEOs and PSOs of the Department was presented and suggestions on the reframing of the same were discussed.

The agenda items listed below were taken up for discussion and the following resolutions were passed.

ITEM No.1

- It is resolved that Revised Regulation 2020 (Learning Outcome based Curriculum through Choice based Credit) will be followed for B.E. Biomedical Engineering programme for students admitted in the Academic year 2021 & subsequently.

ITEM No.2

- It is resolved that the syllabi for the following new Professional Elective course under (Revised) Regulations 2020 be approved and passed.

COURSE CODE	COURSE TITLE	CREDIT
Professional Elective		
20BM2E37	Virtual Reality in Healthcare	3

ITEM No.3

- It is resolved that the following NPTEL courses are approved for credit transfer during Nov/Dec 2024.

S. No	NPTEL Course Code	NPTEL Course Title	Credits	Course Duration	Equivalent Professional / Open Elective in SREC Curriculum
1	noc24-cs115	Introduction to Internet of Things	3 credits	12 weeks	20BM2E03-IoT in Healthcare
2	noc24-bt53	Medical Image Analysis	3 credits	12 weeks	20BM2E08-Advanced Medical Image Analysis
3	noc24-bt54	Transport Phenomena in Biological Systems	3 credits	12 weeks	20BM2E09-Biomedical Transport Phenomena
4	noc24-bt72	Biomedical nanotechnology	1 credit	4 Weeks	20BM2E13-Medical Application of Nanotechnology

5	noc24-mm29	Nanotechnology, Science and Applications	2 credit	8 Weeks	
6	noc24-cs68	Python For Data Science	1 credit	4 Weeks	20CS2E61-Python for Data Science
7	noc24-mg79	Business Analytics & Text Mining Modeling using Python	2 credits	8 weeks	
8	noc24-cs101	Introduction to Machine Learning	3 credits	12 weeks	20CS2E64- Machine Learning
9	noc24-mg93	Entrepreneurship	3 credits	12 weeks	20ME2E53-Entrepreneurship And Finance Management

ITEM No. 4

- It is resolved that the Result Analysis for the Academic Year 2023 – 2024 (Semesters VIII / VI/ IV/II) are approved and passed.

ITEM No. 5

- It is resolved that the following candidates who have registered for additional credits during Nov/Dec 2024 examination under the Specialization/Minor courses category Verticals shall be approved according to the communication from Anna University, Chennai via Letter No. 5749/AU/CAC/ Honours/ 2022 dated 16.11.2022.

Specialization/ Minor Course Details	Course Code and Title	Register No. of the Candidate	Name	CGPA
Sensor Technology	20EI2E25 – Biosensors and Wearable Sensors	71812207006	Aravind M S K	8.3
		718122070026	Jokita Harini A.D	8.5
	20EI2E32 – Introduction to Smart Sensors	718122070027	Kaviyashree. A	7.37
		718122070040	Sabarish Anandh. K	7.8
		718122070042	Sam Joshua. A	8.1

ITEM No. 5

The curriculum structure and component wise credit distribution for the revision of the curriculum & syllabi under Regulation 2025 for Biomedical Engineering is proposed.

Suggestions/Comments from External Expert Members and University Nominee

➤ Dr.E.S.Gopi – University Nominee:

- Commented on increasing the professional elective course credits and to reduce the professional core course credits to 45 - 48 credits.
- Suggested that the NPTEL courses and equivalent courses identified from the curriculum shall have different subject code in the mark sheet.
- Suggested that same course should not be offered as elective if the course is considered under NPTEL credit transfer course and vice versa.
- Recommended that there should not be any restriction or limitation in learning from NPTEL platform.

➤ Dr.S.Vidyalakshmi.S – Subject Expert from parent University:

- Commented on the number of courses from each semesters. She suggested to have maximum of 5 theory / theory cum lab courses and 2 laboratory courses in each semester for effective teaching and learning process.
- She also suggested to increase the number of hours allotted for the laboratory courses as 2 hours will not be sufficient in certain laboratories.

➤ Mr.Sabarikannan. D- Industry Expert

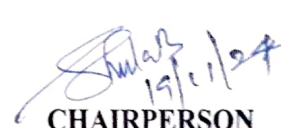
- Suggested to include components to enhance skills in AI, Robotics and nanotechnology for Biomedical.
- Understanding of basic electronics and electrical need to be strengthened through additional training during I year.
- Appreciated the curriculum structure as it has equivalent weightage for the practical laboratory and hospital training.

➤ Mr.Jank Y. Dave – Alumni Member:

- Appreciated the structure of the curriculum. He also commented that probability and statistics course is important for Biomedical Engineering programme.
- He also suggested to include courses related to Artificial Intelligence and its applications in Healthcare domain.

➤ Dr.Arockiarajan.A – Subject Expert from outside parent University was not able to attend the meeting.

Name of the Member	Designation	Signature
Dr.B.Sharmila	Chairperson	
Dr.E.S.Gopi	University Nominee	
Mr.Sabarikannan. D	Industry Expert	
Dr.Vidyalakshmi. S	Subject Expert from Parent University	
Dr.Arockiarajan. A	Subject Expert from Outside Parent University	
Mr.Janak Y. Dave	Alumni Representative	
Dr.V.Radhika	Internal Member	
Dr.Deepa.B. Prabhu	Internal Member	
Mrs.G.Lavanya	Internal Member	
Mrs.R.Saranya	Internal Member	
Mr.S.Vigneshwaran	Internal Member	
Dr.D.Narmadha	Internal Member (Mathematics)	
Mrs.L.Dhiviyalakshmi	Department BoS Coordinator	


CHAIRPERSON
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Department of Biomedical Engineering
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MINUTES OF THE 19th BOARD OF STUDIES MEETING FOR THE B.E. BIOMEDICAL ENGINEERING PROGRAMME HELD ON 01.04.2024 AT 11.00 AM IN THE DEPARTMENT OF BIOMEDICAL ENGINEERING

The following members attended the above meeting.

- | | |
|-----------------------------|--|
| 1. Dr.B.Sharmila | Chairperson |
| 2. Dr.M.D.Selvaraj | University Nominee |
| 3. Dr.Arumugam Muruganandam | Industry Expert |
| 4. Dr.G.K.Ananthasuresh | External expert from Government Organization |
| 5. Dr.G.Muralidhar Bairy | University Member from Other University |
| 6. Mr.A.Sarath Kumar | Alumni Representative |
| 7. Dr.L.Priya | Internal Member |
| 8. Dr.Deepa.B. Prabhu | Internal Member |
| 9. Mrs.G.Lavanya | Internal Member |
| 10. Mrs.R.Saranya | Internal Member |
| 11. Mr.S.Vigneshwaran | Internal Member |
| 12. Dr.D.Narmadha | Internal Member (Mathematics department) |
| 13. Mrs.L.Dhiviyalakshmi | Department BoS Coordinator |

Prof. B.Sharmila, Chairperson, Board of Studies, chaired the meeting and welcomed all the members to the 18th BoS meeting. After a brief introduction, the agenda items listed were taken up for discussion and the following resolutions were passed.

ITEM No.1

- It is resolved that Revised Regulation 2020 (Learning Outcome based Curriculum through Choice based Credit) will be followed for B.E. Biomedical Engineering programme for students admitted in the Academic year 2021 & subsequently.

ITEM No.2

- It is resolved that the syllabi for the following new Professional Elective courses under (Revised) Regulations 2020 be approved and passed.

COURSE CODE	COURSE TITLE	CREDIT
Professional Electives		
20BM2E33	Electronic Communication Systems	3

ITEM No.3

- It is resolved that the following NPTEL courses are approved for credit transfer during April/May 2024.

S. No	NPTEL Course Code	NPTEL Course Title	Credits	Course Duration	Equivalent Professional / Open Elective in SREC Curriculum
1	noc24-bt15	Bio Informatics: Algorithms and Applications	3 credits	12 weeks	20BM2E20 -Bioinformatics and Drug Design
2	noc24-bt03	Computational Genomics	3 credits	12 Weeks	20BM2E25 Genomic Data Analysis
3	noc24-cs25	Embedded Systems Design	3 credits	12 Weeks	20BM2E02-Embedded System Architecture
4	noc24-ee01	Neural Science for Engineers	3 credits	12 Weeks	20BM2E31- Neural Engineering
5	noc24-de06	Understanding Incubation and Entrepreneurship	3 credits	12 weeks	20BM2E22- Bioentrepreneurship
6	noc24-ee57	Medical Image Analysis	1 credit	4 Weeks	20BM2E08 -Advanced Medical Image Analysis
7	noc24-ce14	Geographic Information Systems	3 credits	12 Weeks	20CE2E53 -Geographical Information System
8	noc24-ge19	Introduction To Environmental Engineering And Science - Fundamental And Sustainability Concepts	3 credits	12 Weeks	20CH2E54 -Environmental Science And Sustainability
9	noc24-cs54	Python for Data Science	1 credit	4 Weeks	20CS2E61 - Python For Data Science
10	noc24-cs43	Programming In Java	3 credits	12 Weeks	20CS2E63- Java Programming
11	noc24-cs51	Introduction to Machine Learning	3 credits	12 Weeks	20CS2E64 -Machine Learning

12	noc24-cs35	Introduction To Internet Of Things	3 credits	12 Weeks	20EC2E54 - Internet Of Things
13	noc24-cs53	Data Science for Engineers	2 credits	8 Weeks	20IT2E54 - Introduction To Data Science
14	noc24-hs38	Intellectual Property	3 credits	12 Weeks	20ME2E01 - Intellectual Property Rights For Engineers
15	noc24-ge24	Non-conventional energy Resources	3 credits	12 Weeks	20PH2E02 - Non-Conventional Energy Resources
16	noc24-ee38	Computer Vision and Image Processing - Fundamentals and Applications	3 credits	12 weeks	20EC2E53-Image Processing and Applications
17	noc24-cs55	Introduction to Database Systems	3 credits	12 weeks	20IT2E52-Database Systems

ITEM No. 4

- It is resolved that the Result Analysis for the Academic Year 2023 – 2024 (Semesters VII / V/ III) are approved and passed

ITEM No. 5

- It is resolved that the new courses and its syllabi be approved for the Honors Specialization / minor in B.E. Biomedical degree programme

Healthcare Technology				
Course Code	Course Title	Credits	Mode of Delivery	Offered by
20BM2E34	Data Science in Healthcare	3	Class	SREC

ITEM No. 6

- It is resolved that the following Mandatory courses be approved for the student in **B.E.**

Biomedical degree programme

Batch: 2020 - 2024

S.No	Mandatory Course	Course Code	No. of Students Completed
1.	Soft Skills	20MC208	28
2.	Tamil Mandram	20MC212	2
3.	Yi Yuva	20MC222	9
4.	National Service Scheme	20MC004	4

5.	Biomedical Engineering Society of India	20MC072	2
6.	Biomed Social Outreach club	20MC073	1
7.	Sports and Games	20MC201	1

Batch: 2021 - 2025

S.No	Mandatory Course	Course Code	No. of Students Completed
1.	English Literary Society	20MC209	1
2.	Empowerment Through Yoga	20MC202	1
3.	Yi Yuva	20MC222	25
4.	Biomedical Social Outreach Club	20MC073	13
5.	Department Of Physical Education	20MC201	3
6.	Science Association	20MC210	2
7.	Tamil Mandram	20MC212	1
8.	Philatelic Club	20MC214	4
9.	Uyir Club	20MC221	2
10.	YRC	20MP205	1

ITEM No.7

- It is resolved that the following students had completed 4/6 weeks of internship/inplant training be approved for the student in B.E. Biomedical degree programme

Batch: 2020 - 2024

S. No	Industry	No. of Students Completed
1.	BRJ Hospital, Coimbatore	13
2.	RBG.AI,SREC Spark Incubation	10
3.	Siemens Healthineers, Bengaluru	4
4.	Dreams Biomedical Engineering, Tirunelveli	1
5.	DRDO Lab, Bharathiyar Univeristy	2

6.	Harvey Biomedical, Bengaluru	1
7.	NIT, Trichy	3
8.	IIITDM, Kanceepuram	1
9.	Sri Ramakrishna Hospital, Coimbatore	1
10.	Kumaran Medical Centre, Coimbatore	1
11.	IIT, Madras	1
12.	UI Bridge, SREC Spark Incubation	1
13.	Spovum Technologies Private Limited, Bangalore	2
14.	HTIC, IIT Madras	1

Batch: 2021 - 2025

S. No	Industry	No. of Students Completed
1.	Biocal, Salem	1
2.	Bioxplora, Coimbatore	5
3.	BRJ Ortho Centre and MAK Hospital, Coimbatore	6
4.	Ciyes Systems Pvt. Ltd, Coimbatore.	2
5.	Edge Matrix Corporation, Madurai	1
6.	Finoseq, Madurai	3
7.	HTIC , IITM Chennai	5
8.	NIT Calicut	2
9.	RBG.AI, Coimbatore	9
10.	UI Bridge Solutions Pvt Ltd, Coimbatore	5
11.	Vaxigen international research centre, Coimbatore	4

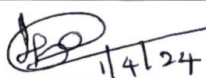
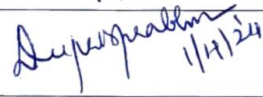
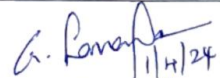
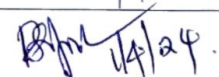
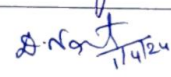
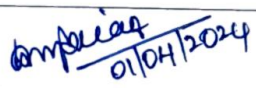
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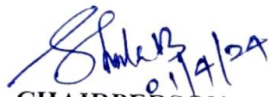
Suggestions/Comments from External Expert Members and University Nominee are:

- It was recommended to analyze the reason for the lower pass percentage of 67.24% in the III semester. The members of the BoS felt that the students appear to have difficulty in analytical papers, and that more training may be provided in these subjects. Subjects such as Digital

system design which is a common paper with students of other departments may appear difficult to students due to peer group of different abilities. It is suggested to take necessary action to improve student performance in such subjects.

- **Dr. M. D. Selvaraj** and **Dr. Muralidhar Bairy** suggested submission of project proposals in areas such as AI/ML in healthcare with funding agencies such as DST-SERB and BIRAC. Several schemes such as DST POWER/SRG/CRG and PACE were discussed where faculty may apply for funding. Few cases where funding can be easily obtained such as early detection of diseases by automation of data uploaded in cloud through connected devices, diagnostics, etc. were discussed. It was also suggested to include industry partners for higher probability of funding approval.
- **Dr. Arumugam Muruganandam** offered support in submitting industry – academia common proposals with Affigenix in the field of diagnostics.
- **Dr. Muralidhar Bairy** also suggested identifying more companies where joint training programs can be held for the benefit of students.
- **Mr. Sarath Kumar** the alumni member suggested to find companies in domains of medical imaging and critical care equipment for training of students interested in instrumentation domain.
- The BoS members strongly emphasized the shift towards data science and suggested that all faculty irrespective of domain should be trained in AI/ML and Generative AI which will help students to achieve the same.
- **Dr.Selvaraj** suggested to remove the topic DPCM and include QAM in Digital communication module. Under wireless communication he suggested to remove wireless LAN, WiMax topics and to include LiFi topic. He also suggested including latest trends in the technology in communications and updating to latest editions of the textbooks.

Name of the Member	Designation	Signature
Dr.B.Sharmila	Chairperson	
Dr.M.D.Selvaraj	University Nominee	 11/4/2024
Dr.Arumugam Muruganandam	Industry Expert	
Dr.G.K.Ananthasuresh	External expert from Government Organization	-Ab-
Dr.G.Muralidhar Bairy	University Member from Other University	
Mr.A.Sarath Kumar	Alumni Representative	
Dr.L.Priya	Internal Member	 11/4/24
Dr.Deepa.B. Prabhu	Internal Member	 11/4/24
Mrs.G.Lavanya	Internal Member	 11/4/24
Mrs.R.Saranaya	Internal Member	 11/4/24
Mr.S.Vigneshwaran	Internal Member	 11/4/24
Dr.D.Narmadha	Internal Member (Mathematics)	 11/4/24
Mrs.L.Dhiviyalakshmi	Department BoS Coordinator	 01/04/2024


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MINUTES OF THE 18th BOARD OF STUDIES MEETING FOR THE B.E. BIOMEDICAL ENGINEERING PROGRAMME HELD ON 09.11.2023 AT 11.00 AM IN THE DEPARTMENT OF BIOMEDICAL ENGINEERING

The following members attended the above meeting.

1. Dr.B.Sharmila	Chairperson
2. Dr.M.D.Selvaraj	University Nominee
3. Dr.Arumugam Muruganandam	Industry Expert
4. Dr.G.K.Ananthasuresh	External expert from Government Organization
5. Dr.G.Muralidhar Bairy	University Member from Other University
6. Mr.A.Sarath Kumar	Alumni Representative
7. Dr.L.Priya	Internal Member
8. Dr.Deepa.B. Prabhu	Internal Member
9. Mrs.G.Lavanya	Internal Member
10. Mrs.R.Saranya	Internal Member
11. Mr.S.Vigneshwaran	Internal Member
12. Dr.D.Narmadha	Internal Member (Mathematics department)
13. Mrs.L.Dhiviyalakshmi	Department BoS Coordinator

Prof. B.Sharmila, Chairperson, Board of Studies, chaired the meeting and welcomed all the members to the 18th BoS meeting. After a brief introduction, the agenda items listed were taken up for discussion and the following resolutions were passed.

ITEM No.1

- It is resolved that Regulation 2020 (Learning Outcome based Curriculum through Choice based Credit) will be followed for B.E. Biomedical Engineering programme for students admitted in the Academic year 2020 (and for the lateral entry students admitted in the year 2021).

- It is resolved that Revised Regulation 2020 (Learning Outcome based Curriculum through Choice based Credit) will be followed for B.E. Biomedical Engineering programme for students admitted in the Academic year 2021 & subsequently.

ITEM No.2

PROFESSIONAL ELECTIVES

- It is resolved that the syllabi for the following new Professional Elective course under (Revised) Regulations 2020 be approved and passed.

COURSE CODE	COURSE TITLE	CREDIT
Professional Electives		
20BM2E32	Introduction to AI, ML & DL in Biomedical Engineering	3

ITEM No. 3

ONE CREDIT COURSES

- It is resolved that the syllabi for the following One Credit courses under (Revised) Regulations 2020 be approved and passed.

One Credit Courses		
COURSE CODE	COURSE TITLE	OFFERING INDUSTRY
20BMI008	AI for Biomedical Applications	RBG.AI, Coimbatore

ITEM No. 4

- It is resolved that the following NPTEL courses are approved for credit transfer during Nov/Dec 2023.

S. No	NPTEL Course Code	NPTEL Course Title	Credits	Course Duration	Equivalent Professional / Open Elective in SREC Curriculum
1	noc23-cs83	Introduction To Internet Of Things	3 credits	12 weeks	20BM2E03-IoT in Healthcare
2	noc23-ee109	Fabrication Techniques For MEMS-Based Sensors : Clinical Perspective	3 credits	12 weeks	20BM2E06- BIOMEMS and Medical Micro Devices

3	noc23-bt70	Biomedical Nanotechnology	1 credit	4 Weeks	20BM2E13- Medical Applications of Nanotechnology
4	noc22-me98	Elements of Solar Energy Conversion	3 credits	12 weeks	20PH2E03 - Solar Technology
5	noc23-hs100	Economics Of IPR	1 credit	4 Weeks	20ME2E01-Intellectual Property Rights for Engineers
6	noc23-ee118	Digital Image Processing	3 credits	12 weeks	20EC2E53- Image Processing and Applications
7	noc23-ge47	Sustainable Power Generation Systems	3 credits	12 weeks	20EE2E52-Power Generation Systems
8	noc23-ph35	Physics Of Renewable Energy Systems	3 credits	12 weeks	20EE2E51-Renewable Energy Systems
9	noc23-ee87	Machine Learning And Deep Learning - Fundamentals And Applications	3 credits	12 weeks	20CS2E64-Machine Learning
10	noc23-cs99	Python For Data Science	1 credit	4 Weeks	20CS2E61-Python for Data Science
11	noc22-ce69	Integrated Waste Management For A Smart City	3 credits	12 Weeks	20CE2E51 - Waste Management
12	noc22-cs95	Introduction To Industry 4.0 And Industrial Internet Of Things	3 credits	12 weeks	20RA2E51 - Automation in Industry 4.0
13	noc22-cy61	Analytical Chemistry	3 credits	12 weeks	20CH 2E53- Analytical Chemistry

ITEM No. 5

- It is resolved that the Result Analysis for the Academic Year 2022 – 2023 (Semesters VIII / VI/ IV/II) are approved and passed

ITEM No.6

➤ **Suggestions/Comments from External Expert Members and University Nominee**

➤ **Dr. M.D.Selvaraj, University Nominee** made the following suggestions:

Professional Elective:

- The topics are vast to have AI, ML and DL as a course. Artificial Intelligence is a vast area and can be considered as a separate course.
- Rename the title as Introduction to ML and DL for Biomedical Engineering.
- Materials for case study to be made available during the delivery of the course.

One Credit Course:

- Restructure the module 1 topics as Introduction of AI. He mentioned the course content is adequate for the practical learning.

Funding Opportunities:

- Advised to look for the funding call for from SERB SURE scheme, CRG scheme, etc.
- Funding opportunities are more for product & prototype development and IPR.
- Novelty is the key factor for any grant sanction. Collaboration for funding opportunities in specific areas with IIITDM shall be processed.

➤ **Dr.Muralidhar Bairy, Member from other University,** suggested that

Professional Elective:

- The course content is adequate if AI is excluded. He agreed with the suggestion from the university nominee.

NPTEL Credit Transfer:

- He suggested that the grading need to be equivalent to the toughness of the courses

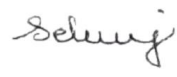
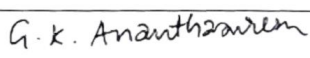
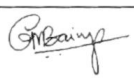
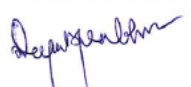
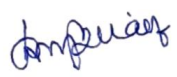
Internship Opportunities:

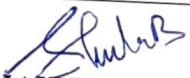
- Suggested to connect with AMTZ for internship and industry connections.

➤ **Mr. Arumugam Muruganandam, Industry member** suggested to apply for India Health Fund. More funding is focused on cutting edge innovations especially diagnostic devices to reach to primary healthcare. Also, opportunities of collaboration at Affigenix Bio Solutions (P) Ltd is welcomed.

➤ **Dr. Anantha Suresh, External expert from Government Organization** agreed to all the points suggested by the university nominee.

➤ **Mr. Sarath Kumar, Alumni representative** suggested that the courses on AI are needed as all the technologies in medical industry are converging towards AI.

Name of the Member	Designation	Signature
Dr.B.Sharmila	Chairperson	
Dr.M.D.Selvaraj	University Nominee	
Dr.Arumugam Muruganandam	Industry Expert	
Dr.G.K.Ananthasuresh	External expert from Government Organization	
Dr.G.Muralidhar Bairy	University Member from Other University	
Mr.A.Sarath Kumar	Alumni Representative	
Dr.L.Priya	Internal Member	
Dr.Deepa.B. Prabhu	Internal Member	
Mrs.G.Lavanya	Internal Member	
Mrs.R.Saranaya	Internal Member	
Mr.S.Vigneshwaran	Internal Member	
Dr.D.Narmadha	Internal Member (Mathematics)	
Mrs.L.Dhiviyalakshmi	Department BoS Coordinator	


CHAIRPERSON
BOARD OF STUDIES
Department of BME



SRI RAMAKRISHNA ENGINEERING COLLEGE, COIMBATORE – 22

[Educational Service : SNR Sons Charitable Trust]

[Autonomous Institution, Reaccredited by NAAC with 'A+' Grade]

[Approved by AICTE and Permanently Affiliated to Anna University, Chennai]

[ISO 9001:2015 Certified and all eligible programmes Accredited by NBA]

MINUTES OF THE 16TH BOARD OF STUDIES MEETING FOR THE B.E. BIOMEDICAL ENGINEERING PROGRAMME HELD ON 10.12.22 AT 3.30PM - IN THE DEPARTMENT OF BIOMEDICAL ENGINEERING

The following members attended the above meeting.

- | | |
|-----------------------------|--|
| 1. Dr.V.Ramamurthy | Chairperson |
| 2. Dr.M.D.Selvaraj | University Nominee |
| 3. Dr.Arumugam Muruganandam | Industry Expert |
| 4. Dr.G.K.Ananthasuresh | External expert from Government Organization |
| 5. Dr.G.Muralidhar Bairy | University Member from Other University |
| 6. Mr.A.Sarath Kumar | Alumni Representative |
| 7. Dr.L.Priya | Internal Member |
| 8. Dr.Deepa.B. Prabhu | Internal Member |
| 9. Mrs.G.Lavanya | Internal Member |
| 10. Ms.V.Srividhyasakthi | Internal Member |
| 11. Dr.D.Narmadha | Internal Member (Mathematics department) |
| 12. Mrs.L.Dhiviyalakshmi | Department BoS Coordinator |

Leave of Absence: Dr.Arumugam Muruganandam, Industry Member, Mr.A.Sarathkumar, Alumni Member could not attend the meeting as scheduled due to prior commitments; and was granted leave of absence..

Prof. V.Ramamurthy, Chairperson, Board of Studies, chaired the meeting and welcomed all the members to the 16th BoS meeting. After a brief introduction, the agenda items listed were taken up for discussion and the following resolutions were passed.

ITEM No.1

R2020

- It is resolved that Regulation 2020 (Learning Outcome based Curriculum through Choice based Credit) will be followed for all B.E./B.Tech. programmes for students admitted in the Academic year 2020.
- It is resolved that Revised Regulation 2020 (Learning Outcome based Curriculum through Choice based Credit) will be followed for all B.E./B.Tech. programmes for students admitted in the Academic year 2021 & onwards.

ITEM No.2

PROFESSIONAL ELECTIVES

- It is resolved that the syllabi for the following new Professional Elective courses under Regulations 2020 be approved and passed.

COURSE CODE	COURSE TITLE	CREDIT
20BM2E21	Computed Tomography and Magnetic Resonance in Medical Imaging	3
20BM2E22	Bioentrepreneurship	3
20BM2E23	Standards and Practices for Medical Device Development	3
20BM2E24	Risk, Safety and Disaster Management in Hospitals	3
20BM2E25	Genomic Data Analysis	3

ITEM No.3

UNIFORM EVALUATION METHOD OF STUDENTS BASED ON RELATIVE GRADING

- A few excerpts from Regulation 2021 of B.E/ B. Tech Programmes of Non - Autonomous Colleges affiliated to Anna University is given below. The same shall be adopted for all the UG/PG students following from academic year 2021-2022 onwards studying in University Departments and Autonomous Colleges of Anna University.

Procedure for Awarding Marks for Internal Assessment

- For all the theory courses, laboratory courses, theory course with laboratory component and project work the continuous assessment shall be awarded as per the procedure given below.,

Theory Courses:

ASSESSMENT I (100 Marks)		ASSESSMENT II (100 Marks)		Total Internal Assessment
Individual Assignment/ Case study/ Seminar/ Mini Project/ any other experiential learning	Written Test	Individual Assignment/ Case study/ Seminar/ Mini Project/ any other experiential learning	Written Test	
40	60	40	60	200*

** The weighted average shall be converted into 40 marks for internal assessment*

Laboratory Courses:

- The maximum marks for internal assessment shall be 60 marks incase of practical courses. Every practical exercise/ experiment shall be evaluated based on conduct of experiments/exercise and records are to be maintained. There shall be at least one test. The criteria for arriving at the internal assessment marks of 60 is as follows: 75 marks shall be awarded for successful completion of all the prescribed experiments done in the laboratory and 25 marks for the test. The total mark shall be converted into a maximum of 60 marks and rounded to the nearest integer.

Internal Assessment (100 Marks)*	
Evaluation of Laboratory observation, record	Test
75	25

** Internal assessment marks shall be converted into 60 marks*

Theory Courses with Laboratory Component/ Laboratory Tory Courses With Theory Component

- Weightage of internal assessment and end semester examination marks will be 50% each. The distribution of marks for the theory and laboratory components in the internal assessments and end semester examination for different types of courses are provided in the table.

L	T	P	C	Internal		End Semester examination
				Assessment 1	Assessment 2	
1	0	4	3	Laboratory (25%)	Theory (25%)	Laboratory only (50%)
1	0	2	2	Laboratory (25%)	Theory (25%)	Laboratory only (50%)
2	0	2	3	Theory (25%)	Laboratory (25%)	Theory (25%) Laboratory 25%
3	0	2	4	Theory (25%)	Laboratory (25%)	Theory (35%) Laboratory 15%
2	0	4	4	Theory (25%)	Laboratory (25%)	Theory (15%) Laboratory 35%

* The weighted average shall be converted into 50 marks or internal assessment

Project Work / Internship and Laboratory Theory Courses

- For the Project Work / Internship and Laboratory Courses fixed grading procedure shall be followed.

Passing Requirement

- A student who secures not less than 50% of total marks prescribed for the course (internal assessment+ end semester university examination) with a minimum of 45% of marks prescribed for the end semester examination, shall be declared to have passed the course and acquire the relevant number of credits. This is applicable for both theory and laboratory courses (including project work).
- If a student fails to secure a pass in a theory course/ laboratory course (except electives), the student shall register and appear only for the end semester examination in the subsequent semester. In such case, the internal assessment marks obtained by the student in the first appearance shall be retained and considered valid for all subsequent attempts till the student secures a pass. However, from the third attempt onwards if a student fails to obtain pass marks (IA + end semester examination), then the student shall be declared to have passed the examination if he/she secures a minimum of 50% marks prescribed for the university end semester examinations alone.

Award of Letter Grades

The award of letter grades Will be deeded based on relative grading principle. The relative grading is applicable to ONLY those students who have passed the examination as per the passing requirements enumerated above. For those students who have not passed the examination, Reappearance (U) shall be awarded as shown in the below Table.

For those students who have passed the course. the relative grading shall be done. The marks of those students who have passed only shall be inputted in the software developed for relative grading. The evolved relative grading method normalizes the results data using the BOX-COX transformation method and computes the grade range for each course separately and awards the grade to each student. For a given course. if the students' strength to greater than 30, the relative grading method shall be adopted. However, if the students' strength IS less than or equal to 30 then the fixed grading shall be followed With the grade range as specified below.

O	A+	A	B+	B	C	U
91 - 100	81 -90	71 -80	61 - 70	56 – 60	50-55	< 50

The performance of a student shall be reported using letter grades, each carrying certain points as detailed below:

Letter Grade	Grade Points•
O (Outstanding)	10
A + (Excellent)	9
A (Very Good)	8
B + (Good)	7
B (Average)	6
C (Satisfactory)	5
U (Re-appearance)	-
SA (Shortage of Attendance)	-
WD (Withdrawal)	-

- A student is deemed to have passed and acquired the corresponding credits in a particular course if he/she obtains any one of the following grades: "O", "A+", "A", "B+", "B", "C"
- 'SA' denotes shortage of attendance and hence prevented from writing the end semester examinations. 'SA' will appear only in the result sheet.
- "U" denotes that the student has failed to pass in that course. "WD" denotes withdrawal from the exam for the particular course. The grades U and WD will figure both in the Grade Sheet as well as in the Result Sheet. In both cases, the student has to appear for the End Semester Examinations.
- If the grade U is given to Theory Courses/ Laboratory Courses it is not required to satisfy the attendance requirements, but has to appear for the end semester examination and fulfil the passing requirements to earn a pass in the respective courses.
- If the grade U is given to EEC (Employability Enhancement Course) (except Project Work), which are evaluated only through internal assessment, the student shall register for the course again in the subsequent semester, fulfill the passing requirements to earn pass in the course. However, attendance requirement need not be satisfied.

Classification of the Degree Awarded

First Class with Distinction

A student who satisfies the following conditions shall be declared to have passed the examination in First class with Distinction:

- Should have passed the examination in all the courses of all the eight semesters (10 Semesters in case of Mechanical (Sandwich) and 6 semesters in the case of Lateral Entry) in the student's First Appearance within five years (Six years in the case of Mechanical (Sandwich) and Four years in the case of Lateral Entry). Withdrawal from examination will not be considered as an appearance.
- Should have secured a CGPA of not less than 8.50.
- One year authorized break of study (if availed of) is included in the five years (Six years in the case of Mechanical (Sandwich) and four years in the case of lateral entry) for award of First class with Distinction.

- Should NOT have been prevented from writing end semester examination due to lack of attendance in any semester.

First Class:

A student who satisfies the following conditions shall be declared to have passed the examination in First class:

- Should have passed the examination in all the courses of. all eight semesters (10 Semesters in case of Mechanical (Sandwich) and 6 semesters in the case of Lateral Entry) within five years. (Six years in case of Mechanical (Sandwich) and Four years in the case of Lateral Entry).
- One year authorized break of study (if availed of) or prevention from writing the End Semester examination due to lack of attendance (if applicable) is included in the duration of five years (Six years in case of Mechanical (Sandwich) and four years in the case of lateral entry) for award of First class.
- Should have secured a CGPA of not less than 6.50.

Second Class:

All other students who qualify for the award of the degree shall be declared to have passed the examination in Second Class. The corresponding specific changes are to be made to B.Arch. / M.Arch. / M.Plan. / MBA / M.Sc.(5years).

ITEM No.4

It is resolved that Award of UG (Hons) with Specialization, UG with Minor and UG (Hons) be implemented as approved by the Academic Council of Anna University, Chennai for the UG students who have joined from the Academic Year 2021 – 2022 for all B.E./B.Tech. programmes for students admitted in the Academic year 2020 & onwards.

1. B.E. / B.Tech. (Honours) in the same discipline
 2. B.E. / B.Tech. (Minor) in other specialization and
 3. B.E. / B.Tech. (Honours)
- **Norms for B.E. / B.Tech. (Hons) specialization in the same discipline, B.E. / B.Tech. (Hons) and B.E. / B.Tech. (Minor) in other specialization**
 - i) **B.E. / B.Tech. (Hons) specialization in the same discipline**

- a) The student should have earned additionally a minimum of 20 credits from a vertical of the same programme
- b) Should have passed all the courses in the first attempt
- c) Should have earned a minimum CGPA of 7.50.

ii) B.E. / B.Tech. (Hons)

- a) The student should have earned additional courses (minimum of 20 credits) from more than one vertical of the same programme.
- b) Should have passed all the courses in the first attempt
- c) Should have earned a minimum CGPA of 7.50.

iii) B.E. / B.Tech. (Minor) in other specialization

- a) The student should have earned additionally a minimum of 20 credits in any one of the verticals of other B.E./B.Tech programmes.
- Students can earn maximum of 6 credits in online mode (SWAYAM platform) out of these 20 credits as approved by Chairperson of Board of Studies / Academic Council.
 - B.E. / B.Tech. (Hons) specialization in the same discipline, B.E. / B.Tech. (Hons) and B.E. / B.Tech. (Minor) in other specialization degree will be optional for students.
 - Students will be permitted to register Specialization / Minor courses from 4th / 5th semester onwards. The eligibility criteria will be the (N-1)th semester performance.

The following specialization / minors are proposed from 2021 – 2022 and onwards.

S. No	Under Graduate Engineering Programme	Name of the Specialization / Minor Degree	Permitted to Offer
1	Mechanical Engineering	Robotics	Specialization
2	Electrical & Electronics Engineering	Electric Vehicles	Specialization
3	Electronics & Communication Engineering	Internet of Things (IoT)	Specialization Minor
4	Electronics & Instrumentation Engineering	Sensors Technology	Specialization Minor
5	Computer Science & Engineering	Artificial Intelligence and Machine Learning	Specialization Minor
		Cyber Security	Specialization
		Data Science	Minor
		Virtual & Augmented Reality	Specialization
6	Civil Engineering	Green Technology	Specialization

CLASSIFICATION OF DEGREE for students who opted for Specialization / Minors

1. First Class with Distinction					
Degree	Duration of the Programme	Duration Permitted	Additional credits above the requirement of curriculum	CGPA	Pass in
B.E./B.Tech. Regular	4 years	5 years	-	8.50	First Attempt
B.E./B.Tech. Lateral Entry	3 years	4 years	-	8.50	First Attempt
B.E. / B.Tech. (Hons) specialization in the same discipline	3 / 4 years (Lateral Entry/ Regular respectively)	4/5 years (Lateral Entry/ Regular respectively)	20 credits from any one vertical of the same programme	8.50	First Attempt
B.E. / B.Tech. (Hons)	3 / 4 years (Lateral Entry/ Regular respectively)	4/5 years (Lateral Entry/ Regular respectively)	20 credits from more than one verticals of the same programme	8.50	First Attempt
B.E. / B.Tech. (Minor) in other specialization	3 / 4 years (Lateral Entry/ Regular respectively)	4/5 years (Lateral Entry/ Regular respectively)	20 credits from any one vertical of the other programme	8.50	First Attempt
2. First Class					
B.E./B.Tech. Regular	4 years	5 years	-	6.50	-
B.E./B.Tech. Lateral Entry	3 years	4 years	-	6.50	-
B.E. / B.Tech. (Hons) specialization in the same discipline	3 / 4 years (Lateral Entry/ Regular respectively)	4/5 years (Lateral Entry/ Regular respectively)	20 credits from any one vertical of the same programme	7.50	First Attempt
B.E. / B.Tech. (Hons)	3 / 4 years (Lateral Entry/ Regular respectively)	4/5 years (Lateral Entry/ Regular respectively)	20 credits from more than one verticals of the same	7.50	First Attempt

B.E. / B.Tech. (Minor) in other specialization	3 / 4 years (Lateral Entry/ Regular respectively)	4/5 years (Lateral Entry/ Regular respectively)	programme 20 credits from any one vertical of the other programme	6.50	-
3. Second Class					
B.E./B.Tech. Regular / lateral entry and B.E./B.Tech. minor in other specialization degree students (not covered in first class with distinction and first class classification of degree) who qualify for the award of degree shall be declared to have passes examination in second class.					
4. Others					
Students earned additional 20 credits but does not satisfy the conditions mentioned in first class with distinction and first class classification of degree shall not be awarded B.E. / B.Tech. Honours. In such cases the mark sheet will show the additional courses studied and those courses shall not be considered for CGPA computation. In such case, if the student becomes eligible for first class, while computing CGPA without taking into account the additional courses studied, the student shall be awarded B.E. / B.Tech. in First Class only.					

ITEM No.5

Suggestions/Comments from External Expert Members and University Nominee to be recorded

- Dr.K. Anantha Suresh, Member from National Labs/Organization in his mail had mentioned that the content of syllabi of the courses proposed are good and adequate.
- **Dr.Muralidhar Bairy, Member from other University, had suggested the following:**
 - The courses presented during the meeting are most needed courses under respective category, He also appreciated for considering the courses.
 - To include latest editions and publications in the textbook references if available.
 - In the course “20BM2E22 Bioentrepreneurship” he suggested to have the participation of MBA faculties in dissemination of the course.
 - In the course “20BM2E23 Standards and Practices for Medical Device Development” participation/assistance of experts from outside agencies such as TUV Rhineland in content delivery of the courses.
 - In the options for Minors programme, he suggested that more Biomedical specific categories may be included.
- **Dr.M.D.Selvaraj, University Nominee had made the following suggestions:**
 - To include web references, suitable NPTEL and SWAYAM Courses in the references .

- Irrespective of branches, AI and Machine Learning is the current trends and where the government is promoting for lot of opportunities. Job market is also high.
 - To include more Data Science and Analysis courses which is very important for Biomedical Engineering discipline.
 - Certain courses like Data Sciences for Medical Applications: Case studies and examples are given with medical data's.
- The Board Member panel recommended the content of the courses presented in the 16th Board of Studies meeting.

ITEM II: LIST OF PROFESSIONAL ELECTIVE COURSES

➤ It is resolved that the syllabi for the following new **Professional Elective courses** under Regulations 2020 be approved and passed.

COURSE CODE	COURSE TITLE	CREDIT
200M2E21	Computed Tomography and Magnetic Resonance in Medical Imaging	3
200M2E22	Bioacoustics	3
200M2E23	Standards and Practices for Medical Device Development	3
200M2E24	Risk, Safety and Disaster Management in Hospitals	3
200M2E25	Genomic Data Analysis	3

Webex 58:02

This meeting is being recorded.

The following specialization / minors are proposed from 2021 – 2022 and onwards.

S.NO	Under Graduate Engineering Programme	Name of the Specialization/ Minor Degree	Permitted to Offer
1	Mechanical Engineering	Robotics	Specialization
2	Electrical & Electronics Engineering	Electric Vehicles	Specialization
3	Electronics and Communication Engineering	Internet of Things (IOT)	Specialization
4	Electronics & Instrumentation Engineering	Smart Technology	Specialization
5	Computer Science & Engineering	Artificial Intelligence and Machine Learning	Specialization
		Cyber Security	Specialization
		Data Science	Minor
		Virtual & Augmented Reality	Specialization
6	Civil Engineering	Green Technology	Specialization

Webex 01:07:25

G Muralidhar Baiyy

G.Lavanya (host)

Dr.Selvaraj

Webex 28:50

AGENDA

- 1. Item 1 - Approval of the agenda
- 2. Item 2 - Presentation of the report on the activities of the Board of Studies
- 3. Item 3 - Presentation of the report on the activities of the Board of Studies
- 4. Item 4 - Presentation of the report on the activities of the Board of Studies
- 5. Item 5 - Presentation of the report on the activities of the Board of Studies

Ram

Webex 01:07:08

G.Lavanya (host)

Dr.Selvaraj

Dr. D. Narmatha AP M...

Webex
41:38

This meeting is being recorded.



Second Class

B.E./B.Tech. Regular / Internal entry and B.E./B.Tech. minor in other specialization degree students (not covered in first class with distinction and first class classification of degree) who qualify for the award of degree shall be declared to have passed examination in second class.

Others

Students earned additional 20 credits but does not satisfy the conditions mentioned in first class with distinction and first class classification of degree shall not be awarded B.E. / B.Tech. Honours. In such cases the mark sheet will show the additional courses studied and those courses shall not be considered for CGPA computation. In such case, if the student becomes eligible for first class, while computing CGPA without taking into account the additional courses studied, the student shall be awarded B.E. / B.Tech. in First Class only.

Webex
29:16

G.Lavanya is sharing.



REGULATION 2020

DEPARTMENT OF BIOMEDICAL ENGINEERING



Ram



Ram

Webex
29:32

G.Lavanya is sharing.

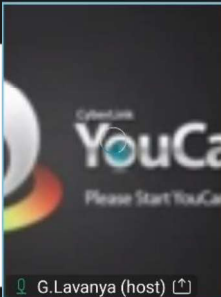


ITEM I: REGULATION & CURRICULUM

- It is resolved that Regulation 2020 (Learning Outcome based Curriculum through Choice based Credit) will be followed for B.E. Biomedical Engineering programme for students admitted in the Academic year 2020 (and for the lateral entry students admitted in the year 2021).
- It is resolved that Revised Regulation 2020 (Learning Outcome based Curriculum through Choice based Credit) will be followed for B.E. Biomedical Engineering programme for students admitted in the Academic year 2021 & subsequently.



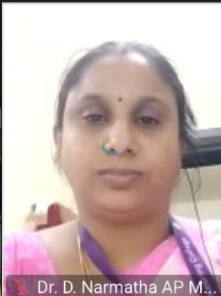
Ram



G.Lavanya (host)



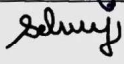
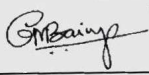
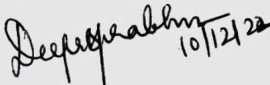
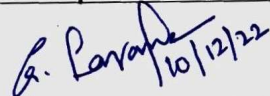
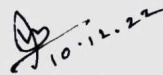
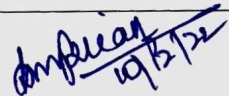
Dr.Selvaraj



Dr. D. Narmatha AP M...



G Muralidhar Bai...

Name of the Member	Designation	Signature
Dr.V.Ramamurthy	Chairperson	
Dr.M.D.Selvaraj	University Nominee	
Dr.Arumugam Muruganandam	Industry Expert	out of country
Dr.G.K.Ananthasuresh	External expert from Government Organization	Other commitments
Dr.G.Muralidhar Bairy	University Member from Other University	
Mr.A.Sarath Kumar	Alumni Representative	Personal reason
Dr.L.Priya	Internal Member	 10/12/22
Dr.Deepa.B. Prabhu	Internal Member	 10/12/22
Mrs.G.Lavanya	Internal Member	 10/12/22
Ms.V.Srividhyasakthi	Internal Member	 10.12.22
Dr.D.Narmadha	Internal Member (Mathematics)	 10/12/22
Mrs.L.Dhiviyalakshmi	Department BoS Coordinator	 10/12/22


CHAIRPERSON
BOARD OF STUDIES
Department of Biomedical Engineering


1 of 10

**SREC**

Dhiviyalaksmi Lakshmipathy <dhiviyalakshmi.lakshmipathy@srec.ac.in>

16th BoS/BME Minutes -reg

M D Selvaraj <selvaraj@iiitdm.ac.in>

Mon, Dec 12, 2022 at 7:18 PM

To: Dhiviyalaksmi Lakshmipathy <dhiviyalakshmi.lakshmipathy@srec.ac.in>

Please find the signed document attached.

Dr. M.D.Selvaraj, Ph.D. (IIT Delhi)
Professor and Head,
Department of ECE,
IIITDM Kancheepuram
(Institute of National Importance under MHRD, Govt. of India)
<http://iiitdm.ac.in/People/displayProfileFaculty.php?selvaraj@iiitdm.ac.in>
Mobile: +91-9941524269
Office: +91-44-2747-6359

On Mon, Dec 12, 2022 at 11:07 AM Dhiviyalaksmi Lakshmipathy <dhiviyalakshmi.lakshmipathy@srec.ac.in> wrote:

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**16th BoS minutes.doc**

2359K

**SREC**

Dhiviyalaksmi Lakshmipathy <dhiviyalakshmi.lakshmipathy@srec.ac.in>

16th BoS/BME Minutes -reg

Dr. G Muralidhar Bairy <muralidharbairy@gmail.com>

Mon, Dec 12, 2022 at 11:13 AM

To: Dhiviyalaksmi Lakshmipathy <dhiviyalakshmi.lakshmipathy@srec.ac.in>

Dear Madam,

Gone through it. Looks fine. Included all the points. From my side approved.
with warm regards

Dr. G Muralidhar Bairy

Associate Professor (senior scale) and HOD

Department of Biomedical Engineering, MIT, Manipal.

Email: muralidharbairy@gmail.com, bairymurali@yahoo.com

Mob: 9845248317

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SRI RAMAKRISHNA ENGINEERING COLLEGE, COIMBATORE – 22

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MINUTES OF THE 16TH BOARD OF STUDIES MEETING FOR THE B.E. BIOMEDICAL ENGINEERING PROGRAMME HELD ON 10.12.22 AT 3.30PM - IN THE DEPARTMENT OF BIOMEDICAL ENGINEERING

The following members attended the above meeting.

- | | |
|-----------------------------|--|
| 1. Dr.V.Ramamurthy | Chairperson |
| 2. Dr.M.D.Selvaraj | University Nominee |
| 3. Dr.Arumugam Muruganandam | Industry Expert |
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| 10. Ms.V.Srividhyasakthi | Internal Member |
| 11. Dr.D.Narmadha | Internal Member (Mathematics department) |
| 12. Mrs.L.Dhiviyalakshmi | Department BoS Coordinator |

Leave of Absence: Dr.Arumugam Muruganandam, Industry Member, Mr.A.Sarathkumar, Alumni Member could not attend the meeting as scheduled due to prior commitments; and was granted leave of absence..

Prof. V.Ramamurthy, Chairperson, Board of Studies, chaired the meeting and welcomed all the members to the 16th BoS meeting. After a brief introduction, the agenda items listed were taken up for discussion and the following resolutions were passed.

ITEM No.1**R2020**

- It is resolved that Regulation 2020 (Learning Outcome based Curriculum through Choice based Credit) will be followed for all B.E./B.Tech. programmes for students admitted in the Academic year 2020.
- It is resolved that Revised Regulation 2020 (Learning Outcome based Curriculum through Choice based Credit) will be followed for all B.E./B.Tech. programmes for students admitted in the Academic year 2021 & onwards.

ITEM No.2**PROFESSIONAL ELECTIVES**

- It is resolved that the syllabi for the following new Professional Elective courses under Regulations 2020 be approved and passed.

COURSE CODE	COURSE TITLE	CREDIT
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20BM2E22	Bioentrepreneurship	3
20BM2E23	Standards and Practices for Medical Device Development	3
20BM2E24	Risk, Safety and Disaster Management in Hospitals	3
20BM2E25	Genomic Data Analysis	3

ITEM No.3**UNIFORM EVALUATION METHOD OF STUDENTS BASED ON RELATIVE
GRADING**

- A few excerpts from Regulation 2021 of B.E/ B. Tech Programmes of Non - Autonomous Colleges affiliated to Anna University is given below. The same shall be adopted for all the UG/PG students following from academic year 2021-2022 onwards studying in University Departments and Autonomous Colleges of Anna University.

Procedure for Awarding Marks for Internal Assessment

- For all the theory courses, laboratory courses, theory course with laboratory component and project work the continuous assessment shall be awarded as per the procedure given below.,

Theory Courses:

ASSESSMENT I (100 Marks)		ASSESSMENT II (100 Marks)		Total Internal Assessment
Individual Assignment/ Case study/ Seminar/ Mini Project/ any other experiential learning	Written Test	Individual Assignment/ Case study/ Seminar/ Mini Project/ any other experiential learning	Written Test	
40	60	40	60	200*

** The weighted average shall be converted into 40 marks for internal assessment*

Laboratory Courses:

- The maximum marks for internal assessment shall be 60 marks incase of practical courses. Every practical exercise/ experiment shall be evaluated based on conduct of experiments/exercise and records are to be maintained. There shall be at least one test. The criteria for arriving at the internal assessment marks of 60 is as follows: 75 marks shall be awarded for successful completion of all the prescribed experiments done in the laboratory and 25 marks for the test. The total mark shall be converted into a maximum of 60 marks and rounded to the nearest integer.

Internal Assessment (100 Marks)*	
Evaluation of Laboratory observation, record	Test
75	25

** Internal assessment marks shall be converted into 60 marks*

Theory Courses with Laboratory Component/ Laboratory Tory Courses With Theory Component

- Weightage of internal assessment and end semester examination marks will be 50% each. The distribution of marks for the theory and laboratory components in the internal assessments and end semester examination for different types of courses are provided in the table.

L	T	P	C	Internal		End Semester examination
				Assessment 1	Assessment 2	
1	0	4	3	Laboratory (25%)	Theory (25%)	Laboratory only (50%)
1	0	2	2	Laboratory (25%)	Theory (25%)	Laboratory only (50%)
2	0	2	3	Theory (25%)	Laboratory (25%)	Theory (25%) Laboratory 25%
3	0	2	4	Theory (25%)	Laboratory (25%)	Theory (35%) Laboratory 15%
2	0	4	4	Theory (25%)	Laboratory (25%)	Theory (15%) Laboratory 35%

* The weighted average shall be converted into 50 marks or internal assessment

Project Work / Internship and Laboratory Theory Courses

- For the Project Work / Internship and Laboratory Courses fixed grading procedure shall be followed.

Passing Requirement

- A student who secures not less than 50% of total marks prescribed for the course (internal assessment+ end semester university examination) with a minimum of 45% of marks prescribed for the end semester examination, shall be declared to have passed the course and acquire the relevant number of credits. This is applicable for both theory and laboratory courses (including project work).
- If a student fails to secure a pass in a theory course/ laboratory course (except electives), the student shall register and appear only for the end semester examination in the subsequent semester. In such case, the internal assessment marks obtained by the student in the first appearance shall be retained and considered valid for all subsequent attempts till the student secures a pass. However, from the third attempt onwards if a student fails to obtain pass marks (IA + end semester examination), then the student shall be declared to have passed the examination if he/she secures a minimum of 50% marks prescribed for the university end semester examinations alone.

Award of Letter Grades

The award of letter grades Will be deeded based on relative grading principle. The relative grading is applicable to ONLY those students who have passed the examination as per the passing requirements enumerated above. For those students who have not passed the examination, Reappearance (U) shall be awarded as shown in the below Table.

For those students who have passed the course. the relative grading shall be done. The marks of those students who have passed only shall be inputted in the software developed for relative grading. The evolved relative grading method normalizes the results data using the BOX-COX transformation method and computes the grade range for each course separately and awards the grade to each student. For a given course. if the students' strength to greater than 30, the relative grading method shall be adopted. However, if the students' strength IS less than or equal to 30 then the fixed grading shall be followed With the grade range as specified below.

O	A+	A	B+	B	C	U
91 - 100	81 -90	71 -80	61 - 70	56 – 60	50-55	< 50

The performance of a student shall be reported using letter grades, each carrying certain points as detailed below:

Letter Grade	Grade Points•
O (Outstanding)	10
A + (Excellent)	9
A (Very Good)	8
B + (Good)	7
B (Average)	6
C (Satisfactory)	5
U (Re-appearance)	-
SA (Shortage of Attendance)	-
WD (Withdrawal)	-

- A student is deemed to have passed and acquired the corresponding credits in a particular course if he/she obtains any one of the following grades: "O", "A+", "A", "B+", "B", "C"
- 'SA' denotes shortage of attendance and hence prevented from writing the end semester examinations. 'SA' will appear only in the result sheet.
- "U" denotes that the student has failed to pass in that course. "WD" denotes withdrawal from the exam for the particular course. The grades U and WD will figure both in the Grade Sheet as well as in the Result Sheet. In both cases, the student has to appear for the End Semester Examinations.
- If the grade U is given to Theory Courses/ Laboratory Courses it is not required to satisfy the attendance requirements, but has to appear for the end semester examination and fulfil the passing requirements to earn a pass in the respective courses.
- If the grade U is given to EEC (Employability Enhancement Course) (except Project Work), which are evaluated only through internal assessment, the student shall register for the course again in the subsequent semester, fulfill the passing requirements to earn pass in the course. However, attendance requirement need not be satisfied.

Classification of the Degree Awarded

First Class with Distinction

A student who satisfies the following conditions shall be declared to have passed the examination in First class with Distinction:

- Should have passed the examination in all the courses of all the eight semesters (10 Semesters in case of Mechanical (Sandwich) and 6 semesters in the case of Lateral Entry) in the student's First Appearance within five years (Six years in the case of Mechanical (Sandwich) and Four years in the case of Lateral Entry). Withdrawal from examination will not be considered as an appearance.
- Should have secured a CGPA of not less than 8.50.
- One year authorized break of study (if availed of) is included in the five years (Six years in the case of Mechanical (Sandwich) and four years in the case of lateral entry) for award of First class with Distinction.

- Should NOT have been prevented from writing end semester examination due to lack of attendance in any semester.

First Class:

A student who satisfies the following conditions shall be declared to have passed the examination in First class:

- Should have passed the examination in all the courses of. all eight semesters (10 Semesters in case of Mechanical (Sandwich) and 6 semesters in the case of Lateral Entry) within five years. (Six years in case of Mechanical (Sandwich) and Four years in the case of Lateral Entry).
- One year authorized break of study (if availed of) or prevention from writing the End Semester examination due to lack of attendance (if applicable) is included in the duration of five years (Six years in case of Mechanical (Sandwich) and four years in the case of lateral entry) for award of First class.
- Should have secured a CGPA of not less than 6.50.

Second Class:

All other students who qualify for the award of the degree shall be declared to have passed the examination in Second Class. The corresponding specific changes are to be made to B.Arch. / M.Arch. / M.Plan. / MBA / M.Sc.(5years).

ITEM No.4

It is resolved that Award of UG (Hons) with Specialization, UG with Minor and UG (Hons) be implemented as approved by the Academic Council of Anna University, Chennai for the UG students who have joined from the Academic Year 2021 – 2022 for all B.E./B.Tech. programmes for students admitted in the Academic year 2020 & onwards.

1. B.E. / B.Tech. (Honours) in the same discipline
 2. B.E. / B.Tech. (Minor) in other specialization and
 3. B.E. / B.Tech. (Honours)
- **Norms for B.E. / B.Tech. (Hons) specialization in the same discipline, B.E. / B.Tech. (Hons) and B.E. / B.Tech. (Minor) in other specialization**
 - i) **B.E. / B.Tech. (Hons) specialization in the same discipline**

- a) The student should have earned additionally a minimum of 20 credits from a vertical of the same programme
- b) Should have passed all the courses in the first attempt
- c) Should have earned a minimum CGPA of 7.50.

ii) B.E. / B.Tech. (Hons)

- a) The student should have earned additional courses (minimum of 20 credits) from more than one vertical of the same programme.
- b) Should have passed all the courses in the first attempt
- c) Should have earned a minimum CGPA of 7.50.

iii) B.E. / B.Tech. (Minor) in other specialization

- a) The student should have earned additionally a minimum of 20 credits in any one of the verticals of other B.E./B.Tech programmes.
- Students can earn maximum of 6 credits in online mode (SWAYAM platform) out of these 20 credits as approved by Chairperson of Board of Studies / Academic Council.
 - B.E. / B.Tech. (Hons) specialization in the same discipline, B.E. / B.Tech. (Hons) and B.E. / B.Tech. (Minor) in other specialization degree will be optional for students.
 - Students will be permitted to register Specialization / Minor courses from 4th / 5th semester onwards. The eligibility criteria will be the (N-1)th semester performance.

The following specialization / minors are proposed from 2021 – 2022 and onwards.

S. No	Under Graduate Engineering Programme	Name of the Specialization / Minor Degree	Permitted to Offer
1	Mechanical Engineering	Robotics	Specialization
2	Electrical & Electronics Engineering	Electric Vehicles	Specialization
3	Electronics & Communication Engineering	Internet of Things (IoT)	Specialization Minor
4	Electronics & Instrumentation Engineering	Sensors Technology	Specialization Minor
5	Computer Science & Engineering	Artificial Intelligence and Machine Learning	Specialization Minor
		Cyber Security	Specialization
		Data Science	Minor
		Virtual & Augmented Reality	Specialization
6	Civil Engineering	Green Technology	Specialization

CLASSIFICATION OF DEGREE for students who opted for Specialization / Minors

1. First Class with Distinction					
Degree	Duration of the Programme	Duration Permitted	Additional credits above the requirement of curriculum	CGPA	Pass in
B.E./B.Tech. Regular	4 years	5 years	-	8.50	First Attempt
B.E./B.Tech. Lateral Entry	3 years	4 years	-	8.50	First Attempt
B.E. / B.Tech. (Hons) specialization in the same discipline	3 / 4 years (Lateral Entry/ Regular respectively)	4/5 years (Lateral Entry/ Regular respectively)	20 credits from any one vertical of the same programme	8.50	First Attempt
B.E. / B.Tech. (Hons)	3 / 4 years (Lateral Entry/ Regular respectively)	4/5 years (Lateral Entry/ Regular respectively)	20 credits from more than one verticals of the same programme	8.50	First Attempt
B.E. / B.Tech. (Minor) in other specialization	3 / 4 years (Lateral Entry/ Regular respectively)	4/5 years (Lateral Entry/ Regular respectively)	20 credits from any one vertical of the other programme	8.50	First Attempt
2. First Class					
B.E./B.Tech. Regular	4 years	5 years	-	6.50	-
B.E./B.Tech. Lateral Entry	3 years	4 years	-	6.50	-
B.E. / B.Tech. (Hons) specialization in the same discipline	3 / 4 years (Lateral Entry/ Regular respectively)	4/5 years (Lateral Entry/ Regular respectively)	20 credits from any one vertical of the same programme	7.50	First Attempt
B.E. / B.Tech. (Hons)	3 / 4 years (Lateral Entry/ Regular respectively)	4/5 years (Lateral Entry/ Regular respectively)	20 credits from more than one verticals of the same	7.50	First Attempt

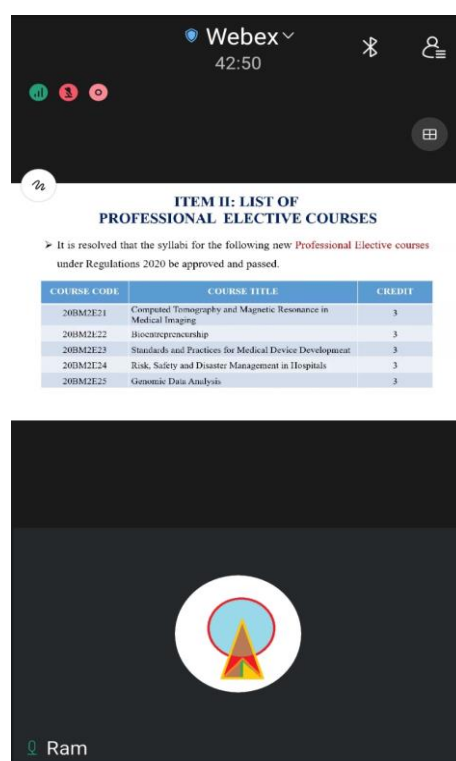
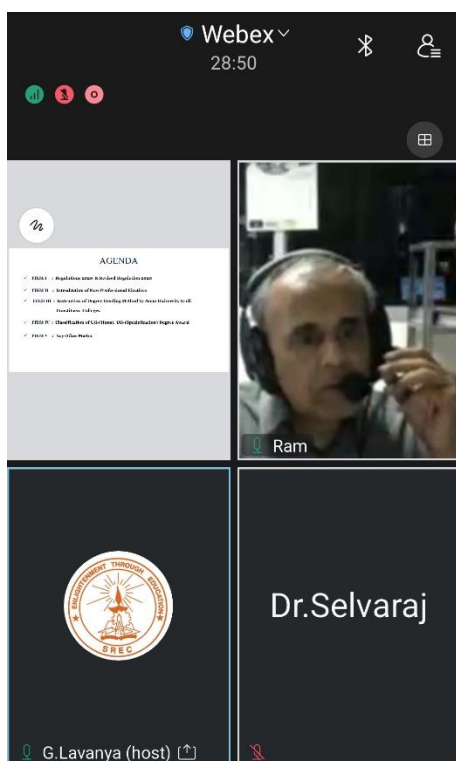
B.E. / B.Tech. (Minor) in other specialization	3 / 4 years (Lateral Entry/ Regular respectively)	4/5 years (Lateral Entry/ Regular respectively)	programme 20 credits from any one vertical of the other programme	6.50	-
3. Second Class					
B.E./B.Tech. Regular / lateral entry and B.E./B.Tech. minor in other specialization degree students (not covered in first class with distinction and first class classification of degree) who qualify for the award of degree shall be declared to have passes examination in second class.					
4. Others					
Students earned additional 20 credits but does not satisfy the conditions mentioned in first class with distinction and first class classification of degree shall not be awarded B.E. / B.Tech. Honours. In such cases the mark sheet will show the additional courses studied and those courses shall not be considered for CGPA computation. In such case, if the student becomes eligible for first class, while computing CGPA without taking into account the additional courses studied, the student shall be awarded B.E. / B.Tech. in First Class only.					

ITEM No.5

Suggestions/Comments from External Expert Members and University Nominee to be recorded

- Dr.K. Anantha Suresh, Member from National Labs/Organization in his mail had mentioned that the content of syllabi of the courses proposed are good and adequate.
- **Dr.Muralidhar Bairy, Member from other University, had suggested the following:**
 - The courses presented during the meeting are most needed courses under respective category, He also appreciated for considering the courses.
 - To include latest editions and publications in the textbook references if available.
 - In the course “20BM2E22 Bioentrepreneurship” he suggested to have the participation of MBA faculties in dissemination of the course.
 - In the course “20BM2E23 Standards and Practices for Medical Device Development” participation/assistance of experts from outside agencies such as TUV Rhineland in content delivery of the courses.
 - In the options for Minors programme, he suggested that more Biomedical specific categories may be included.
- **Dr.M.D.Selvaraj, University Nominee had made the following suggestions:**
 - To include web references, suitable NPTEL and SWAYAM Courses in the references .

- Irrespective of branches, AI and Machine Learning is the current trends and where the government is promoting for lot of opportunities. Job market is also high.
 - To include more Data Science and Analysis courses which is very important for Biomedical Engineering discipline.
 - Certain courses like Data Sciences for Medical Applications: Case studies and examples are given with medical data's.
- The Board Member panel recommended the content of the courses presented in the 16th Board of Studies meeting.



Webex

01:07:29

G Muralidhar Bairy

G.Lavanya (host)

Dr.Selvaraj

priya.i

Human genome project, NGS and personal data analysis - Data format, Alignment of NGS sequencing reads, SNP and indel detection, personal genome data analysis, personal genome interpretation and disease risk prediction

Microarray Data analysis

Introduction, Classification analysis, Gene set enrichment analysis, Survival analysis, Differential gene expression analysis, Clustering analysis, Classification analysis, Basic data processing in R, Gene ontology - Data set and biological interpretation tools- DAVID, [GSEA](#), [Path](#), [BioRad](#), Gene set approaches and prognostic subgroup prediction- Intro, Input files, GSEA execution, Leading subset analysis, GSEA via R, Survival analysis

Network biology

Sequence data, phylogenetic tree, visualization of sequence analysis, biological pathway analysis, Gene ontology, Biomedical network mining, Biomedical network analysis.

Informatics for Human Genome variants

SNP data analysis- dbSNP, 1000 genome project, [PharmGKB](#), GWAS- files of the [PLINK](#), configuration of [gPLINK](#), Validation of GWAS data set, Filtering out data with a threshold, Basic association test, Additive genotype test, Manhattan plot, CNV analysis- Data, genomic aberration detection, Visualization, obtaining [genomic](#) [readouts](#)

Webex

44:10

Webex

42:50

ITEM II: LIST OF PROFESSIONAL ELECTIVE COURSES

It is resolved that the syllabi for the following new Professional Elective courses under Regulations 2020 be approved and passed.

COURSE CODE	COURSE TITLE	CREDIT
20BM2E21	Computed Tomography and Magnetic Resonance in Medical Imaging	3
20BM2E22	Biocorepreneurship	3
20BM2E23	Standards and Practices for Medical Device Development	3
20BM2E24	Risk, Safety and Disaster Management in Hospitals	3
20BM2E25	Genomic Data Analysis	3

Ram

Ram

Webex

41:38

This meeting is being recorded.

Second Class

B.E./B.Tech. Regular / lateral entry and B.E./B.Tech. minor in other specialization degree students (not covered in first class with distinction and first class classification of degree) who qualify for the award of degree shall be declared to have passed examination in second class

Others

Students earned additional 20 credits but does not satisfy the conditions mentioned in first class with distinction and first class classification of degree shall not be awarded B.E. / B.Tech. Honours. In such cases the mark sheet will show the additional courses studied and those courses shall not be considered for CGPA computation. In such case, if the student becomes eligible for first class, while computing CGPA without taking into account the additional courses studied, the student shall be awarded B.E. / B.Tech. in First Class only.

Webex

29:16

G.Lavanya is sharing.

REGULATION 2020

DEPARTMENT OF BIOMEDICAL ENGINEERING

Ram

Ram

Webex

29:32

G.Lavanya is sharing.

ITEM I: REGULATION & CURRICULUM

- It is resolved that Regulation 2020 (Learning Outcome based Curriculum through Choice based Credit) will be followed for B.E. Biomedical Engineering programme for students admitted in the Academic year 2020 (and for the lateral entry students admitted in the year 2021).
- It is resolved that Revised Regulation 2020 (Learning Outcome based Curriculum through Choice based Credit) will be followed for B.E. Biomedical Engineering programme for students admitted in the Academic year 2021 & subsequently.

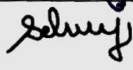
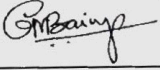
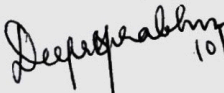
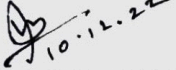
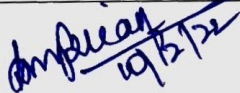
G.Lavanya (host)

Dr.Selvaraj

Ram

Dr. D. Narmatha AP M...

G Muralidhar Bai...

Name of the Member	Designation	Signature
Dr.V.Ramamurthy	Chairperson	
Dr.M.D.Selvaraj	University Nominee	
Dr.Arumugam Muruganandam	Industry Expert	out of country
Dr.G.K.Ananthasuresh	External expert from Government Organization	Other commitments
Dr.G.Muralidhar Bairy	University Member from Other University	
Mr.A.Sarath Kumar	Alumni Representative	Personal reason
Dr.L.Priya	Internal Member	 10/12/22
Dr.Deepa.B. Prabhu	Internal Member	 10/12/22
Mrs.G.Lavanya	Internal Member	 10/12/22
Ms.V.Srividhyasakthi	Internal Member	 10.12.22
Dr.D.Narmadha	Internal Member (Mathematics)	 10/12/22
Mrs.L.Dhiviyalakshmi	Department BoS Coordinator	 10/12/22


CHAIRPERSON
BOARD OF STUDIES
 Department of Biomedical Engineering


 Chairman
 of Studies

**SREC**

Dhiviyalaksmi Lakshmipathy <dhiviyalakshmi.lakshmipathy@srec.ac.in>

16th BoS/BME Minutes -reg

M D Selvaraj <selvaraj@iiitdm.ac.in>

Mon, Dec 12, 2022 at 7:18 PM

To: Dhiviyalaksmi Lakshmipathy <dhiviyalakshmi.lakshmipathy@srec.ac.in>

Please find the signed document attached.

Dr. M.D.Selvaraj, Ph.D. (IIT Delhi)
Professor and Head,
Department of ECE,
IIITDM Kancheepuram
(Institute of National Importance under MHRD, Govt. of India)
<http://iiitdm.ac.in/People/displayProfileFaculty.php?selvaraj@iiitdm.ac.in>
Mobile: +91-9941524269
Office: +91-44-2747-6359

On Mon, Dec 12, 2022 at 11:07 AM Dhiviyalaksmi Lakshmipathy <dhiviyalakshmi.lakshmipathy@srec.ac.in> wrote:

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**16th BoS minutes.doc**

2359K

**SREC**

Dhiviyalaksmi Lakshmipathy <dhiviyalakshmi.lakshmipathy@srec.ac.in>

16th BoS/BME Minutes -reg

Dr. G Muralidhar Bairy <muralidharbairy@gmail.com>

Mon, Dec 12, 2022 at 11:13 AM

To: Dhiviyalaksmi Lakshmipathy <dhiviyalakshmi.lakshmipathy@srec.ac.in>

Dear Madam,

Gone through it. Looks fine. Included all the points. From my side approved.

*with warm regards***Dr. G Muralidhar Bairy**

Associate Professor (senior scale) and HOD

Department of Biomedical Engineering, MIT, Manipal.

Email: muralidharbairy@gmail.com, bairymurali@yahoo.com

Mob: 9845248317

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SRI RAMAKRISHNA ENGINEERING COLLEGE, COIMBATORE – 22

[Educational Service : SNR Sons Charitable Trust]

[Autonomous Institution, Reaccredited by NAAC with 'A+' Grade]

[Approved by AICTE and Permanently Affiliated to Anna University, Chennai]

[ISO 9001:2015 Certified and all eligible programmes Accredited by NBA]

MINUTES OF THE 15TH MEETING OF THE BOARD OF STUDIES IN B.E. BIOMEDICAL ENGINEERING PROGRAMME HELD ONLINE ON 26.02.2022 AT 02.00PM IN THE DEPARTMENT OF BIOMEDICAL ENGINEERING.

Members of the Board of Studies in Biomedical Engineering

1. Dr.V.Ramamurthy	Chairperson
2. Dr.M.D.Selvaraj	University Nominee
3. Dr.Arumugam Muruganandam	Industry Expert
4. Dr.G.K.Ananthasuresh	External expert from Government Organization
5. Dr.G.Muralidhar Bairy	University Member from Other University
6. Mr.A.Sarath Kumar	Alumni Representative
7. Dr.L.Priya	Internal Member
8. Dr.Deepa.B. Prabhu	Internal Member
9. Mrs.G.Lavanya	Internal Member
10. Ms.V.Srividhyasakthi	Internal Member
11. Dr.D.Narmadha	Internal Member (Mathematics department)
12. Mrs.L.Dhiviyalakshmi	Department BoS Coordinator

Leave of Absence: Dr.Arumugam Muruganandam, Industry Member could not attend the meeting as scheduled due to prior commitments; and was granted leave of absence..

Prof. V. Ramamurthy, Chairperson, Board of Studies welcomed the members to the 15th BoS meeting. After a brief introduction, the agenda items listed were taken up for discussion and the following resolutions were passed.

ITEM No.1**Regulation 2020 and Curriculum**

- It is resolved that Regulation 2020 (Learning Outcome based Curriculum through Choice based Credit) will be followed for all B.E./B.Tech. programmes for students admitted in the Academic year 2020 & onwards.

ITEM No.2**Professional Elective Courses**

- It is resolved that the syllabi for the following professional elective courses listed below under Regulations 2020 be approved and passed.

- | | | |
|--------|----------|---|
| i. | 20BM2E01 | Brain Computer Interface |
| ii. | 20BM2E02 | Embedded System Architecture |
| iii. | 20BM2E03 | IoT in Healthcare |
| iv. | 20BM2E04 | Healthcare Data Mining & Predictive Analytics |
| v. | 20BM2E05 | Wearable Medical Devices |
| vi. | 20BM2E06 | BIOMEMS and Medical Micro Devices |
| vii. | 20BM2E07 | Virtual Instrumentation |
| viii. | 20BM2E08 | Medical Informatics |
| ix. | 20BM2E09 | Advanced Medical Image Analysis |
| x. | 20BM2E10 | Biomedical Transport Phenomenon |
| xi. | 20BM2E11 | Clinical Biomechanics |
| xii. | 20BM2E12 | Biofluid Dynamics |
| xiii. | 20BM2E13 | Medical Robotics |
| xiv. | 20BM2E14 | Bionanotechnology |
| xv. | 20BM2E15 | Cancer Detection and Treatment |
| xvi. | 20BM2E16 | Clinical Immunology |
| xvii. | 20BM2E17 | Lab-on-a- Chip |
| xviii. | 20BM2E18 | Cell and Matrix Mechanics |
| xix. | 20BM2E19 | Tissue replacement implants |
| xx. | 20BM2E20 | Biomaterials Characterization |
| xxi. | 20BM2E21 | Bioinformatics and Drug Design |

ITEM No.3**One Credit courses**

- It is resolved that the following one credit courses will be offered under Regulations 2020 for B.E. Biomedical Engineering programme.

CODE	COURSE TITLE	OFFERING INDUSTRY
20BMI03	Foundation in Clinical Research	Skyline CRS, CatchU Academy ,Coimbatore
20BMI04	IR Thermography in Engineering	BAMARA Techware (Teledyne FLIR), Coimbatore

ITEM No.4

- Amendment to Clause 35 of B.E./B.Tech programmes under Regulations 2020 for the 2020 – 2021 admitted students only.

For mandatory courses every student shall put in the required attendance and training as per the course requirement. However, the successful completion of one course from Personality and Character Development category (OR) one course from Allied Skills category is sufficient in addition to mandatory [EEC] Employment Enhancement Courses / department allied courses as prescribed in the curriculum of the programme concerned for the award of degree.

This decision is taken as a ONE TIME MEASURE and with due approval from the academic council standing committee / competent authority for the 2020 – 2021 admitted students only.

ITEM No.5

Regulation 2016

- It is resolved that Regulation 2016 (Version 1.0) will be followed (Choice Based Credit System) for all B.E./B.Tech. programmes for students admitted during the Academic year 2018-2019 and 2019-2020.
- Amendment to Clause 3 of B.E./B.Tech programmes under Regulations 2016.

The clause 13 of Regulation 2016 V-1.0 (Choice Based Credit System) shall be completely exempted for the candidates admitted during the year 2018 – 2019 and 2019 – 2020 and they are permitted to appear for all the reappearance examinations in the subsequent semester up to the maximum period of study.

These decisions are taken as ONE TIME MEASURES and with due approval from the academic council standing committee / competent authority.

- Amendment to Clause 15.3 of B.E./B.Tech programmes under Regulations 2016.

Clause	Existing	Amended
15.3	The student who fails in the laboratory course shall repeat the same in the subsequent semester and repeat the laboratory course again.	If a candidate fails to secure a pass or is absent for the end semester examinations in the laboratory course he/she shall do reappearance registration for that laboratory course in the subsequent semester / when offered next. This is applicable for the candidates admitted under Regulations 2016.

ITEM No.6

- It is resolved that the following one credit courses will be offered under Regulations 2016 for the B.E. Biomedical Engineering programme.

CODE	COURSE TITLE	OFFERING INDUSTRY
16BMIXX	Foundation in Clinical Research	Skyline CRS, CatchU Academy ,Coimbatore
16BMIXX	IR Thermography in Engineering	BAMARA Techware (Teledyne FLIR), Coimbatore

ITEM No.7

- It is resolved that the approved Summer School / WinterSchool / GIAN courses conducted by the foreign Universities for a minimum period of 10 days may be considered as equivalent to One Credit Course in the Regulation 2016 (Ver 1.0) / may be considered for credit transfer

ITEM No.8

- It is resolved that the following NPTEL course is approved for credit transfer during May 2022.

S.No	Course Code	Course Title
1.	noc22-bt12	BioInformatics: Algorithms and Applications

ITEM No.09

- It is informed that the register number allotted for the students admitted to the various UG/PG programmes from the academic year 2021 – 2022 will be prefixed with the college code 7181. Hence the register number will be as follows.

Register Number : 718121XXYZZ

7181 – College Code

21 - Year of Admission

XX - Branch Code

Y - Section

ZZ - Serial number

ITEM No.10

- The department vision, mission and PEOs statement revision was proposed and the structure of the proposed P.G Programme -Healthcare Analytics was presented for comments.

ITEM NO. 11

- The following decisions are taken as one time measure due to the COVID Pandemic.
1. Classes to be handled online with 5 sessions per day.
 2. End semester examination to be conducted online.

Suggestions by expert members on Regulations, Curriculum, various courses and electives:

- Dr Ananthasuresh, Expert from Government Organization suggested to include microbiology, cell & tissue mechanics to be included as a foundation course for regenerative medicine.
- Dr Selvaraj, University Nominee suggested that the course Cell mechanics can be included as a (mandatory) elective course, early on as a prerequisite for bio course.
- Dr.Ananthasuresh, suggested to include topics on Mechanobiology of tissues such as bones, cartilages in Module 3 of the course Cell-Matrix Mechanics. He also raised a concern that the course content was vast to be effectively delivered in 45 hours of contact hours. Hence, advised to reduce or reframe the content.
- Dr Ananthasuresh appreciated the syllabus content of the course Clinical Biomechanics and suggested to include the textbook “Cytoskeletal mechanics” by John Hartiwick in the references.
- Dr.M.D.Selvaraj, suggested to include communication engineering courses and also the prerequisite of IoT for Healthcare course.
- The members checked the norms for the credit transfer for NPTEL courses and the grading system.

Suggestions by expert members on Vision, Mission and PEOs:

- Dr.M.D.Selvaraj, suggested to remove the term human suffering from the vision statement.
- Dr.Muralidhar Baiyy, Expert from other University recommended to retain the older vision statement and to include the word excellence to the statement.
- The members suggested the following modifications in the PEO statements:
 - The B.E. Biomedical Engineering program aims to produce **graduates** who are – instead of graduates to include **Engineers**.
 - In the PEO statement 3: Prepared to pursue **advanced** education – instead of advanced include **Higher education**.

Suggestions by expert members on PG Programme structure:

- Dr Selvaraj, suggested to have tie up with industries interested in the Healthcare Analytics.
- Mr.Sarathkumar.A, suggested to include Medical Image Analysis as a separate focus stream among the specialization streams of the PG programme.
- Dr.Muralidhar Baiyy, suggested to include visualization tools/ programming languages for the laboratory courses.

Suggestions/Comments from External Expert Members and University Nominee are recorded during the online meeting.

Venue: Online (CISCO Webex):

<https://snrsrec.webex.com/snrsrec/j.php?MTID=m0c5e7751862f9ec84bc0e513c500588c>

The image displays two screenshots of a Cisco Webex meeting interface, showing the 'New Members' and 'Existing Members' sections.

Top Screenshot: New Members

- Anna University Nominee:**
 - Dr. MD Selvaraj**
 - Associate Professor
 - Department of ECE
 - IITDM Kancheepuram, Vandalur, Chennai-600127
- Government Organization:**
 - Dr. GK Ananthasuresh**
 - Professor
 - Centre for Biosystems Science and Engineering
 - Indian Institute of Science, Bangalore

Bottom Screenshot: Existing Members

- Another University:**
 - Dr. Muralidhar Baiyy G**
 - Professor & Head
 - Department of Biomedical Engineering,
 - Manipal Institute of Technology, Manipal,
- Industry:**
 - Dr. Arumugam Muruganandam**
 - Managing Director,
 - Affigenix Bio Solutions (P) Ltd,
 - Bangalore (**Not Attending**)

Both screenshots show a participant list on the right side of the screen, including participants like A.Siva Sakthi, L.Dhiviyalakshmi BME, G.Lavanya, Deepa Prabhu, Dr. D. Narmatha Maths, Dr.L.Priya, G.Muralidhar Baiyy, G.K. Ananthasuresh, Ram, sarathkumar A, and srividhyasakthi. The meeting toolbar at the bottom includes options like Unmute, Start video, Share, and a red X button.

Internal Members

1. Dr.V.S.Mahendran - Associate Professor
2. Dr. Priya. L - Associate Professor
3. Dr. Deepa.B.Prabhu - Assistant Professor (Sr.G)
4. Mrs. G.Lavanya - Assistant Professor (Sr.G)
5. Ms. V.Srividhyasakthi - Assistant Professor (OG)
6. Mr. P.Venkatesh - Assitsant Professor (OG)
7. Ms. A.Sivasakthi - Assitsant Professor (OG)
8. Dr. P.Narmatha - Assistant Professor (Sr.G)

BoS Coordinator:

1. Mrs.L.DhiviyaLakshmi - Assistant Professor (Sr.G)

15TH BOS SYLLABUS DRAFT 1 [Compatibility Mode] - Word

of tissue morphogenesis. A role for integrin-ECM bonds as mechanotransducers that modulate adult stem cell fate cell-Generated forces in tissue assembly, function, and disease, cell-cell interactions and the mechanics of cells and tissues observed in bioartificial tissue constructs.

MECHANOBIOLOGY OF TUMORS 12

Continuum physics of tumor growth, Cell force-Mediated collagen remodeling in cancer metastasis specific and nonspecific adhesion in cancer cells with various metastatic potentials, systems biology of tumor cell migration in 3D: Protein Signaling, development of three-dimensional tumor models for the study of anti-cancer drug effects, Mechanobiology of epidermal keratinocytes: Desmosomes, hemidesmosomes, keratin intermediate filaments, and blistering skin diseases.

METHODS TO STUDY CELL MATRIX MECHANICS 12

Quantifying cell-matrix deformations in three dimensions. Tools for studying biomechanical interactions in cells, Biomaterials for studies in cellular mechanotransduction, substrate elasticity as a probe to measure mechanosensing at cell-cell and cell-matrix junctions, optical sensing of red blood cell dynamics.

Total Periods: 45

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G Muralidhar Bairy
Dr. Selvaraj
L Dhiviyalakshmi BME Host
Deepa Prabhu

NPTEL Courses for Credit Transfer courses – Jan 2022

S.No	Course Code	Course Title	Credits	Course Duration	Equivalent Professional elective as per SREC Curriculum
1.	noc22-bt12	BioInformatics: Algorithms and Applications	3	12	16BM2E30 – Bioinformatics and Drug design

Participants (12)

Search

AS A.Siva Sakthi Me
LD L Dhiviyalakshmi BME Host
GL G.Lavanya Cohost
DP Deepa Prabhu

Chat

from G. K. Ananthasuresh to everyone: 2:32 PM
Sounds good. Thanks.

from G. K. Ananthasuresh to everyone: 2:38 PM
"Cytoskeletal Mechanics" by Jon Howard is a good book to add, if possible.

from L Dhiviyalakshmi BME to everyone: 2:40 PM
noted sir. we will include it

from G. K. Ananthasuresh to everyone: 2:55 PM
Prof. Ram: I have to log off now to introduce a speaker in a workshop.

To: Everyone

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01:44:15

G Muralidhar Bairy
Dr. Selvaraj
Ram
L Dhiviyalakshmi BME Host
Deepa Prabhu

Introduction of M.E. in Healthcare Analytics

TITLE: M.E. HEALTHCARE ANALYTICS

Program Outline : 2 year postgraduate program.

Eligibility : Bachelor's degree in Biomedical Engineering, Information Technology; MBBS.

Credits : 70 including course work (theory and laboratory) and theses

STRUCTURE

Stream	Component	Credits	Courses / Projects
COMMON STREAM	Theory	10 credits;	3 courses
	Laboratory	4 credits;	2 courses
	Seminar	2 credits;	1 course
SPECIALITY STREAM	No of Courses : 2 out of 4		
	Theory	12 credits;	4 courses
	Laboratory	6 credits;	2 courses
PROJECT	No of Projects: 2		
	18 credits		

Participants (12)

Search

AS A.Siva Sakthi Me
LD L Dhiviyalakshmi BME Host
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DP Deepa Prabhu

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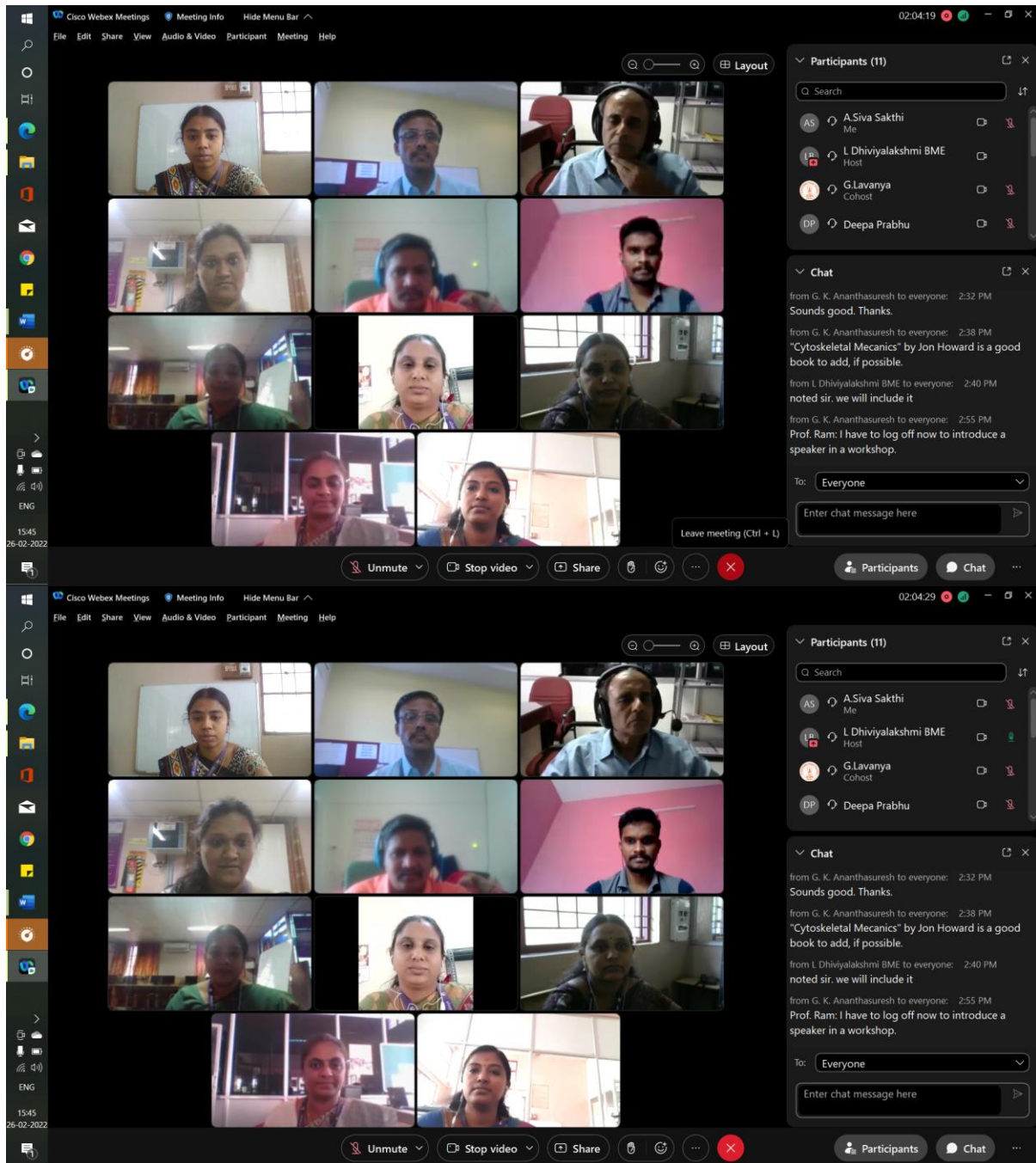
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CHAIRPERSON
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 Department of Biomedical Engineering
Chairman
Board of Studies