



**SRI RAMAKRISHNA
ENGINEERING COLLEGE**

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Vattamalaipalayam, N.G.G.O. Colony Post,
Coimbatore – 641022.

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25-03-2026

Ref: SREC/23rd BOS/2025-2026/02

**MINUTES OF THE 23rd BOARD OF STUDIES MEETING FOR THE PG M.TECH
NANO SCIENCE AND TECHNOLOGY PROGRAMME HELD ON 25.03.2026,
2.30 PM (ONLINE) IN THE NANO SCIENCE AND TECHNOLOGY.**

The following members attended the above meeting.

1. Dr. Moorthi Pichumani (**Chairman, Board of Studies**)
2. Dr. M. Arivanandhan (**University Nominee**)
3. Dr. Pandiyarasan Veluswamy (**Central Government Lab Expert**)
4. Dr. R.T. Rajendra Kumar (**Subject Expert**)
5. Mr. Ajith Kumar Duraiyan (**Industry Expert**) – Absent
6. Dr. Vasu Dhanapal (**Alumnus Member**)
7. Dr. Deepa B. Prabhu (**Institute Subject Expert**) – Absent
8. Dr. S. Sathiesh Kumar (**Institute Subject Expert**)
9. Dr. S. Ranganayaki (**Institute Mathematics Expert**)
10. Dr. R. Pandeewari (**BoS Coordinator**)

Dr. Moorthi Pichumani, Professor and HOD, Chairperson, Board of Studies, chaired the meeting and welcomed all the members to the 23rd BoS meeting. After a brief introduction about department, the following agenda items such as

- **Proposed Categorization of Courses PG Regulations 2026**
- **Semester wise Credit Distribution – R2026**
- **M.Tech Nano – 2026 Regulation – Curriculum for Semester – I**
- **List of Tentative Core Courses in Semester – II**

were taken up for discussion and the following resolutions were passed.



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Proposed Categorization of Courses PG Regulations 2026

Course Category	Description	Credits
Professional Core Courses (PCC)	Core courses relevant to the chosen programme of study	39
Professional Electives Courses (PEC)	Elective courses relevant to the chosen programme of study	12
Multidisciplinary Electives Courses (MDC)	Elective Courses of other discipline specific to the programme of study	3
Skill Enhancement Courses (SEC)	Courses that helps developing skills and knowledge in a specific domain	2
Value Added Courses (VAC)	Courses that helps to enhance the skills and abilities beyond the regular curriculum	2
Experiential Learning Courses (ELC)	Internships (4 Weeks)	2
Research Project Courses (RPC)	Dissertation / Thesis	15
Ability Enhancement Courses (AEC)	Courses relevant to Employability skills, Soft skills	Non Credited
Total Credits		75

Semester wise Credit Distribution – R2026

Category	I Sem	II Sem	III Sem	IV Sem	Total Credits
PCC	21	18	-	-	39
PEC	-	03	09	-	12
MDC	-	-	03	-	03
SEC	-	02	-	-	02
VAC	02	-	-	-	02
ELC	-	-	-	02	02
RPC	-	-	03	12	15
Total Credits	23	23	15	14	75



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M.Tech Nano – 2026 Regulation – Curriculum for Semester – I

S. No.	Course Type	Course Code and Title	L	T	P	C	Total Hours
1.	PCC - Theory	26NT1501 - MATHEMATICAL MODELING AND COMPUTATIONAL ANALYSIS	3 45	0 0	0 0	3 45 (TW+SL)	90
2.	PCC - Theory	26NT1502 - FUNDAMENTALS OF NANOSTRUCTURED MATERIALS	3 45	0 0	0 0	3 45 (TW+SL)	90
3.	PCC - Theory	26NT1503 – PRINCIPLES OF MATERIALS SCIENCE	3 45	0 0	0 0	3 45 (TW+SL)	90
4.	PCC - Theory	26NT1504 – NANOTECHNOLOGY APPLICATIONS AND SUSTAINABILITY	3 45	0 0	0 0	3 45 (TW+SL)	90
5.	PCC – Theory cum Lab	26NT1551 - ADVANCED NANOMATERIAL SYNTHESIS TECHNIQUES	3 30	0 0	2 15	3 45 (TW+SL)	90
6.	PCC - Theory cum Lab	26NT1552 – ADVANCED CHARACTERIZATION TECHNIQUES FOR NANOMATERIALS	3 45	0 0	2 30	4 45 (TW+SL)	120
7.	PCC - Lab	26NT1571 – NANOMATERIALS AND COMPUTATIONAL ANALYSIS LABORATORY	0 0	0 0	4 60	2	60
8.	VAC	26NT1505 - RESEARCH METHODOLOGY, SCHOLARLY AI TOOLS AND IPR	2 30	0 0	0 0	2 30 (TW+SL)	60
TOTAL CREDIT FOR SEMESTER - I						23	

List of Tentative Core Courses in Semester – II

- Advanced Nanomaterials for Sustainable Energy Applications
- Principles of Nanofabrication and Lithographic Methods
- Preparation and Characterization of Nanocomposite Materials
- Quantum Mechanics for Device Fabrication
- Recent Advances and Applications of Novel Nanomaterials
- Semiconductor Polymers for Packaging Applications
- Nanomaterials Synthesis Laboratory



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M.E./M.Tech Programmes:

➤ **Item No 1**

It is resolved that the **PG Regulations 2022** will be followed for the students admitted during the **Academic year 2024 and 2025**.

➤ **Item No 2**

It is resolved that the **PG Regulations 2026** will be followed for all **M.E/M.Tech programmes** for students admitted in the **Academic year 2026** and onwards.

➤ **Item No 3**

It is resolved that the Curriculum structure be approved for the new courses under the **Regulations 2026**.

➤ **Item No 4**

It is resolved that the syllabi for the following new Professional Core Courses, and Value Added Course in First Semester under Regulations 2026 be approved and passed.

26NT1501 - Mathematical Modeling and Computational Analysis

26NT1502 - Fundamentals of Nanostructured Materials

26NT1503 – Principles of Materials Science

26NT1504 – Nanotechnology Applications and Sustainability

26NT1551 - Advanced Nanomaterial Synthesis Techniques

26NT1552 – Advanced Characterization Techniques for Nanomaterials

26NT1571 – Nanomaterials and Computational Analysis Laboratory

26NT1505 - Research Methodology, Scholarly AI Tools and IPR



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➤ Item No 5

The following suggestions were received from the BoS members on the professional core syllabus **“26NT1501 - Mathematical Modeling and Computational Analysis”**

Dr. M. Arivanandhan, University Nominee, recommended converting this particular theory-cum-laboratory course into a theory-only course.

Accordingly, the entire syllabus was revised to include five modules, with laboratory components removed, Course Code, Course Outcomes (COs) and Notional hours are updated.

Accordingly, the syllabus was revised and updated.

➤ Item No 6

The following suggestions were received from the BoS members on the professional core syllabus **“26NT1502 - Fundamentals of Nanostructured Materials”**

Dr. R.T. Rajendra Kumar, Subject Expert, recommended avoiding the words “Introduction” and “Basics” throughout the syllabus.

Dr. Pandiyarasan Veluswamy, Central Government Lab Expert, recommended transferring the topics “AI and Machine learning in nanostructure prediction” from Module 1 of the core course Advanced Nanomaterial Synthesis Techniques to the present course.

Accordingly, the syllabus was revised and updated.



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➤ Item No 7

The following suggestions were received from the BoS members on the professional core syllabus “26NT1503 – Principles of Materials Science”

Dr. R.T. Rajendra Kumar, Subject Expert, recommended revising the course title to “Principles of Materials Science”. He also observed that the content across all five modules is extensive and suggested consolidating the syllabus and reducing the number of derivation-intensive and additional topics.

Dr. Pandiyarasan Veluswamy, Central Government Lab Expert, recommended including the book “Solid State Electronic Devices by Ben G Streetman and Sanjay Banerjee, 2016” in the list of reference books.

Accordingly, the syllabus was revised and updated.

➤ Item No 8

The following suggestions were received from the BoS members on the professional core syllabus “26NT1504 – Nanotechnology Applications and Sustainability”

Dr. M. Arivanandhan, University Nominee, appreciated the syllabus and suggested avoiding the word “Ethics” in the course title and module content. He also observed that the content of Module 5 is quite extensive and therefore recommended reframing it in a more concise manner.

Dr. R.T. Rajendra Kumar, Subject Expert, recommended allocating more lecture hours to Modules 1–4 and reducing both the time allocation and content of Module 5.

Accordingly, the syllabus was revised and updated.



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➤ Item No 9

The following suggestions were received from the BoS members on the professional core syllabus “**26NT1551 - Advanced Nanomaterial Synthesis Techniques**”

Dr. M. Arivanandhan, University Nominee, recommended converting this particular theory-only course into a theory-cum-laboratory course.

Dr. R.T. Rajendra Kumar, Subject Expert, recommended reviewing Module 4 (Thermolysis Route) and, if appropriate, integrating its topics into other modules.

Dr. Pandiyarasan Veluswamy, Central Government Lab Expert, recommended that select topics in Module 1—such as “AI and Machine learning in nanostructure prediction”—be shifted to another Professional Core course, **26NT1501 - Fundamentals of Nanostructured Materials**.

Accordingly, the entire syllabus was revised to comprise four concise modules, with a list of experiments included, and the Course code, Course Outcomes (COs) and Notional hours updated. The recommended changes have been incorporated into the syllabus.

➤ Item No 10

The following suggestions were received from the BoS members on the professional core syllabus “**26NT1552 – Advanced Characterization Techniques for Nanomaterials**”

Dr. M. Arivanandhan, University Nominee, recommended revising the course title to “**Advanced Characterization Techniques for Nanomaterials**”

Dr. Pandiyarasan Veluswamy, Central Government Lab Expert, recommended including the book “Instrument Method of Analysis by Willard Merritt, 2001” in the list of reference books.

Accordingly, the syllabus was revised and updated.



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➤ Item No 11

The following suggestions were received from the BoS members on the professional core syllabus “26NT1571 – Nanomaterials and Computational Analysis Laboratory”

Dr. M. Arivanandhan, University Nominee, suggest to include three simulation experiments.

Dr. Pandiyarasan Veluswamy, Central Government Lab Expert, observed that most of the listed experiments are based on optical characterization techniques and suggested avoiding them.

Dr. R.T. Rajendra Kumar, Subject Expert, recommended including any one characterization study along with sample preparation experiments so that students can complete the work within the allotted time during the practical session.

Accordingly, the syllabus was revised and updated.

➤ Item No 12

The following suggestions were received from the BoS members on the value added course (VAC) syllabus “26NT1505 - Research Methodology, Scholarly AI Tools and IPR”

Dr. Pandiyarasan Veluswamy, Central Government Lab Expert, suggested including select topics related to Bureau of Indian Standards (BIS) measurement standards in this course.

Accordingly, the syllabus was revised and updated.



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➤ **Item No 13**

The tentative course titles for Semester II were presented to the members, and their suggestions were invited to further refine and improve the syllabus for the upcoming semester.

- **Advanced Nanomaterials for Sustainable Energy Applications**
- **Principles of Nanofabrication and Lithographic Methods**
- **Preparation and Characterization of Nanocomposite Materials**
- **Quantum Mechanics for Device Fabrication**
- **Recent Advances and Applications of Novel Nanomaterials**
- **Semiconductor Polymers for Packaging Applications**
- **Nanomaterials Synthesis Laboratory**

Dr. M. Arivanandhan, University Nominee, and Dr. R.T. Rajendra Kumar, Subject Expert, suggested to offer a new course on “Recent Advances and Applications of Novel Nanomaterials” instead of the course on “Regulatory Framework and Policy Aspects of Nanotechnology”.

Dr. Pandiyarasan Veluswamy, Central Government Lab Expert, suggested to introduce a new course on “Semiconductor Polymers for Packaging Applications” as a replacement for the course on “Regulatory Framework and Policy Aspects of Nanotechnology”. It was also suggested that the course title be revised from “Principles of Quantum Mechanics” to “Quantum Mechanics for Device Fabrication”. Further, the syllabus may be reframed to include modules focusing on quantum device fabrication, emerging applications, and national initiatives such as Make in India.

Accordingly, the department will work on it for the upcoming semester II.



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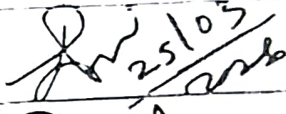
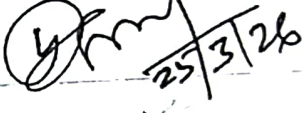
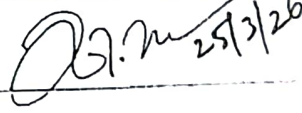
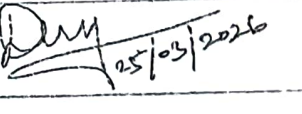
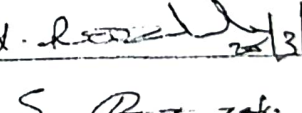
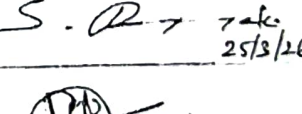
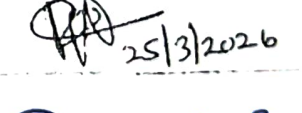
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The BoS chairperson Dr. Moorthi Pichumani, thanked all the members of BoS for all of their comments. The 23rd BoS meeting for PG programme M.Tech. Nano Science and Technology was concluded.

Name of the Member	Designation	Signature
Dr. P. Moorthi	Chairperson	
Dr. M. Arivanandhan	University Nominee	
Dr. Pandiyarasan Veluswamy	Central Government Lab Expert	
Dr. R.T. Rajendra Kumar	Subject Expert	
Mr. Ajith Kumar Duraiyan	Industry Expert	-Absent-
Dr. Vasu Dhanapal	Alumni Member	
Dr. Deepa B. Prabhu	Institute Subject Expert	-Absent-
Dr. S. Sathiesh Kumar	Institute Subject Expert	
Dr. S. Ranganayaki	Institute Mathematics Expert	
Dr. R. Pandeewari	BoS Coordinator	

Dr. MOORTHY PICHUMANI
Professor and Head
Department of Nano Science And Technology
Sri Ramakrishna Engineering College
Coimbatore - 641 022. INDIA.


CHAIRPERSON
BOARD OF STUDIES
Department of Nano Science and Technology



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**MINUTES OF THE 23rd BOARD OF STUDIES MEETING FOR THE PG M.TECH
NANO SCIENCE AND TECHNOLOGY PROGRAMME HELD ON 25.03.2026,
2.30 PM (ONLINE) IN THE NANO SCIENCE AND TECHNOLOGY.**

The following members attended the above meeting.

1. Dr. Moorthi Pichumani (**Chairman, Board of Studies**)
2. Dr. M. Arivanandhan (**University Nominee**)
3. Dr. Pandiyarasan Veluswamy (**Central Government Lab Expert**)
4. Dr. R.T. Rajendra Kumar (**Subject Expert**)
5. Mr. Ajith Kumar Duraiyan (**Industry Expert**) – Absent
6. Dr. Vasu Dhanapal (**Alumnus Member**)
7. Dr. Deepa B. Prabhu (**Institute Subject Expert**) – Absent
8. Dr. S. Sathiesh Kumar (**Institute Subject Expert**)
9. Dr. S. Ranganayaki (**Institute Mathematics Expert**)
10. Dr. R. Pandeewari (**BoS Coordinator**)

Dr. Moorthi Pichumani, Professor and HOD, Chairperson, Board of Studies, chaired the meeting and welcomed all the members to the 23rd BoS meeting. After a brief introduction about department, the following agenda items such as

- **Proposed Categorization of Courses PG Regulations 2026**
- **Semester wise Credit Distribution – R2026**
- **M.Tech Nano – 2026 Regulation – Curriculum for Semester – I**
- **List of Tentative Core Courses in Semester – II**

were taken up for discussion and the following resolutions were passed.



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Proposed Categorization of Courses PG Regulations 2026

Course Category	Description	Credits
Professional Core Courses (PCC)	Core courses relevant to the chosen programme of study	39
Professional Electives Courses (PEC)	Elective courses relevant to the chosen programme of study	12
Multidisciplinary Electives Courses (MDC)	Elective Courses of other discipline specific to the programme of study	3
Skill Enhancement Courses (SEC)	Courses that helps developing skills and knowledge in a specific domain	2
Value Added Courses (VAC)	Courses that helps to enhance the skills and abilities beyond the regular curriculum	2
Experiential Learning Courses (ELC)	Internships (4 Weeks)	2
Research Project Courses (RPC)	Dissertation / Thesis	15
Ability Enhancement Courses (AEC)	Courses relevant to Employability skills, Soft skills	Non Credited
Total Credits		75

Semester wise Credit Distribution – R2026

Category	I Sem	II Sem	III Sem	IV Sem	Total Credits
PCC	21	18	-	-	39
PEC	-	03	09	-	12
MDC	-	-	03	-	03
SEC	-	02	-	-	02
VAC	02	-	-	-	02
ELC	-	-	-	02	02
RPC	-	-	03	12	15
Total Credits	23	23	15	14	75



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M.Tech Nano – 2026 Regulation – Curriculum for Semester – I

S. No.	Course Type	Course Code and Title	L	T	P	C	Total Hours
1.	PCC - Theory	26NT1501 - MATHEMATICAL MODELING AND COMPUTATIONAL ANALYSIS	3 45	0 0	0 0	3 45 (TW+SL)	90
2.	PCC - Theory	26NT1502 - FUNDAMENTALS OF NANOSTRUCTURED MATERIALS	3 45	0 0	0 0	3 45 (TW+SL)	90
3.	PCC - Theory	26NT1503 – PRINCIPLES OF MATERIALS SCIENCE	3 45	0 0	0 0	3 45 (TW+SL)	90
4.	PCC - Theory	26NT1504 – NANOTECHNOLOGY APPLICATIONS AND SUSTAINABILITY	3 45	0 0	0 0	3 45 (TW+SL)	90
5.	PCC – Theory cum Lab	26NT1551 - ADVANCED NANOMATERIAL SYNTHESIS TECHNIQUES	3 30	0 0	2 15	3 45 (TW+SL)	90
6.	PCC - Theory cum Lab	26NT1552 – ADVANCED CHARACTERIZATION TECHNIQUES FOR NANOMATERIALS	3 45	0 0	2 30	4 45 (TW+SL)	120
7.	PCC - Lab	26NT1571 – NANOMATERIALS AND COMPUTATIONAL ANALYSIS LABORATORY	0 0	0 0	4 60	2	60
8.	VAC	26NT1505 - RESEARCH METHODOLOGY, SCHOLARLY AI TOOLS AND IPR	2 30	0 0	0 0	2 30 (TW+SL)	60
TOTAL CREDIT FOR SEMESTER - I						23	

List of Tentative Core Courses in Semester – II

- Advanced Nanomaterials for Sustainable Energy Applications
- Principles of Nanofabrication and Lithographic Methods
- Preparation and Characterization of Nanocomposite Materials
- Quantum Mechanics for Device Fabrication
- Recent Advances and Applications of Novel Nanomaterials
- Semiconductor Polymers for Packaging Applications
- Nanomaterials Synthesis Laboratory



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M.E./M.Tech Programmes:

➤ Item No 1

It is resolved that the **PG Regulations 2022** will be followed for the students admitted during the **Academic year 2024 and 2025**.

➤ Item No 2

It is resolved that the **PG Regulations 2026** will be followed for all **M.E./M.Tech programmes** for students admitted in the **Academic year 2026** and onwards.

➤ Item No 3

It is resolved that the Curriculum structure be approved for the new courses under the **Regulations 2026**.

➤ Item No 4

It is resolved that the syllabi for the following new Professional Core Courses, and Value Added Course in First Semester under Regulations 2026 be approved and passed.

26NT1501 - Mathematical Modeling and Computational Analysis

26NT1502 - Fundamentals of Nanostructured Materials

26NT1503 – Principles of Materials Science

26NT1504 – Nanotechnology Applications and Sustainability

26NT1551 - Advanced Nanomaterial Synthesis Techniques

26NT1552 – Advanced Characterization Techniques for Nanomaterials

26NT1571 – Nanomaterials and Computational Analysis Laboratory

26NT1505 - Research Methodology, Scholarly AI Tools and IPR



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➤ Item No 5

The following suggestions were received from the BoS members on the professional core syllabus **“26NT1501 - Mathematical Modeling and Computational Analysis”**

Dr. M. Arivanandhan, University Nominee, recommended converting this particular theory-cum-laboratory course into a theory-only course.

Accordingly, the entire syllabus was revised to include five modules, with laboratory components removed, Course Code, Course Outcomes (COs) and Notional hours are updated.

Accordingly, the syllabus was revised and updated.

➤ Item No 6

The following suggestions were received from the BoS members on the professional core syllabus **“26NT1502 - Fundamentals of Nanostructured Materials”**

Dr. R.T. Rajendra Kumar, Subject Expert, recommended avoiding the words “Introduction” and “Basics” throughout the syllabus.

Dr. Pandiyarasan Veluswamy, Central Government Lab Expert, recommended transferring the topics “AI and Machine learning in nanostructure prediction” from Module 1 of the core course Advanced Nanomaterial Synthesis Techniques to the present course.

Accordingly, the syllabus was revised and updated.



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➤ Item No 7

The following suggestions were received from the BoS members on the professional core syllabus “26NT1503 – Principles of Materials Science”

Dr. R.T. Rajendra Kumar, Subject Expert, recommended revising the course title to “Principles of Materials Science”. He also observed that the content across all five modules is extensive and suggested consolidating the syllabus and reducing the number of derivation-intensive and additional topics.

Dr. Pandiyarasan Veluswamy, Central Government Lab Expert, recommended including the book “Solid State Electronic Devices by Ben G Streetman and Sanjay Banerjee, 2016” in the list of reference books.

Accordingly, the syllabus was revised and updated.

➤ Item No 8

The following suggestions were received from the BoS members on the professional core syllabus “26NT1504 – Nanotechnology Applications and Sustainability”

Dr. M. Arivanandhan, University Nominee, appreciated the syllabus and suggested avoiding the word “Ethics” in the course title and module content. He also observed that the content of Module 5 is quite extensive and therefore recommended reframing it in a more concise manner.

Dr. R.T. Rajendra Kumar, Subject Expert, recommended allocating more lecture hours to Modules 1–4 and reducing both the time allocation and content of Module 5.

Accordingly, the syllabus was revised and updated.



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➤ **Item No 9**

The following suggestions were received from the BoS members on the professional core syllabus **“26NT1551 - Advanced Nanomaterial Synthesis Techniques”**

Dr. M. Arivanandhan, University Nominee, recommended converting this particular theory-only course into a theory-cum-laboratory course.

Dr. R.T. Rajendra Kumar, Subject Expert, recommended reviewing Module 4 (Thermolysis Route) and, if appropriate, integrating its topics into other modules.

Dr. Pandiyarasan Veluswamy, Central Government Lab Expert, recommended that select topics in Module 1—such as “AI and Machine learning in nanostructure prediction”—be shifted to another Professional Core course, **26NT1501 - Fundamentals of Nanostructured Materials**.

Accordingly, the entire syllabus was revised to comprise four concise modules, with a list of experiments included, and the Course code, Course Outcomes (COs) and Notional hours updated. The recommended changes have been incorporated into the syllabus.

➤ **Item No 10**

The following suggestions were received from the BoS members on the professional core syllabus **“26NT1552 – Advanced Characterization Techniques for Nanomaterials”**

Dr. M. Arivanandhan, University Nominee, recommended revising the course title to **“Advanced Characterization Techniques for Nanomaterials”**

Dr. Pandiyarasan Veluswamy, Central Government Lab Expert, recommended including the book “Instrument Method of Analysis by Willard Merritt, 2001” in the list of reference books.

Accordingly, the syllabus was revised and updated.



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➤ Item No 11

The following suggestions were received from the BoS members on the professional core syllabus “26NT1571 – Nanomaterials and Computational Analysis Laboratory”

Dr. M. Arivanandhan, University Nominee, suggest to include three simulation experiments.

Dr. Pandiyarasan Veluswamy, Central Government Lab Expert, observed that most of the listed experiments are based on optical characterization techniques and suggested avoiding them.

Dr. R.T. Rajendra Kumar, Subject Expert, recommended including any one characterization study along with sample preparation experiments so that students can complete the work within the allotted time during the practical session.

Accordingly, the syllabus was revised and updated.

➤ Item No 12

The following suggestions were received from the BoS members on the value added course (VAC) syllabus “26NT1505 - Research Methodology, Scholarly AI Tools and IPR”

Dr. Pandiyarasan Veluswamy, Central Government Lab Expert, suggested including select topics related to Bureau of Indian Standards (BIS) measurement standards in this course.

Accordingly, the syllabus was revised and updated.



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➤ Item No 13

The tentative course titles for Semester II were presented to the members, and their suggestions were invited to further refine and improve the syllabus for the upcoming semester.

- **Advanced Nanomaterials for Sustainable Energy Applications**
- **Principles of Nanofabrication and Lithographic Methods**
- **Preparation and Characterization of Nanocomposite Materials**
- **Quantum Mechanics for Device Fabrication**
- **Recent Advances and Applications of Novel Nanomaterials**
- **Semiconductor Polymers for Packaging Applications**
- **Nanomaterials Synthesis Laboratory**

Dr. M. Arivanandhan, University Nominee, and Dr. R.T. Rajendra Kumar, Subject Expert, suggested to offer a new course on “Recent Advances and Applications of Novel Nanomaterials” instead of the course on “Regulatory Framework and Policy Aspects of Nanotechnology”.

Dr. Pandiyarasan Veluswamy, Central Government Lab Expert, suggested to introduce a new course on “Semiconductor Polymers for Packaging Applications” as a replacement for the course on “Regulatory Framework and Policy Aspects of Nanotechnology”. It was also suggested that the course title be revised from “Principles of Quantum Mechanics” to “Quantum Mechanics for Device Fabrication”. Further, the syllabus may be reframed to include modules focusing on quantum device fabrication, emerging applications, and national initiatives such as Make in India.

Accordingly, the department will work on it for the upcoming semester II.



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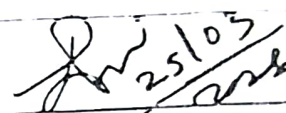
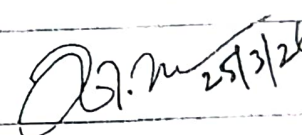
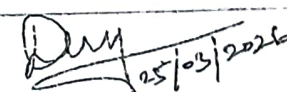
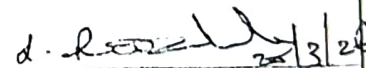
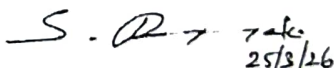
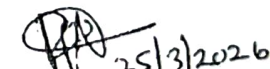
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The BoS chairperson Dr. Moorthi Pichumani, thanked all the members of BoS for all of their comments. The 23rd BoS meeting for PG programme M.Tech. Nano Science and Technology was concluded.

Name of the Member	Designation	Signature
Dr. P. Moorthi	Chairperson	
Dr. M. Arivanandhan	University Nominee	
Dr. Pandiyarasan Veluswamy	Central Government Lab Expert	
Dr. R.T. Rajendra Kumar	Subject Expert	
Mr. Ajith Kumar Duraiyan	Industry Expert	-Absent-
Dr. Vasu Dhanapal	Alumni Member	
Dr. Deepa B. Prabhu	Institute Subject Expert	-Absent-
Dr. S. Sathiesh Kumar	Institute Subject Expert	
Dr. S. Ranganayaki	Institute Mathematics Expert	
Dr. R. Pandeewari	BoS Coordinator	

Dr. MOORTHY PICHUMANI
Professor and Head
Department of Nano Science And Technology
Sri Ramakrishna Engineering College
Coimbatore - 641 022. INDIA.


CHAIRPERSON
BOARD OF STUDIES
Department of Nano Science and Technology



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07-11-2025

Ref: SREC/22nd BOS/2025-2026/01

MINUTES OF THE 22nd BOARD OF STUDIES MEETING FOR THE PG M.TECH NANO SCIENCE AND TECHNOLOGY PROGRAMME HELD ON 07.11.2025, 3.00 PM IN THE NANO SCIENCE AND TECHNOLOGY.

The following members attended the above meeting.

1. Dr. Moorthi Pichumani (**Chairman, Board of Studies**)
2. Dr. M. Arivanandhan (**University Nominee**)
3. Dr. Pandiyarasan Veluswamy (**Central Government Lab Expert**) - Online
4. Dr. R.T. Rajendra Kumar (**Subject Expert**)
5. Mr. Ajith Kumar Duraiyan (**Industry Expert**) – Absent
6. Dr. Vasu Dhanapal (**Alumnus Member**) - Online
7. Dr. Deepa B. Prabhu (**Institute Subject Expert**)
8. Dr. S. Sathiesh Kumar (**Institute Subject Expert**)
9. Dr. S. Ranganayaki (**Institute Mathematics Expert**)
10. Dr. R. Pandeewari (**BoS Coordinator**)

Dr. Moorthi Pichumani, Professor and HOD, Chairperson, Board of Studies, chaired the meeting and welcomed all the members to the 22nd BoS meeting. After a brief introduction about department, the agenda items listed were taken up for discussion and the following resolutions were passed.



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M.E./M.Tech Programmes:

➤ Item No 1

It is resolved that the PG Regulations 2022 will be followed for the students admitted from academic year 2022 and onwards.

➤ Item No 2

It is resolved that the syllabus for the new professional elective course “**22NT1E26 - NANOBIMATERIALS FOR REGENERATIVE ENGINEERING**” and “**22NT1E27 - MACHINE LEARNING FOR NANOTECHNOLOGY**” be approved under Regulations 2022 for PG programmes.

➤ Item No 3

The following suggestions were received from the BoS members on the professional elective syllabus “**22NT1E26 - NANOBIMATERIALS FOR REGENERATIVE ENGINEERING**”

- **Dr. M. Arivanandhan, University Nominee**, appreciated the newly introduced professional elective syllabus and recommended a few topics to be revised/added/removed to the syllabus.

Syllabus: Revise and expand the Course Outcomes from three to five to ensure better alignment with the Programme Outcomes (POs), course delivery, and evaluation.

Module 2: Remove the Mg and Ti alloy–related topics and include the **classification as metallic and alloy nanomaterials (permanent and bioresorbable)**.

The recommended changes are made in the syllabus.

- **Dr. Pandiyarasan Veluswamy, Central Government Lab Expert**, recommended a few topics that could be included into the syllabus.

Module 5: Remove the topic on regulatory standards for nano-biomedical products and include a topic on **Standards for biomaterials**.

The recommended changes are made in the syllabus.



- **Dr. R.T. Rajendra Kumar, Subject Expert** appreciated the newly introduced professional elective syllabus and recommended a few topics to be revised/added/removed to the syllabus.

Module 1: Introduce a topic of **4D scaffolds**

Module 3: Remove the topics on general characterization methods/tools and add **specific characterization methods, tools, and processes for regenerative engineering** in this module.

Module 5: Module 5 title will be changed to **“TRANSLATION PATHWAYS AND REGULATORY STANDARDS”** from **“ADVANCED APPROACHES AND TRANSLATIONAL PATHWAYS”**

General Suggestion:

- ❖ Cross-check that the contents of all modules can be covered within the allotted **9 class hours**. If not, condense the content so that it fits within the 9 hours.
- ❖ Add research papers related to the synthesis, characterization, and fabrication of regenerative biomaterials.

The recommended changes are made in the syllabus.

- **Dr. Vasu Dhanapal, Alumnus Member** accepted the syllabus.
- **Dr. Deepa B. Prabhu, Institute Subject Expert** recommended a few topics that could be included into the syllabus.

Module 2: Remove Mg, Ti alloys related topics and include the general classification as **Metallic & Alloy Nanomaterials**

General Suggestion:

Rewrite Course Outcome 1 from Bloom’s Level 2 (Understand) to Bloom’s Level 3 (Apply).

The recommended changes are made in the syllabus.

- **Dr. S. Sathiesh Kumar, Institute Subject Expert** accepted the syllabus.



- **Dr. S. Ranganayaki, Institute Mathematics Expert** accepted the syllabus.

➤ **Item No 4**

The following suggestions were received from the BoS members on the professional elective syllabus “**22NT1E27 - MACHINE LEARNING FOR NANOTECHNOLOGY**”

- **Dr. M. Arivanandhan, University Nominee**, appreciated the newly introduced professional elective syllabus and suggested few changes in the syllabus.

Syllabus: The syllabus content is quite heavy; it is therefore recommended to reframe it in a more concise manner. It was also suggested to include basic/introductory topics along with a simple case study.

The recommended changes are made in the syllabus.

- **Dr. Pandiyarasan Veluswamy, Central Government Lab Expert**, suggested few changes in the syllabus.

Syllabus: It was suggested to strengthen the analytical component (AI and ML) by including topics on data synthesis.

The recommended changes are made in the syllabus.

- **Dr. R.T. Rajendra Kumar, Subject Expert** suggested few changes in the syllabus.

Syllabus: The syllabus content is quite heavy; therefore, it is recommended to remove hard-learning topics and advanced tool-oriented concepts, particularly those tailored for computer science students. The modules may be condensed from five to four and supplemented with simple case studies. It is also suggested to refer to diploma-level syllabi to frame this syllabus in a more moderate and easily understandable manner. Selected difficult topics may be retained at a conceptual level only. In addition, introduce basic ML tools for materials synthesis and for analyzing characterization data.



The recommended changes are made in the syllabus.

- **Dr. Vasu Dhanapal, Alumnus Member** suggested few changes in the syllabus.

Syllabus: Include a topic on AI and ML tool applications linked to environmental and energy datasets.

The recommended changes are made in the syllabus.

- **Dr. Deepa B. Prabhu, Institute Subject Expert** recommended a few topics that could be included into the syllabus.

Syllabus: It is suggested to explore the possibility of converting this theory course into a **theory-cum-laboratory** course so that students can learn the theoretical concepts and simultaneously use the freely available/academic versions of AI and ML tools for hands-on practice, thereby improving their understanding.

The recommended changes may not be fully feasible under the current regulation; however, they may be considered in the next regulation.

- **Dr. S. Sathiesh Kumar, Institute Subject Expert** recommended to concise the syllabus.
- **Dr. S. Ranganayaki, Institute Mathematics Expert** recommended to concise the syllabus.



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- The BoS chairperson Dr. Moorthi Pichumani, thanked all the members of BoS for all of their comments. The 22nd BoS meeting for PG programme M.Tech. Nano Science and Technology was concluded.

Name of the Member	Designation	Signature
Dr. P. Moorthi	Chairperson	
Dr. M. Arivanandhan	University Nominee	
Dr. Pandiyarasan Veluswamy	Central Government Lab Expert	
Dr. R.T. Rajendra Kumar	Subject Expert	
Mr. Ajith Kumar Duraiyan	Industry Expert	-Absent-
Dr. Vasu Dhanapal	Alumni Member	
Dr. Deepa B. Prabhu	Institute Subject Expert	
Dr. S. Sathiesh Kumar	Institute Subject Expert	
Dr. S. Ranganayaki	Institute Mathematics Expert	
Dr. R. Pandeewari	BoS Coordinator	

07/11/2025

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Dr. MOORTHY PICHUMANI

Professor and Head



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- The BoS chairperson Dr. Moorthi Pichumani, thanked all the members of BoS for all of their comments. The 22nd BoS meeting for PG programme M.Tech. Nano Science and Technology was concluded.

Name of the Member	Designation	Signature
Dr. P. Moorthi	Chairperson	
Dr. M. Arivanandhan	University Nominee	
Dr. Pandiyarasan Veluswamy	Central Government Lab Expert	
Dr. R.T. Rajendra Kumar	Subject Expert	
Mr. Ajith Kumar Duraiyan	Industry Expert	-Absent-
Dr. Vasu Dhanapal	Alumni Member	
Dr. Deepa B. Prabhu	Institute Subject Expert	
Dr. S. Sathiesh Kumar	Institute Subject Expert	
Dr. S. Ranganayaki	Institute Mathematics Expert	
Dr. R. Pandeeswari	BoS Coordinator	

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09.04.2025

Ref: SREC/20th BOS/2024-2025/01

**MINUTES OF THE 20th BOARD OF STUDIES MEETING FOR THE PG M.TECH
NANO SCIENCE AND TECHNOLOGY PROGRAMME HELD ON 09.04.2025,
11.15 AM (ONLINE) IN THE NANO SCIENCE AND TECHNOLOGY.**

The following members attended the above meeting.

1. Dr. Moorthi Pichumani (Chairman, Board of Studies)
2. Dr. M. Arivanandhan (University Nominee)
3. Dr. Pandiyarasan Veluswamy (Central Government Lab Expert)
4. Dr. R.T. Rajendra Kumar (Subject Expert)
5. Mr. Ajith Kumar Duraiyan (Industry Expert)
6. Dr. Vasu Dhanapal (Alumnus Member)
7. Dr. Deepa B. Prabhu (Institute Subject Expert)
8. Dr. S. Ranganayaki (Institute Mathematics Expert)
9. Dr. R. Pandeewari (BoS Coordinator)

Dr. Moorthi Pichumani, Professor and HOD, Chairperson, Board of Studies, chaired the meeting and welcomed all the members to the 20th BoS meeting. After a brief introduction about department, the agenda items listed were taken up for discussion and the following resolutions were passed.

M.E./M.Tech Programmes:

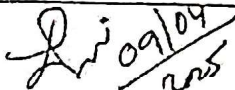
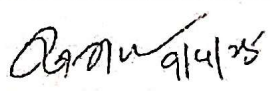
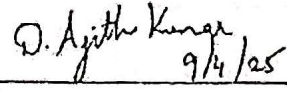
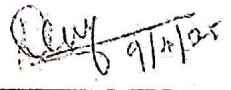
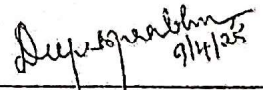
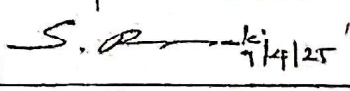
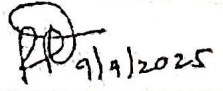
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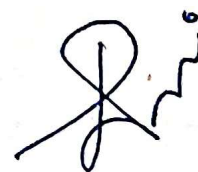
It is resolved that the PG Regulations 2022 will be followed for the students admitted from academic year 2022 and onwards.

General Suggestions:

- **Dr. M. Arivanandhan, University Nominee**, suggested offering a course aligned with industrial needs and encouraging industry-oriented projects. This approach will help students gain a better understanding of real-world industrial problem statements and work towards developing practical solutions.
- **Dr. Pandiyarasan Veluswamy, an expert from a Central Government Lab**, proposed enhancing the course syllabus by including the theoretical calculation of various parameters derived from characterization results, thereby strengthening the analysis of results. He also recommended expanding the laboratory experiments to cover more wet synthesis techniques, helping students better grasp the concepts. Additionally, he highlighted the importance of incorporating courses and lab experiments focused on technical textiles, which could increase awareness of societal-impact research and funding opportunities under the National Technical Textiles Mission, Ministry of Textiles, particularly in emerging fields such as wearable technologies.
- **Mr. Ajith Kumar Duraiyan, Industry Expert**, suggested that students should work on various industry-related problems and explore solutions through nanotechnology. He recommended focusing on areas such as novel nanoparticle synthesis, nano-coatings for anti-corrosion applications, enhancing Nanosensor performance, scaling up nanomaterial preparation and product manufacturing, and developing viable disposal methods for nanomaterials.

The BoS chairperson Dr. Moorthi Pichumani, thanked all the members of BoS for all of their comments. The 20th BoS meeting for PG programme M.Tech. Nano Science and Technology was concluded.

Name of the Member	Designation	Signature
Dr. P. Moorthi	Chairperson	 09/09/2025
Dr. M. Arivanandhan	University Nominee	
Dr. Pandiyarasan Veluswamy	Central Government Lab Expert	 9/9/25
Dr. R.T. Rajendra Kumar	Subject Expert	 9/4/25
Mr. Ajith Kumar Duraiyan	Industry Expert	 9/4/25
Dr. Vasu Dhanapal	Alumni Member	 9/4/25
Dr. Deepa B. Prabhu	Institute Subject Expert	 9/4/25
Dr. S. Ranganayaki	Institute Mathematics Expert	 9/4/25
Dr. R. Pandeeswari	BoS Coordinator	 9/4/2025



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Ref: SREC/19th BOS/2023-2024/02

25.03.2024

**MINUTES OF THE 19th BOARD OF STUDIES MEETING FOR THE PG M.TECH
NANO SCIENCE AND TECHNOLOGY PROGRAMME HELD ON 25.03.2024,
3.00 PM AT CHARACTERIZATION LAB, DEPARTMENT OF NANO SCIENCE
AND TECHNOLOGY**

The following members attended the above meeting.

1. Dr. Moorthi Pichumani (**Chairman, Board of Studies**)
2. Dr. P. Kanda Vadivu (**University Nominee**)
3. Dr. N. Kalaiselvi (**Central Government Lab Expert**)
4. Dr. R.T. Rajendra Kumar (**Subject Expert**)
5. Mr. R. Saravanakumar (**Industry Expert**)
6. Dr. K. Ganesh (**Alumnus Member**)
7. Dr. R. Rangaraj (**Institute Subject Expert**)
8. Dr. S. Ranganayaki (**Institute Mathematics Expert**)
9. Dr. R. Pandeeswari (**BoS Coordinator**)

Dr. Moorthi Pichumani, Professor and HOD, Chairperson, Board of Studies, chaired the meeting and welcomed all the members to the 19th BoS meeting. After a brief introduction, the agenda items listed were taken up for discussion and the following resolutions were passed.

M.E./M.Tech Programmes:

➤ **Item No 1**

- It is resolved that the PG Regulations 2022 will be followed for the students admitted from academic year 2022 onwards.

➤ **Item No 2**

It is resolved that the syllabus for the new open elective course "20NT2E07 - NANOMATERIALS FOR ELECTRONIC NOSE AND TONGUE" be approved under (Revised) Regulations 2020.

➤ **Item No 3**

The following suggestions were received from the BoS members on the open elective syllabus "20NT2E07 - NANOMATERIALS FOR ELECTRONIC NOSE AND TONGUE"

- Dr. P. Kanda Vadivu, University Nominee accepted and appreciated the syllabus.
- Dr. R.T. Rajendra Kumar, Subject Expert checked thoroughly the syllabus and shared various suggestions to modify the syllabus. The given points are considered and the syllabus were modified module by module.

General changes in syllabus

- ❖ Convert 5 modules in the syllabus into 4 modules and adjust the allocated time for each module.
- ❖ Assign real-time case studies to students as assignments.
- ❖ Add the recently published book chapters and review papers to the reference section.

The suggested general changes have been made in the syllabus.

The following changes have been incorporated in Module 1: NANOMATERIALS AND PROPERTIES

- ❖ Module 1 has been moved to Module 2.
- ❖ The topic "Characterization" has been removed.
- ❖ The topic "Characteristics and significance of nanomaterials" has been included.
- ❖ The topic "Materials for e-Nose and e-Tongue" has been added.
- ❖ The topic "Liquid/Gas interaction with sensor surface" has been included.

The following changes have been incorporated in Module 2: SENSOR TECHNOLOGIES

- ❖ Module 2 has been moved to Module 1.
- ❖ The topic "Cross selectivity" has been included.
- ❖ The topic "Similarities between living organisms and artificial sensors" has been added.

The following changes have been incorporated in **Module 3: ELECTRONIC NOSE**

- ❖ The topics "Introduction" and "History" have been removed.

The following changes have been incorporated in **Module 4: ELECTRONIC TONGUE**

- ❖ The topics "Introduction" and "History" have been removed.
- ❖ The topic "Optical sensors" has been included.

The following changes have been incorporated in **Module 5: APPLICATIONS AND CASE STUDIES:**

- ❖ Module 5 has been removed from the syllabus.
- ❖ The topics related to e-Nose, including commercial products, applications, and case studies, in module 5 have been moved to module 3.
- ❖ The topics related to e-Tongue, including commercial products, applications, and case studies, in module 5 have been moved to module 4.

- **Mr. R. Saravanakumar, an Industry Expert**, expressed his appreciation for the newly proposed open elective syllabus and suggested including the topic "conventional detection methods" in module 1.

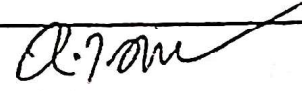
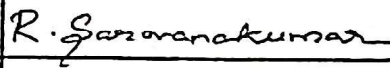
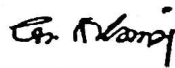
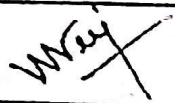
The suggested topic has been included in module 1 of the syllabus.

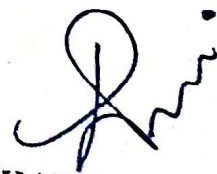
- **Dr. K. Ganesh, an Alumnus Member**, suggested including the topics such as "Machine Learning tools and strategies" in module 3 and "FET sensors" in module 4.

The suggested topics have been included in modules 3 and 4 of the syllabus.

- **Dr. R. Rangaraj, Institute Subject Expert** accepted the syllabus.
- **Dr. S. Ranganayaki, Institute Mathematics Expert** accepted the syllabus

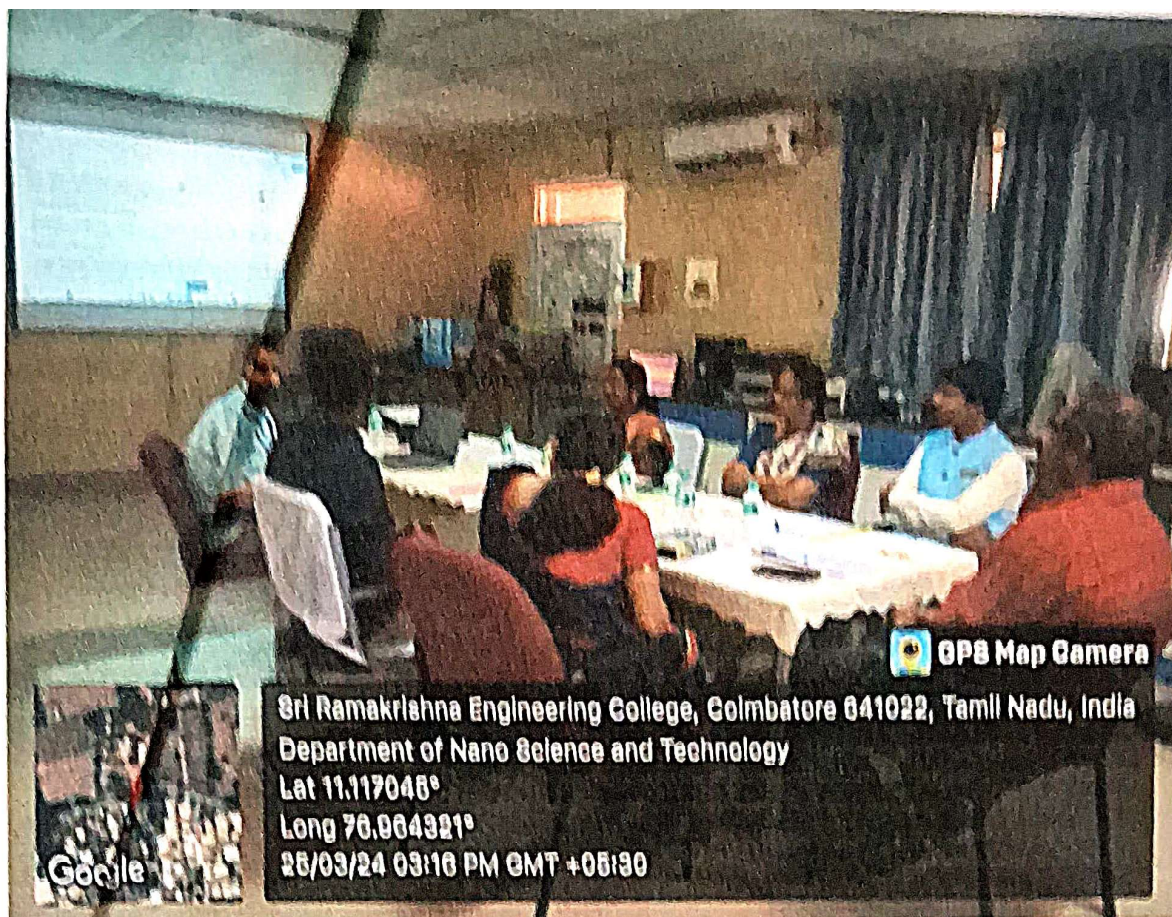
The BoS chairperson Dr. Moorthi Pichumani, thanked all the members of BoS for all of their comments. The 19th BoS meeting for PG programme M.Tech. Nano Science and Technology was concluded.

Name of the Member	Designation	Signature
Dr. P. Moorthi	Chairperson	
Dr. P. Kandha Vadivu	University Nominee	
Dr. N. Kalaiselvi	Central Government Lab Expert	-Absent-
Dr. R.T. Rajendra Kumar	Subject Expert	
Mr. R. Saravanakumar	Industry Expert	
Dr. K. Ganesh	Alumni Member	
Dr. R. Rangu Raj	Institute Subject Expert	
Dr. S. Ranganayaki	Institute Mathematics Expert	
Dr. R. Pandeewari	BoS Coordinator	



CHAIRPERSON
BOARD OF STUDIES
Department of Nano Science and Technology

Dr. MOORTHY PICHUMANI
Professor and Head
Department of Nano Science And Technology
Sri Ramakrishna Engineering College
Coimbatore - 641 022, INDIA.





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31.10.2023

Ref: SREC/18th BOS/2023-2024/01

**MINUTES OF THE 18th BOARD OF STUDIES MEETING FOR THE PG M.TECH
NANO SCIENCE AND TECHNOLOGY PROGRAMME HELD ON 31.10.2023,
3.00 PM (ONLINE) IN THE NANO SCIENCE AND TECHNOLOGY**

The following members attended the above meeting.

1. Dr. Moorthi Pichumani (**Chairman, Board of Studies**)
2. Dr. P. Kanda Vadivu (**University Nominee**)
3. Dr. N. Kalaiselvi (**Central Government Lab Expert**)
4. Dr. R. T. Rajendra Kumar (**Subject Expert**)
5. Mr. R. Saravanakumar (**Industry Expert**)
6. Dr. K. Ganesh (**Alumnus Member**)
7. Dr. R. Rangaraj (**Institute Subject Expert**)
8. Dr. S. Ranganayaki (**Institute Mathematics Expert**)
9. Dr. R. Pandeewari (**BoS Coordinator**)

Prof. Moorthi Pichumani, 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.

M.E./M.Tech Programmes:

➤ Item No 1

It is resolved that the PG Regulations 2022 will be followed for the students admitted from academic year 2022 and onwards.

➤ Item No 2

It is resolved that the curriculum structure for the M.E./M.Tech programme as recommended by the 17th Academic Council be approved.

S. No	Course type	Credit points
1.	Foundation Course (FC)	4
2.	Professional Core (PC)	30
3.	Professional Elective (PE)	15
4.	Employability Enhancement Course (EEC)	21
	Total	70

➤ Item No 3

It is resolved that the syllabus for the following new open elective course under (Revised) Regulations 2020 be approved and passed.

20NT2E06 - POLYMER NANOCOMPOSITES FOR ADDITIVE MANUFACTURING

➤ Item No 4

The following suggestions were received from the BoS members on the open elective syllabus

“20NT2E06-POLYMER NANOCOMPOSITES FOR ADDITIVE MANUFACTURING”

- **Dr. P. Kanda Vadivu, University Nominee** accepted and appreciated the syllabus.

Dr. N. Kalaiselvi, an expert from a Central Government lab, appreciated the newly introduced open elective syllabus and emphasized the significance of additive manufacturing technology in diverse applications. She also recommended a few topics for inclusion in the syllabus.

Module 3: Include the Metal, Ceramic and Polymer based 3D Printing

Module 5: The title of the Module 5 is changed as **Applications of Engineered Polymer Nanocomposites** instead of **Applications of Additive Manufactured Polymer Nanocomposites**

The recommended changes are included in the syllabus.

- **Dr. R. T. Rajendra Kumar, a Subject Expert**, appreciated the structure and course content of the syllabus. Moreover, he recommended a few changes and inclusion of few topics that could be incorporated into the syllabus.

Module 2: Inclusion of the few additional properties of polymer nanocomposites linked with applications in diverse fields in Module 5.

Module 3: Inclusion of additive manufacturing parameters

The recommended changes are included in the syllabus.

- **Mr. R. Saravanakumar, an Industry Expert**, expressed his appreciation for the newly proposed open elective syllabus and recommended a few additional topics to be included in the syllabus.

Module 3: Include the limitation to achieving engineered materials

Module 4: Include the case studies

The recommended changes are included in the syllabus.

Dr. K. Ganesh, an Alumnus Member Expert, appreciated the syllabus structure and recommended a few additional topics to be included in Module 1.

Module 1: Include aim and scope of the nanocomposites and remove the synthesis and characterization of nanocomposites

The recommended changes are included in the syllabus.

- **Dr. R. Rangaraj, Institute Subject Expert** appreciated the syllabus and recommended a few additional topics to be included in Module 5.

Module 5: Incorporate the names of Polymer Nanocomposite materials suitable for aerospace applications

The recommended changes are included in the syllabus.

- **Dr. S. Ranganayaki, Institute Mathematics Expert** accepted the syllabus

Suggestions / Comments from External Expert Members and University Nominee are recorded.

The BoS chairperson Dr. Moorthi Pichumani thanked all the members of BoS for all of their comments and informed that the minutes of meeting will be circulated for getting the members signature. The 18th BoS meeting for PG programme M.Tech Nano Science and Technology was concluded.

Name of the Member	Designation	Signature
Dr. P. Moorthi	Chairperson	
Dr. P. Kandha Vaidyan	University Nominee	
Dr. N. Kalaiselvi	Central Government Lab Expert	
Dr. R. I. Rajendra Kumar	Subject Expert	
Mr. R. Saravanakumar	Industry Expert	
Dr. K. Vignesh	Alumni Member	
Dr. R. Ranga Rai	Institute Subject Expert	
Dr. S. Ranganayaki	Institute Mathematics Expert	
Dr. R. Pandeeswari	BoS Coordinator	



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25.04.2023

Ref: SREC/17th BOS/2022-2023/02

**MINUTES OF THE 17th BOARD OF STUDIES MEETING FOR THE PG M.TECH
NANO SCIENCE AND TECHNOLOGY PROGRAMME HELD ON 25.04.2023,
3.30 PM AT CHARACTERIZATION LAB, DEPARTMENT OF NANO SCIENCE
AND TECHNOLOGY**

The following members attended the above meeting.

1. Dr. Moorthi Pichumani (**Chairman, Board of Studies**)
2. Dr. P. Kanda Vadivu (**University Nominee**)
3. Dr. N. Kalaiselvi (**Central Government Lab Expert**)
4. Dr. R.T. Rajendra Kumar (**Subject Expert**)
5. Mr. R. Saravanakumar (**Industry Expert**)
6. Dr. K. Ganesh (**Alumnus Member**)
7. Dr. R. Rangaraj (**Institute Subject Expert**)
8. Dr. S. Ranganayaki (**Institute Mathematics Expert**)
9. Dr. R. Pandeewari (**BoS Coordinator**)

Dr. Moorthi Pichumani, Professor and HOD, Chairperson, Board of Studies, chaired the meeting and welcomed all the members to the 17th BoS meeting. After a brief introduction, the agenda items listed were taken up for discussion and the following resolutions were passed.

M.E./M.Tech Programmes:

➤ Item No 1

It is resolved that the PG Regulations 2022 will be followed for the students admitted from academic year 2022-2023 onwards.

➤ Item No 2

It is resolved that the curriculum structure for the M.E./M.Tech programme as recommended by the 17th Academic Council be approved.

S. No	Course type	Credit points
1.	Foundation Course (FC)	4
2.	Professional Core (PC)	30
3.	Professional Elective (PE)	15
4.	Equivalent Elective Course (EEC)	18
5.	Research Methodology and IPR	3
	Total	70

➤ Item No 3

It is resolved that the two new open elective courses “**20NT2E04 - INTRODUCTION TO BATTERY TECHNOLOGY**” and “**20NT2E05 – EMERGING TECHNOLOGY FOR SUSTAINABLE CIRCULAR ECONOMY**” be approved under Regulations 2020 for UG programmes.

➤ Item No 4

The following suggestions were received from the BoS members on the open elective syllabus “**20NT2E04 - INTRODUCTION TO BATTERY TECHNOLOGY**”

- **Dr. P. Kanda Vadivu, University Nominee** accepted and appreciated the syllabus.
- **Dr. N. Kalaiselvi, Central Government Lab Expert**, appreciated the newly introduced open elective syllabus and emphasized the significance of battery technology in diverse applications. Moreover, she recommended a few topics that could be incorporated into the syllabus.

Module 3: Battery Management System, BIS guidelines and standards for batteries

Module 4: Battery Powered e-vehicle (BEV), Hybrid e-vehicle (HEV)

The recommended topics are included in the syllabus.

- **Dr. R. T. Rajendra Kumar, Subject Expert** discussed the allocation of time for each module and proposed the following changes: 10 hours each for module 1 and 2, 9 hours for module 3, 7 hours for module 4, and 9 hours for module 5. The recommended allocated time for each module is accepted and included in the syllabus.
- **Mr. R. Saravanakumar, Industry Expert** expressed his appreciation for the newly proposed open elective syllabus and recommended a few additional topics to be included in module 3.

Module 3: Battery performance, Battery Storage Compartment

The recommended topics are included in module 3 of the syllabus.

- **Dr. K. Ganesh, Alumnus Member** accepted the syllabus.
- **Dr. R. Rangaraj, Institute Subject Expert** accepted the syllabus.
- **Dr. S. Ranganayaki, Institute Mathematics Expert** accepted the syllabus.

➤ **Item No 5**

The following suggestions were received from the BoS members on the open elective syllabus “**20NT2E05 - EMERGING TECHNOLOGY FOR SUSTAINABLE CIRCULAR ECONOMY**”

- **Dr. P. Kanda Vadivu, University Nominee** has recommended that the topics in all modules be made more concise and specific to particular applications, rather than including generic topics.
- **Dr. N. Kalaiselvi, Central Government Lab Expert** checked thoroughly the syllabus and shared various suggestions to modify the syllabus. The given points are considered, and the syllabus was modified module by module.

- ❖ Module 2 has been divided into two separate modules, resulting in a change in the total number of modules from 4 to 5 in the syllabus.

- ❖ A few important topics should be included in module 1, 2, 3 and 4.

Module 1: Solid, Liquid and Gas waste and its management system

Module 2: Carbon capturing, Utilization, Storage (CCUS)

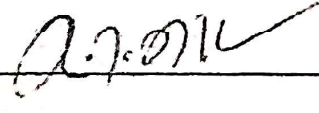
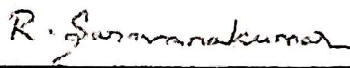
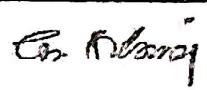
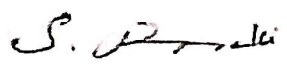
Module 3: Sustainability and Supply chain, Multi market, Indigenization

Module 4: ROI concepts, CapEX-OPEX, Basics of TRL and MRL

The suggested topics are included in all 4 modules.

- **Dr. R.T. Rajendra Kumar**, Subject Expert suggested that the allocation of time for each unit be revised as follows: 9 hours each for all five modules. He suggested changing the title of syllabus is “**EMERGING TECHNOLOGY FOR SUSTAINABLE CIRCULAR ECONOMY**”. He also proposed the inclusion of **specific case study topics on emerging technology in circular economy** in the syllabus. The suggested case studies are included in the module 5 of the syllabus.
- **Mr. R. Saravanakumar, Industry Expert** expressed his appreciation for the newly proposed open elective syllabus and recommended some additional topics such as **Technical commercialization and LCA – regulatory requirements** to be included in the syllabus. The recommended topics are included in module 3 of the syllabus.
- **Dr. K. Ganesh, Alumnus Member** suggested that possible to include the topics such as **rare earth materials / alternative materials or other category materials** in module 2 and **Sustainable Development Goals (SDG)** in module 3. The suggested topics are included in module 2 and 3 in the syllabus.
- **Dr. R. Rangaraj, Institute Subject Expert** accepted the syllabus.
- **Dr. S. Ranganayaki, Institute Mathematics Expert** accepted the syllabus.

The BoS chairman Dr. Moorthi Pichumani thanked all the members of BoS for their suggestions/comments. The 17th BoS meeting for PG programme M.Tech Nano Science and Technology was concluded.

Name of the Member	Designation	Signature
Dr. Moorthi Pichumani	Chairperson	
Dr. P. Kandha Vadivu	University Nominee	
Dr. N. Kalaiselvi	Central Government Lab Expert	
Dr. R. T. Rajendra Kumar	Subject Expert	
Mr. R. Saravanakumar	Industry Expert	
Dr. K. Ganesh	Alumnus Member	
Dr. R. Ranga Raj	Institute Subject Expert	
Dr. S. Ranganayaki	Institute Mathematics Expert	
Dr. R. Pandeeswari	BoS Coordinator	


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05.12.2022

Ref: SREC/16th BOS/2022-2023/01

**MINUTES OF THE 16th BOARD OF STUDIES MEETING FOR THE PG M.TECH
NANO SCIENCE AND TECHNOLOGY PROGRAMME HELD ON 05.12.2022,
5.00 PM (ONLINE) IN THE NANO SCIENCE AND TECHNOLOGY**

The following members attended the above meeting.

1. Dr. Moorthi Pichumani (**Chairman, Board of Studies**)
2. Dr. P. Kanda Vadivu (**University Nominee**)
3. Dr. N. Kalaiselvi (**Central Government Lab Expert**)
4. Dr. R.T. Rajendra Kumar (**Subject Expert**)
5. Mr. R. Saravanakumar (**Industry Expert**)
6. Dr. R. Rangaraj (**Institute Subject Expert**)
7. Dr. S. Ranganayaki (**Institute Mathematics Expert**)
8. Dr. R. Pandeewari (**BoS Coordinator**)

The following member is absent and not attended the above meeting

1. Dr. K. Ganesh (**Alumni Member**)

Dr. P. Moorthi, Associate Professor and HOD i/c, 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.

M.E./M.Tech Programmes:

➤ Item No 1

It is resolved that the PG Regulations 2022 will be followed for the students admitted from academic year 2022 - 2023 onwards.

➤ Item No 2

It is resolved that the new curriculum and syllabi for be approved under Regulation 2022 for PG programmes.

➤ Item No 3

It is resolved that the new open elective "**20NT2E03 - NANOTECHNOLOGY AND NANOSENSORS**" be approved under Regulations 2020 for UG programmes.

➤ Item No 4

The following changes in 2022 PG Regulations were presented to the BoS Members

- **Internal marks calculations for theory courses**

For theory courses, 17.5 (for each Internal) and 5 marks from course assessment (Total - 40 marks)

- **Internal marks calculations for practical courses**

For practical courses, 30 marks (for experiments) and 30 marks for model practical exam (Total - 60 marks)

- **Internal marks calculations for project dissertation I and II**

For project dissertation I and II, 10 marks for Review 1, 20 marks for Review 2 and 30 marks for Review 3 (Total - 60 marks)

➤ Item No 5

The following changes made in PG R2022 M.Tech Curriculum were presented to the BoS Members

- **95 % of course titles and 100 % of course codes** were changed

- The credit points for "**Nanotechnology Laboratory - I and II**" courses increased from **1 to 2**

- The "**Research Methodology and IPR**" course is changed from an audit course to an **Employability Enhancement Course (EEC) with 3 credits** and included in Semester 1

- The course credit points for "**Nanofabrication and Lithography Techniques**" is decreased from 4 to 3
- In Semester 2, "**English for Research Paper Writing**" is newly introduced as a **grade-only, non-credit and audit course**
- "**Fundamentals and Applications of Biotechnology**" course is changed as **Professional Elective** from Professional Core
- The overall **credit points for the M.Tech** curriculum have been increased from 69 to 70

➤ **Item No 6**

The following changes made in PG R2022 M.Tech syllabus were presented to the BoS members

- **In 95% of the courses**, recent **research and review articles** have been added as references
- Few topics are included in professional elective and open elective courses

➤ **Item No 7**

The following suggestions were received from the BoS members on the open elective syllabus "**20NT2E03 - NANOTECHNOLOGY AND NANOSENSORS**"

- **Dr. P. Kanda Vadivu, University Nominee** accepted and appreciated the syllabus.
- **Dr. N. Kalaiselvi, Central Government Lab Expert** appreciated the new open elective syllabus and shares her views about the importance of sensors technology in space applications. Madam suggested to include the sensors related Indian success stories in the syllabus, which will motivate the students for this particular field. The link for the success stories were included the reference section of the syllabus.
- **Dr. R.T. Rajendra Kumar, Subject Expert** checked thoroughly the syllabus and shared various suggestions to modify the syllabus. The given points are considered and the syllabus was modified module by module.

The following changes were incorporated in the Module – I: Introduction to Sensor Science and Nanotechnology

- In order to simplify the Module – I, the following topics were removed in syllabus.
Photoelectric effect – Photo dielectric effect – Photoluminescence effect – Electroluminescence effect – Hall effect – Thermoelectric effect – Piezoresistive

effect – Piezoelectric effect – Pyroelectric effect – Magnetomechanical effect (magnetostriction) – Magneto resistive effect

The following changes were made in Module – II: Fabrications of Nanosensors from Low Dimensional Materials

- The subsection of Module – II content “Novel nanomaterials for sensors : Introduction to Graphene – MXene - Graphitic Carbon Nitride (gCN) - Hydrogen Boron Nitride (HBN) - Sensors based on these materials” are removed
- Module – II is divided into four subsections, which covers low dimensional materials based sensors and also 3 Dimensional carbon foam based sensors were added in fourth subsection of Module - II

Fullerenes based sensors (OD): Structure and properties of fullerene - Fabrication and working principle of fullerene based sensors

Carbon Nanotubes based sensors (1D): Structure and properties of CNT - Fabrication and working principles of CNT based sensor

Graphene based sensors (2D): Structure and properties of graphene - Working principles of graphene based sensor

Carbon foam based sensors (3D): Structure and properties of carbon foam - Fabrication and working principles of carbon foam based sensor

The following changes were incorporated in Module – III: Inorganic Nanomaterials for Nanosensors

- The Surface Plasmon Resonance based optical sensors related topics were included in first subsection of Module – III.

Metal nanoparticles based optical sensors: Definition and Principle of Surface Plasmon Resonance (SPR) – Surface Plasmon-absorption-based color-change Sensors - Gold Nanoparticle enhanced Surface-Plasmon Resonance Sensor

- **Mr. R. Saravanakumar, Industry Expert** accepted the syllabus.
- **Dr. R. Rangaraj, Institute Subject Expert** accepted the syllabus.
- **Dr. S. Ranganayaki, Institute Mathematics Expert** accepted the syllabus

The BoS chairman Dr.P.Moorthi thanked all the members of BoS for all of their comments and informed that the minutes of meeting will be circulated for getting the members signature. The 16th BoS meeting for PG programme M.Tech Nano Science and Technology was concluded.

Name of the Member	Designation	Signature
Dr. P. Moorthi	Chairperson	
Dr. P. Kandha Vadivu	University Nominee	
Dr. N. Kalaiselvi	Central Government Lab Expert	
Dr. R.T. Rajendra Kumar	Subject Expert	
Mr. R. Saravanakumar	Industry Expert	
Dr. K. Ganesh	Alumni Member	-Absent-
Dr. R. Ranga Raj	Institute Subject Expert	
Dr. S. Ranganayaki	Institute Mathematics Expert	
Dr. R. Pandeeswari	BoS Coordinator	



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



25.02.2022

Ref: SREC/15th BOS/2021-2022/03

MINUTES OF THE 15th BOARD OF STUDIES MEETING FOR PG M.TECH NANOSCIENCE AND TECHNOLOGY PROGRAMME HELD ON 25.02.2022 AT 11.00 A.M. IN THE DEPARTMENT OF NANOSCIENCE AND TECHNOLOGY.

The following members attended the above meeting.

1. Dr.P.Moorthi (**Chairman, Board of Studies**)
2. Dr.P.Kanda Vadivu (**University Nominee**)
3. Dr.N.Kalaiselvi (**Central Government Lab expert**)
4. Dr.R.T.Rajendra Kumar (**Subject Expert**)
5. Mr.R.Saravanakumar (**Industry Expert**)
6. Dr.K.Ganesh(**Alumni Member**)
7. Mr.R.Rangaraj (**Institute Subject Expert**)
8. Dr.S.Ranganayaki (**Institute Mathematics Expert**)
9. Dr.C.Narendhar (**BOS Coordinator**)

Dr. P. Moorthi, Associate Professor and HOD i/c, Chairperson, Board of Studies, chaired the meeting and welcomed all 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.

M.E./M.Tech Programmes:

➤ Item No 1

It is resolved that the PG Regulations 2018 will be followed for the students admitted from academic year 2020-2021 onwards.

➤ Item No 2

It is resolved that the new elective be approved under Regulations R2018 for PG programmes –
18NT1E24 NANO-WEARABLES

➤ Item No 3

The following changes were incorporated in the first unit, Scope of Wearables.

- The healthcare and health monitoring terminology was requested to be unified for application for humans there by using different terminology for agriculture and cattle.

- The order of contents was suggested to be clothing applications, then health monitoring, followed by agriculture applications and then other sectors.

The following changes were incorporated in the second unit, Bionanosensors.

- The proposed second unit, titled Sensors in wearables was requested to be shifted to fourth unit.
- The new second unit was suggested to be named as Bionanosensors.
- The topics, Biomarkers and food markers were suggested to be added along with the existing content.

The following changes were incorporated in the third unit, Nanotechnology in wearables augmentation.

- The topic Nanotechnology in 3D and 4D printed healthcare devices was suggested to be added to the existing content.

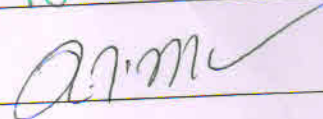
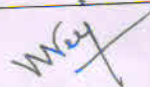
The following changes were incorporated in the fourth unit, Sensors used in Wearables.

- The topics Radiation sensors – LASER Safety, Packaging sensors- Adulteration sensors – Sweat sensors – Soil Sensors; NPK sensors, pH and Electrical Conductivity of soil – Self sensing cement composites were requested to be added.

The following changes were incorporated in the fifth unit, Flexible wearable electronics

- The fifth unit components were requested to be changed to technical contents from ethical issues topics.
- The contents, Flexible electronics; Flexible power sources - Flexible batteries - flexible displays - Organic electronics - Stress strain connectivity - Muscle movement tracking - Nanogenerators - Textile and polymer platform - Self healing polymer membranes - Paper based sensors were requested to be added

The BOS chairman Dr.P.Moorthi had thanked all the members of BOS for all of their comments and informed that the minutes of meeting will be circulated for getting the members' signature by courier as well as mail acknowledgement from the alumni member. The 15th BOS meeting for PG programme M.Tech Nanoscience and Technology was concluded.

Name of the Member	Designation	Signature
Dr. P. Moorthi	Chairperson	
Dr. P.Kandha Vadivu	University Nominee	
Dr. N. Kalaiselvi	Central Government Lab expert	
Dr. R. T. Rajendrakumar	Subject Expert	
Mr. R. Saravanakumar	Industry Expert	
Dr. K.Ganesh	Alumni Member	
Mr. R. Ranga Raj	Institute Subject Expert	
Dr. S. Ranganayaki	Institute Mathematics Expert	
Dr. C. Narendhar	BOS Coordinator	



CHAIRPERSON
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MINUTES OF THE 14th BOARD OF STUDIES MEETING FOR PG M.TECH NANOSCIENCE AND TECHNOLOGY PROGRAMME HELD ON 11.06.2021 AT 2.00 P.M. IN THE DEPARTMENT OF NANOSCIENCE AND TECHNOLOGY.

The following members attended the above meeting.

1. Dr. T. Daniel Thangadurai (**Chairman, Board of Studies**)
2. Dr.T.Devasena (**University Nominee**)
3. Dr.N.Kalaiselvi (**Central Government Lab expert**)
4. Dr.R.T.Rajendrakumar (**Subject Expert**)
5. Mr.R.Saravanakumar (**Industry Expert**)
6. Mrs.N.Manjubaashini (**Alumni Member**)
7. Mr.R.Rangaraj (**Institute Subject Expert**)
8. Dr.S.Ranganayaki (**Institute Mathematics Expert**)
9. Dr. C. Narendhar (**BOS Coordinator**)
10. Dr. P. Moorthi (**Member from Nanotechnology Department**)

Professor Dr.T.Daniel Thangadurai, Chairperson, Board of Studies, chaired the meeting and welcomed all the members to the 14th 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 the PG Regulations 2018 will be followed for the students admitted from academic year 2020-2021.

ITEM No.2

It is resolved that the subject code of the existing open elective course 16NT2E02 Fundamentals and Applications of Nanoscience and Technology will be changed to 20NT2E01 for the upcoming academic year

ITEM No.3

It is resolved that the new open elective “20NT2E02 Nanotechnology in Environmental Remediation” be approved under Regulations R 2020 for UG programmes

ITEM No.4

It is resolved that three one credit courses 20NTI001 Physical Characterization and Applications of Nanomaterials, 20NTI002 Optical Characterization and Applications of Nanomaterials and 20NTI003 Electrochemical Characterization and Applications of Nanomaterials will be floated for the upcoming academic year.

ITEM No.5**20NT2E02 Nanotechnology in Environmental Remediation**

- Module one content was amended as follows.
Importance of Nanotechnology – Opportunity at the nano scale – Length and time scale in structures – Energy landscapes – Interdynamic aspects of inter molecular forces – Classification based on the dimensionality – Nanoparticles – Nanoclusters – Nanotubes - Nanowires and nanodots - Semiconductor nanocrystals carbon nanotubes - Influence of Nano structuring on Mechanical, optical, electronic, magnetic and chemical properties
- Module two was renamed as Physical Processes for Augmentation of Greener Environment. Sunlight mediated photocatalysis topic was shortened to Photocatalysis.
- Module three, the topic Nanomembranes for filtration of pathogens and potable water generation was incorporated. Nanoremediation, Bionanocomposites and Electrobioremediation topics were added.
- The current scenario and conventional strategies for environmental remediation was added to all the modules.

ITEM No.6**20NTI001 Physical Characterization and Applications of Nanomaterials**

- Module one, Elemental analysis was added.
- Module two, Morphology analysis was added
- Module three, SAXS and WAXS, Analysis of amorphous and crystalline structures were added
- Suggestion was given to add latest books to references.
- The contents were modified with the feedback from the SCM meeting. Introduction to Nanotechnology and synthesis of nanomaterials was added along with industry focused applications as separate modules.

ITEM No.7**20NTI002 Optical Characterization and Applications of Nanomaterials**

- Module one, dispersion behavior of particles, size and distribution topics were added.
- Module two, NIR, MIR and FIR, Food industries - trans-fat content and food borne pathogens were removed. Illegal drugs and banned materials were reworded as "controlled substances".

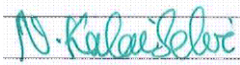
- Module three, “Quantitative and qualitative analysis by absorption measurements”, was replaced by, "concentration determination and bonding nature identification by absorption measurements". Wavelength shifts topic was moved to the application part.
- The contents were modified with the feedback from the SCM meeting. Introduction to Nanotechnology and synthesis of nanomaterials was added along with industry focused applications as separate modules.

ITEM No.8

20NTI003 Electrochemical Characterization and Applications of Nanomaterials

- Module one, data interpretation was added. The topics Faradaic and Non Faradaic reactions were added.
- Module two, Impedance spectroscopy was renamed as Electrochemical impedance spectroscopy. The subtopics Nyquist plot, Bode plot and Bode angle were added.
- Text Books, “Cyclic Voltammetry and the Frontiers of Electrochemistry” by Noel M and Vasu K.I, was added
- The contents were modified with the feedback from the SCM meeting. Introduction to Nanotechnology and synthesis of nanomaterials was added along with industry focused applications as separate modules.

The BOS chairman Dr.T.Daniel Thangadurai had thanked all the members of BOS for all of their comments and informed that the soft copy of the minutes of meeting will be circulated for getting the members’ signature by mail. The 14th BOS meeting for PG M.Tech Nanoscience and Technology was concluded.

Name of the Member	Designation	Signature
Dr. T. Daniel Thangadurai	Chairperson	
Dr. T. Devasena	University Nominee	
Dr. N. Kalaiselvi	Central Government Lab expert	
Dr. R. T. Rajendrakumar	Subject Expert	

Mr. R. Saravanakumar	Industry Expert	
Dr. N. Manjubaashini	Alumni Member	
Mr. R. Ranga Raj	Institute Subject Expert	
Dr. S. Ranganayaki	Institute Mathematics Expert	
Dr. C. Narendhar	BOS Coordinator	
Dr. P. Moorthi	Member from Nanotechnology Department	



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