# DAYANANDA SAGAR UNIVERSITY

## School of Engineering

Kudlu Gate, Hosur Main Road,
Bengaluru-560068

### DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

**Proceedings of the 10th BoS Meeting Held on 14th August 2023**

| | | |
|---|---|---|
| School | : | School Of Engineering |
| College | : | Dayananda Sagar University |
| Programme/Department | : | Electronics and Communication Engineering |
| Mode of BOS Meeting | : | Hybrid (https://meet.google.com/rbw-zobu-usq?authuser=0) |
| Date | : | 14th August 2023 |
| Venue | : | 3rd Floor, Board Room, A Block |
| Time | : | 02:00 PM to 5: 00 PM |

**AGENDA**

**Agenda 1:** Approval of curriculum and syllabus for 1st Year of New Scheme B. Tech ECE 2023-27.

**Agenda 2:** Approval of curriculum of 2nd, 3rd & 4th year and syllabus for 2nd Year of New Scheme B. Tech ECE 2022-26.

**Agenda 3:** Approval for the ratified curriculum, syllabus and credits for 4th year (7th and 8th Sem) B. Tech (ECE) 2020-24 - Increase in credits from 159 to 160.

**Agenda 4:** Approval for the ratified curriculum, syllabus, and credits for 3rd year & 4th year for 60:40 scheme B. Tech (ECE) 2021-25 - Increase in credits from 159 to 160.

**Agenda 5:** Approval for Ratification of M.Tech mandatory credits - Increase in credits from 64 to 72 for the Batch 2022-24.

**Agenda 6:** Approval for offering M.Tech in Embedded System with specialisation in IOT for the Batch 2023-25.

The Board of Studies (BoS) meeting for Electronics and Communication Engineering was convened on August 14, 2023 at 2:00 PM in the A-Block Board Room. Several members were present in person, while a few joined virtually through the Google Meet platform. The meeting aimed to discuss and deliberate on various matters related to the department's curriculum, courses, and educational initiatives.

- ✓ Chairman welcomed all the External and Internal BOS Members.
- ✓ Chairman briefed about the agenda of meeting.
- ✓ Chairman briefed about the syllabus of Introduction to Electronics and Introduction to Electrical for the New Scheme B. Tech ECE 2023-27 and the feedback from the BoS members were noted.
- ✓ The 2022-2026 Curriculum & Scheme was discussed in length and suggestions and inputs for the scheme were noted. Also, the syllabus for II year (III & IV Semesters) of 2022-2026 scheme were discussed in detail. The suggestions and inputs from the external members were noted.
- ✓ The chairman deliberated on the ratified syllabus for the courses Robotics and Control System, Automotive Embedded System and Antenna and Wave Propagation along with the addition of "MEMS/NEMS" as an open elective course for the 2020-24 batch.
- ✓ The chairman also provided an overview of the ratification concerning the mandatory credits for the B. Tech program, indicating a modification from 159 to 160 credits for the Batch 2020-24. This modification aims to ensure compliance with the requirements set by the Statutory Regulatory Authorities.
- ✓ The chairman deliberated on the ratified syllabus for the course "RF and Microwave Engineering" for the 2021-25 batch. The chairman also provided an overview of the ratification concerning the mandatory credits for the B. Tech program, indicating a modification from 159 to 160 credits for the Batch 2021-25. This modification aims to ensure compliance with the requirements set by the Statutory Regulatory Authorities.
- ✓ The chairman provided an overview of the ratification concerning the mandatory credits for the M. Tech program, indicating a modification from 64 to 72 credits for the Batch 2022-24. This modification aims to ensure compliance with the requirements set by the Statutory Regulatory Authorities.
- ✓ The chairman formally proposed the introduction of M.Tech in Embedded Systems with specialization in Internet of Things (IoT) for the Batch 2023-25. During the presentation, a draft curriculum outlining the course structure and credit distribution was provided to offer a comprehensive understanding of the proposed program.

✓ Dr. Vinu.R and Prof. Nadeem Pasha of the department noted the minutes of the meeting and readout the complete BOS proceedings.

✓ Chairman of the Department proposed vote of thanks for the valuable inputs given by the External BOS Members and faculty members.

**Agenda 1: Approval of Curriculum and Syllabus for 1st Year of New Scheme B. Tech ECE 2023-27.**

**Recommendation**

- The Board of Studies (BoS) members have put forth their recommendation for the syllabus of Introduction to Electronics and Introduction to Electrical as Engineering Science Courses under the New Scheme B.Tech ECE 2023-27. This proposal incorporates the integration of simulation through software tools such as LTSpice and Arduino, aiming to enhance the practical learning experience for students.
- Foreign Author Books must be added in the list of textbooks in each course.

| Sl.No | Semester | Subject Title | Suggestions by the BOS Committee |
|---|---|---|---|
| 1. | 1st/2nd | Introduction to Electrical | • Phasor analysis to be removed.<br>• The induction motor to be removed.<br>• Foreign author reference book should be included. (Recommended by AICTE)<br>• Course Objectives and outcomes should be reframed as per Bloom's taxonomy. |

**Agenda 2: Approval of curriculum of 2nd, 3rd & 4th year and syllabus for 2nd Year of New Scheme B. Tech ECE 2022-26**

The following are the recommendations/suggestions given by the External BoS members on the Curriculum and Syllabus for 2nd Year and scheme for 3rd & 4th year of New Scheme B. Tech ECE 2022-26.

- **CORE COURSES**

| Sl.No | Semester | Subject Title | Suggestions by the BOS Committee |
|---|---|---|---|
| 1. | 3rd | Signals and Systems | • Introduction to digital computer simulation using MATLAB can be included in the 5th module. |
| 2. | 4th | Analog Circuits | • Change the subject name to Analog "electronics" circuits. |

| | | | |
|---|---|---|---|
| | | | • Course objectives and outcomes with Bloom's action verb need to be reframed.<br>• Diode module covered in basic electronics can be removed.<br>• Module 1 may start with Load line analysis for BJT.<br>• Module 2 can be for MOSFETS.<br>• Module 3 can start with the internal stages of Op-amps and do the design-level treatment.<br>• The current mirror is missing. |

- In response to challenges in comprehending core ECE subjects, we propose offering students orientation through industry-led technical talks and additional practical sessions utilizing simulation tools. Notably, the Board of Studies (BoS) recommends integrating core course topics as skill enhancement courses in the curriculum for 2022-2026.
- Prioritize the inclusion of industry-relevant topics within each course's curriculum.
- Formulate course objectives that prominently feature emerging areas within each subject.
- Provide each course with the flexibility to incorporate industrial requisites.
- External Board of Studies (BoS) members recommended that faculty members refer to journals and publications from the IEEE Educational Society while structuring the syllabus, or consider utilizing beginner's guides for teaching engineering courses.

➢ **INTERNSHIP**

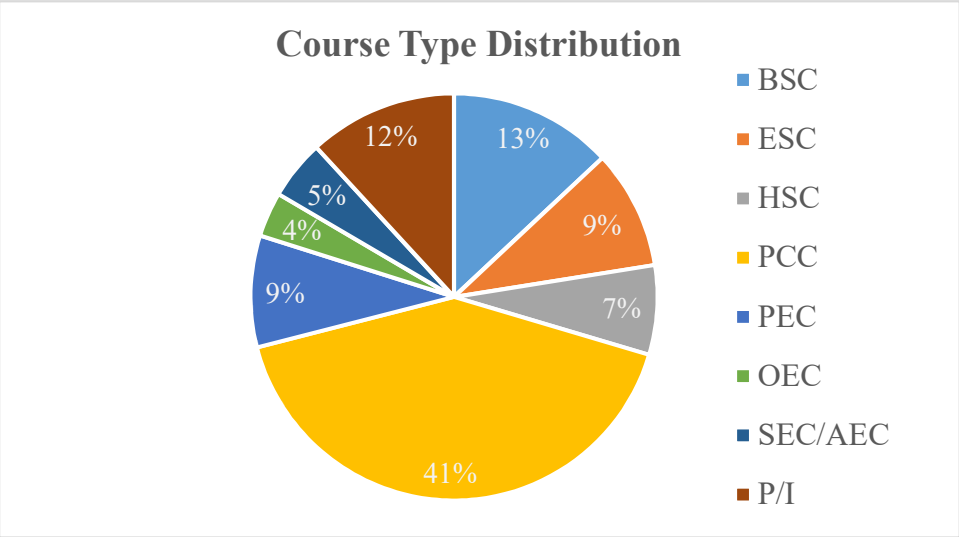
- The External Board of Studies (BoS) members have advised that the inclusion of internships in the curriculum for 2022-2026 is highly advantageous for students. This initiative aligns with industry interests, enabling them to nurture and enhance students' expertise, provide thorough guidance, and ultimately cultivate a skilled talent pool for future recruitment.
- Students can publish SCI indexed publications as an integral aspect of their internship, following the model employed by esteemed institutions such as IITs.

**Professional Elective courses/ Open Electives:**

- The selection of domains offered within Professional Elective courses and Open Electives is determined by the Department's faculty expertise.
- Elective courses should possess a distinct standalone nature when compared to core courses.
- To enhance the variety of choices, the list of Open Electives available in the curriculum for 2022-2026 can be expanded by incorporating a broader selection of courses.

- Courses such as Quantum Computing, Quantum Communication, Quantum Information Technology, Energy & Environment, Sustainable Engineering, and Future Directions in Technology can be integrated into the Professional Elective courses and Open Electives offerings.
- The course on Optical Communication, currently offered as a Professional Elective, can be elevated to the status of a core course within the curriculum.
- The Board of Studies (BoS) members have recommended formulating proposals for emerging areas by envisioning the future of Electronics and Communication over the next decade. This proactive approach should include a comparative analysis with foreign universities and institutes of national importance, aligned with the principles outlined in the National Education Policy (NEP).

**Program Structure (2022-2026 Scheme)**




**Total Credits – 161**

| | |
|---|---|
| **BSC** | Basic Sciences (Subjects such as Physics, Chemistry, Maths) |
| **HSC** | Humanities Sciences |
| **ESC** | Engineering Sciences Courses (subjects Such as, 1st year EC, EE, CPPS, etc.,) |
| **IPCC/PCC** | Integrated Program Core Courses / Program Core Courses |
| **PEC** | Program Elective Courses |
| **OEC** | Open Elective Courses |
| **SEC/AEC** | Skill Enhancement Courses / Ability Enhancement Courses |
| **P/I** | Major Project/Technical Seminar/Internship |

**Agenda 3: Approval for the ratified Curriculum, Syllabus and Credits for 4th year (7th and 8th Sem) B. Tech (ECE) 2020-24 - Increase in credits from 159 to 160.**

**UG: 7th and 8th Semester – 2020-24 Course Matrix**

| Sl.No | Semester | Subject Title | Suggestions by the BOS Committee |
|---|---|---|---|
| 1. | 7th | ROBOTICS AND AUTOMATION | Syllabus contents reduced to match with the credits |
| 2. | 7th | ANTENNAS AND WAVE PROPAGATION | • Syllabus contents modified and integrated practical components introduced in the new syllabus.<br>• LTPC adjustment within 4 credits is done as follows<br>• L-3, T-0, P-2, C-4 |
| Open Elective | | | |
| 3. | 5th/6th/7th | Automotive Embedded Systems | Modify the course contents for 39 hours. |
| 4. | 5th/6th/7th | Evolution of Telecom | Modify the course contents for 39 hours. |
| 5. | 5th/6th/7th | MEMS/NEMS | **Introduction of new open elective course:**<br>• BoS Committee members suggested to modify the title to Micro & Nano Electromechanical System.<br>A course on Nanotechnology and its Applications can be offered as open elective. |

- **Additional Suggestions from BoS Members**:

- Courses on Advanced Excel, EV Technology, Battery Management can be included.
- University can register in I-stem/IISC to make use of licensed software facilities.

- **Credits Adjustment:**

In adherence with AICTE norms, an increase of 1 credit has been proposed to Project Phase -I so that overall credit allocation for B. Tech (ECE) 2020-24 is increased from 159 to 160 credits.

| Sl.No | Course | Semester | Existing Credits | Proposed Credits |
|---|---|---|---|---|
| 1 | Project Phase -I | 7th | 2 | 3 |

Recommended for approval to meet the Statutory Regulatory Authorities requirements.

**Agenda 4: Approval for the ratified Curriculum, Syllabus and Credits for 3rd year & 4th year for 60:40 scheme B. Tech (ECE) 2021-25 - Increase in credits from 159 to 160.**

| Sl. No | Semester | Subject Title | Suggestions by the BOS Committee |
|---|---|---|---|
| 1. | 6th | RF and Microwave Engineering | ▪ Lab and practical components modified in the new syllabus.<br>▪ Syllabus contents reduced to match with the credits<br>▪ COs need to be modified. |

**Credits Adjustment:**

In adherence with AICTE norms, an increase of 1 credit has been proposed to Project Phase - I so that overall credit allocation for B. Tech (ECE) 2021-25 is increased from 159 to 160 credits.

| Sl.No | Course | Semester | Existing Credits | Proposed Credits |
|---|---|---|---|---|
| 1 | Project Phase -I | 7th | 2 | 3 |

Recommended for approval to meet the Statutory Regulatory Authorities requirements.

**Agenda 5: Approval for Ratification of M. Tech mandatory credits - Increase in credits from 64 to 72 for the Batch 2022-24.**

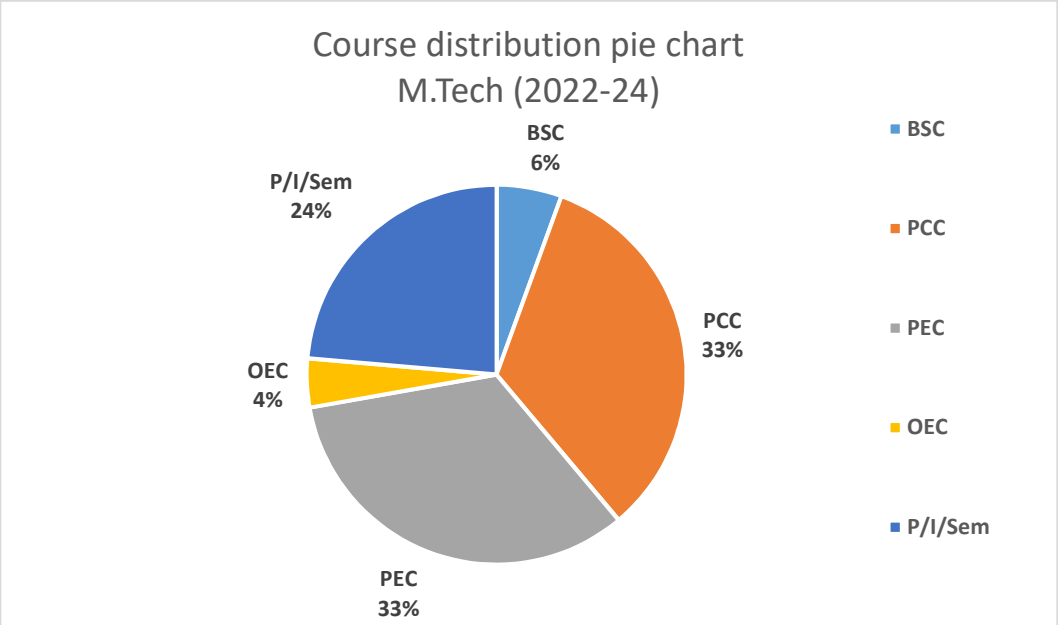
Ratification of mandatory credit increase in the M. Tech program, for the Batch 2022-24. The proposal entails raising credits from 64 to 72, strategically achieved through the following modification.

| Sl.No | Course | Semester | Existing Credits | Proposed Credits |
|---|---|---|---|---|
| 1 | Dissertation phase 1 | 3rd | 3 | 5 |
| 2 | Seminar | 3rd | - | 2 |
| 3 | Dissertation phase 2 | 4th | 6 | 10 |

This modification is proposed to enhance research exposure, presentation skills, and project rigor.

Recommended for approval to meet the Statutory Regulatory Authorities requirements.

**Program Structure (2023-2025 Scheme)**




**Total Credits – 72**

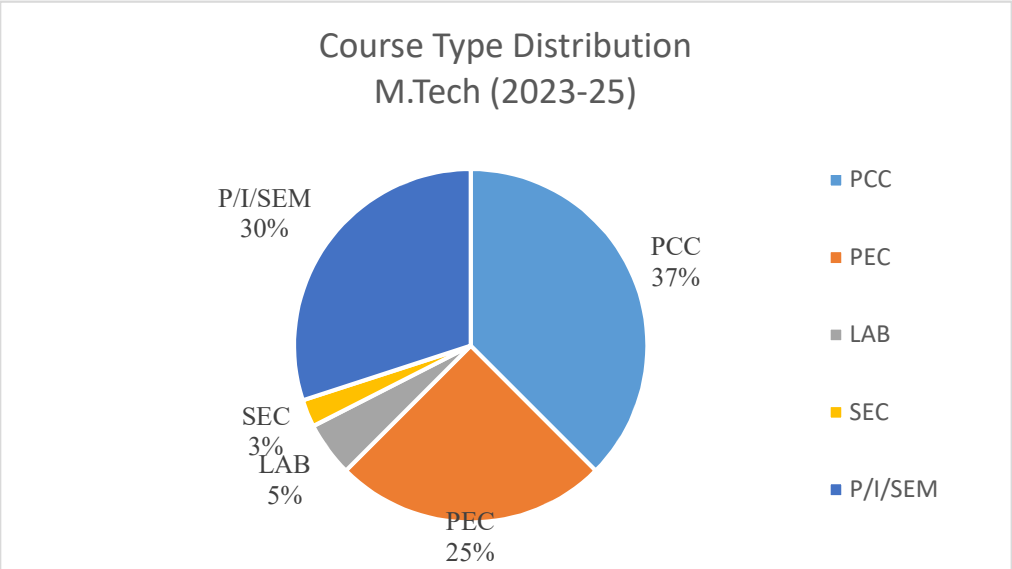
| | |
|---|---|
| **BSC** | Basic Sciences (Subjects such as Physics, Chemistry, Maths) |
| **HSC** | Humanities Sciences |
| **ESC** | Engineering Sciences Courses (subjects Such as, 1st year EC, EE, CPP, etc.,) |
| **IPCC/PCC** | Integrated Program Core Courses / Program Core Courses |
| **PEC** | Program Elective Courses |
| **OEC** | Open Elective Courses |
| **SEC/AEC** | Skill Enhancement Courses / Ability Enhancement Courses |
| **P/I/Sem** | Major Project/Technical Seminar/Internship |

**Agenda 6: Approval for offering M.Tech Embedded System with specialisation in IOT for the Batch 2023-25.**

Draft curriculum with credits were presented to give insights into the programme.

Recommended for approval of the programme name.

**Program Structure (2023-2025 Scheme)**




**Total Credits – 80**

| | |
|---|---|
| **PCC** | Integrated Program Core Courses / Program Core Courses |
| **PEC** | Program Elective Courses |
| **Lab** | Laboratory |
| **SEC** | Skill Enhancement Courses |
| **P/I/SEM** | Major Project /Internship/Technical Seminar |

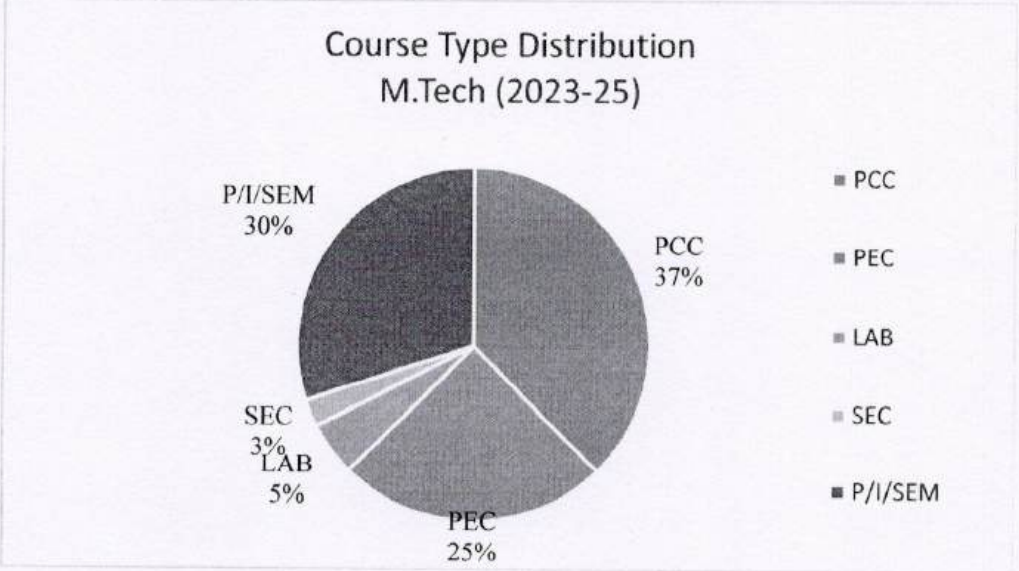
**Signature of Chairman of BOS**
**Department of Electronics and Communication Engineering**
**School of Engineering**
**Dayananda Sagar University – Bangalore-560068**

**Agenda 6: Approval for offering M.Tech Embedded System with specialisation in IOT for the Batch 2023-25.**

Draft curriculum with credits were presented to give insights into the programme.

Recommended for approval of the programme name.

**Program Structure (2023-2025 Scheme)**




**Total Credits – 80**

| | |
|---|---|
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| **P/I/SEM** | Major Project /Internship/Technical Seminar |

Dept. of Electronics and Communication Engineering, SOE, DSU ★ Bengaluru 560 068

14/8/2023

**Signature of Chairman of BOS**
**Department of Electronics and Communication Engineering**
**School of Engineering**
**Dayananda Sagar University – Bangalore-560068**

# DAYANANDA SAGAR UNIVERSITY

## MINUTES OF BOS MEETING

- School : School Of Engineering
- College : Dayananda Sagar University
- Program/Department : Electronics and Communication Engineering
- Mode of BOS Held : Offline and Online (https://meet.google.com/rbw-zobu-usq?authuser=0)
- Date : 14th August 2023
- Venue : 3rd Floor Board Room A Block
- Time : 02:00 PM to 5: 00 PM

**Members Present:**

| Sl. No | Name | Affiliation | Signature |
|---|---|---|---|
| 1 | Dr. Theodore Chandra S | Chairman and Associate Professor, Department of ECE, SOE, DSU | 14/8/2023 |
| 2 | Mr. Kiran Kumar Kulkarni | Global Industry Manager-Engineering and Technology Services, Mathworks India pvt ltd. | https://meet.google.com/rbw-zobu-usq?authuser=0 |
| 3 | Dr. Vasantha M H | Associate Professor, Department. of ECE, NIT, Goa | https://meet.google.com/rbw-zobu-usq?authuser=0 |
| 4 | Dr.Srinivas Talabattula | Professor - ECE Indian Institute of Science, Bangalore | 14.8.2023 |
| 5 | Dr. Preeta Sharan | Professor, Dept of ECE, Oxford College of Engineering, Bangalore | Preeta Sharan 14/8/23. |
| 6 | Dr. Pushpa P.V | Professor, Department of ECE, SOE, DSU | 14.8.2023 |
| 7 | Dr. Arungalai Vendan | Professor, Department of ECE, SOE, DSU | 14/8/23 |
| 8 | Dr. Rupam Bhaduri | Professor, Department of ECE, SOE, DSU | 14/8/2023 |
| 9 | Dr. Saara K | Associate Professor, Department of ECE, SOE, DSU | Saara 14/8/2023. |
| 10 | Mr. Nadeem Pasha | Assistant Professor, Department of ECE, SOE, DSU | 14/8/2023 |
| 11 | Rida Fatima | Supply Chain Engineer, BMW India Pvt Limited. | 14.8.2023 |

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|---|---|---|---|
| 12 | Dr. B M Ashwin Desai | Associate Professor, Department of ECE, SOE, DSU | 14/8/23 |
| 13 | Dr. Supraja Eduru | Assistant Professor, Department of ECE, SOE, DSU | 14/8/23 |
| 14 | Prof. Kanmani B S | Assistant Professor, Department of ECE, SOE, DSU | B.S. 14/8/23 |
| 15 | Prof. Manasa K R | Assistant Professor, Department of ECE, SOE, DSU | 14/8/23 |
| 16 | Dr. Vinu R | Associate Professor, Department of ECE, SOE, DSU | 14/8/23 |
| 17 | Dr. Gayathri K M | Associate Professor, Department of ECE, SOE, DSU | 14/8/22 |
| 18 | Dr. Sneha Sharma | Assistant Professor, Department of ECE, SOE, DSU | 14/8/22 |
| 19 | Dr. Mukthi Chaturvedi | Assistant Professor, Department of ECE, SOE, DSU | |
| 20 | Prof. Kokila S | Assistant Professor, Department of ECE, SOE, DSU | 14/8/2023 |
| 21 | Dr. Bhawani Patnaik | Assistant Professor, Department of ECE, SOE, DSU | 14/8/2023 |
| 22 | Arvind Srinivasan | Senior Researcher, Astar, Singapore | https://meet.google.com/rbw-zobu-usq?authuser=0 |
| 23 | Prof. Sharanbasavaraj | Assistant Professor, Department of ECE, SOE, DSU | 14/08/2023 |
| 24 | Prof. Shwetha M. P | Assistant Professor, Department of ECE, SOE, DSU | Shwetha M.P. |
| 25 | Abhinav Karan | Assistant Professor, Department of EE, SOE, DSU | |
| 26 | Dr. Pushpa Mala. S | Associate Prof Dept of ECE SOE, DSU | |

List of Enclosures based on the Decisions/Resolutions/Recommendations submitted:

| Enclosure | Particulars |
|---|---|
| 1 | Annexure - I |
| 2 | 1st year Scheme and Syllabus for Introduction to Electronics and Introduction to Electrical |
| 3 | 2nd Year scheme and syllabus and 3rd and 4th year scheme. |
| 4 | 7th and 8th Sem scheme and ratified syllabus for Robotics and Automation, Antenna and Microwave and MEMS/NEMS |
| 5 | 3rd and 4th year scheme and syllabus for RF and Microwave |
| 6 | M.Tech scheme for 2022-24 batch. |
| 7 | M.Tech proposed scheme for 2023-25 batch. |

## Annexure - I

Photograph and screenshot from the BOS Meeting

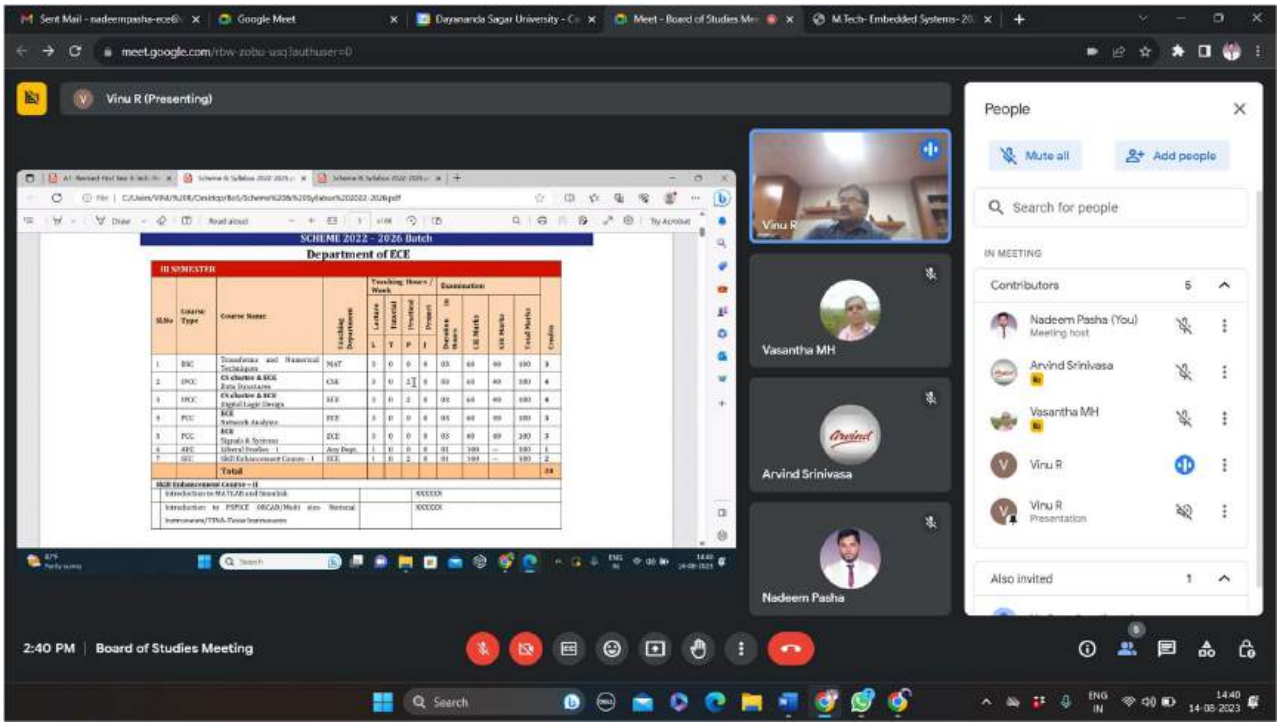


*Fig.(1) Screenshot of google meet session*


*Fig.(2) Members during discussion*

**DAYANANDA SAGAR UNIVERSITY**

**SCHOOL OF ENGINEERING**

**DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING**

**B.Voc MECHATRONICS**

**Minutes of 3rd BOS Meeting held on 14th August 2023**

**Subject:** Board of Studies- Department of Electronics and Communication Engineering
B.Voc Mechatronics

**Venue:** Autodesk Lab, 1st Floor, Block A, DSU Campus-3

**Date:** Monday, 14/08/2023

## Agenda

| Sl. No | Details |
|---|---|
| 1 | Finalization of scheme for all semesters and syllabus for I and II Sem courses for 2023-24 curriculum B.Voc, Mechatronics. |
| 2 | Finalization of Scheme for III to VI sem courses 2023-24 scheme (B.Voc Program in Mechatronics for Regular students) |
| 3 | Discussion of introduction of OJT in B.Voc syllabus. |
| 4 | Any other matter of Academic interest |

**Points Discussed and Observations:**

- Dr. Pushpa Mala S welcomed all the members and briefed the agenda.
- The details about totals credits 180(108 Skill Components +72 Skill Components) including was briefed.
- Evaluation Scheme was discussed to be followed as per University Norms (60CIA +40SEE).
- On-Job-Training is proposed for 08 Credits. This will be handled by DSU Staff. The modalities will be discussed and considered from III Sem onwards.
- Project will be done in 5th and 6th semester.
- Communication Courses are introduced as Elective Courses.
- Elective Courses and Audit Courses will be handled by Staff of DSU.
- There is a modification in 22% (OJT 24C+ additional elective 12C+ Project 5th Sem 4C) of the syllabus due to introduction on On-Job-Training Courses and additional elective courses compared to the previous curriculum.

The observations during the discussion are presented below.

**Agenda 1 Finalization of scheme for all semesters and syllabus for I year courses for 2023-24 onwards curriculum B.Voc Mechatronics**

The detailed scheme for 2023-24 curriculum for all the semesters and syllabus for first and second semester is attached as Annexure-I. There is no change in these.

**Agenda 2: Finalization of Scheme and Syllabus for I and VI Sem courses 2023-24 scheme onwards.**

- Around 22% percentage of the syllabus has been modified compared to the previous curriculum

The detailed scheme for 2023-24 onwards curriculum for I,II and III semesters are attached as Annexure-II

DAYANANDA SAGAR UNIVERSITY

**Agenda 3: Discussion of introduction of OJT in B.Voc syllabus.**

Based on the requirements of statutory bodies like AICTE and UGC for BVoc programs the OJT is proposed. There will be a discussion in this regard, to accommodate the changes and presented in the next BOS.

**Summary**

The major highlights of the discussion as follows:

- Committee agreed broadly to the syllabus presented and there are some suggestions related to OJT.

# DAYANANDA SAGAR UNIVERSITY
## School of Engineering

### Minutes OF BOS MEETING

- School : School of Engineering
- College : Dayananda Sagar University
- Program/Department : B.Voc Programs, B.Voc in Mechatronics
- Mode of BOS Held : Offline
- Date : 14th August 2023
- Venue : Autodesk Lab, Block A, DSU
- Time : 10:00 AM

**Members Present :**

| SL. No. | Name | Designation & Affiliation | Signature |
|---|---|---|---|
| 1 | Dr.Girisha G S | Professor & Chairman, Dept of CS&E Dayananda sagar University | 14/8/23 |
| 2 | Dr.Vinayak Hemadri | Professor & Chairman, Dept of Mechanical Engineering, Dayananda sagar University. | |
| 3 | Dr.Theodore Chandra | Associate Professor & Chairman, Dept of ECE, Dayananda sagar University | 14/8/2023 |
| 4 | Prof. Viswanathan | Dy. General Manager, Curriculum Department. NTTF | |
| 5 | Prof. Jagdish | Divisional Manager, IT Department, NEC. NTTF | 14/8/23 |
| 6 | Prof. Jasmi | Manager, Academic Coordinator, NTTF | 14/08/2023 |
| 7 | Prof. Nandish B M | Asst Manager, Shop floor Incharge, BTC, NTTF | 14/8/23 |
| 8 | Prf. Jyothi | STO, Assessment and Evaluation Department, NTTF. | 14/08/23 |
| 9 | Prof. Santhosh Joshi | Dy. Manager, BTC, AIC, NTTF | |
| 10 | Dr. Basavaraj Hiremath | Professor, Dept of CS&E Dayananda sagar University | |
| 11 | Dr. Bondu Venkateswarlu | Associate Professor, Dept of CS&E Dayananda sagar University, | |

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|---|---|---|---|
| 12 | Prof. Nandini | Assistant Professor, Dept of CS&E Dayananda sagar University, | |
| 13 | Dr. Saravana Bavan | Associate Professor, Dept of Mechanical Engineering, Dayananda sagar University | |
| 14 | Dr. Shashidhara LC | Assistant Professor & B.Voc SPOC, Dept of Mechanical Engineering, Dayananda sagar University, | 14/8/22 |
| 15 | Prof. Karthik | Assistant Professor, Dept of Mechanical Engineering, Dayananda sagar University | |
| 16 | Dr. Pushpa mala | Associate Professor, Dept of ECE, Dayananda sagar University | |
| 17 | Dr. Sneha Sharma | Assistant Professor, Dept of ECE, Dayananda sagar University | 14/8/22 |
| 18 | Mr. Vijayakumar | Dy Director, Training and Placement, Dayananda Sagar University | |
| 19 | Dr. Supraja | Assistant Professor, Dept of ECE, Dayananda sagar University | E. Supraja |
| 20 | Mr. Narendra V | Mechanical Component Engineer, RGBSI, Bangalore | V. |