

**Department of Electrical and Electronics Engineering**  
**Minutes of Board of Studies**

Mr. Madala Venkateswara Rao, Managing Director, SVR Electrical Pvt.Ltd has granted a leave of absence.

The Chairman of BOS, Department of Electrical and Electronics Engineering (EEE), has welcomed all members and briefed the meeting agenda that has been deliberately considered for discussion.

**Agenda-1: Constitution of Board of Studies**

The Chairman has briefed the UGC guidelines for the constitution of the BOS of the EEE department.

**Agenda-2: Introduction of BOS members**

The Chairman has introduced the BOS members.

**Agenda-3: Views on autonomous academic regulation and course structure**

The Chairman has briefed the college academic committee recommendation on a curriculum framework. These are:

- The course structure must adhere to the APSCHE's guidelines in terms of the following.
  - i. Number of theory and practical courses
  - ii. Course categories
  - iii. Semester credits
- Total credits-160
- Both theory and practical to be evaluated for 100 Marks
- Internal Assessment: 30 Marks
- External Evaluation: 70 Marks
- Credit Structures for theory, tutorial, and practical courses, etc.,

**Agenda-4: Finalization of the course structure from Semester I to Semester VIII.**

The Chairman has presented the course structure drafted by the department syllabus framework committee based on stakeholders' feedback analysis. The following resolutions were taken in consultation with the interdisciplinary members.

- The BOS is decided to offer a course Electrical Installation and Electronics Engineering Practice to EEE and Electronics Communication Engineering (ECE) Programmes in I-semester. This course combines the Electrical Engineering



workshop and Electronics workshop as per JNTUK R19 regulation. In the proposed course respective theory component is included. It composes two parts.

Part A: Electrical Installation

Part B: Electronics Engineering Practice

- Part A is handled by the EEE department, whereas Part B is dealt with by the ECE department; however, the EEE department gives the course code.
- It is decided to offer a course Network Analysis for EEE and ECE Programmes in the II semester. In which the courses Electrical Circuit Analysis-I and Network analysis are normalized.
- It is decided to introduce a theory course, Basics of Mechanical Engineering, and practical course Mechanical engineering Lab in II semester. As per JNTUK R19 regulation, it was Thermal and Hydro Prime movers in 2<sup>nd</sup> year I semester. At the same time, the lateral entry students have studied this course at their Diploma level.
- A practical course IT workshop is introduced in II semester instead of Fundamentals of Computers, giving hands-on experience to the students.
- A course Mathematics -III (Numerical methods and Transform) is introduced at the III semester level to facilitate both regular and lateral entry students.
- As the course Electrical Circuit Analysis-I is suitably reframed as Network Analysis simultaneously, Electrical Circuit Analysis-II is reframed as Electrical Circuit and Synthesis in semester III.
- The GATE syllabus has been observed that total weightage has been given to the course signal and system. In contrast, combined weightage has been given to the course analog and digital electronics.
- Therefore, it is decided to normalize the courses Basic Electronics and Devices, Switching Theory and Logic Design, and Linear IC Applications. For this purpose, it is decided to follow the AICTE model curriculum to offer the following courses:
  - Analog Electronics
  - Analog Electronics Laboratory
  - Digital Electronics
  - Digital Electronics Laboratory



- Signals and Systems
- Microprocessors and Microcontrollers
- Microprocessors and Microcontrollers Laboratory
- The drafted course title DC Machines and Transformer is suitably changed into Electrical Machines-I to map with laboratory course.
- Likewise, the drafted course title AC Machines is suitably changed into Electrical Machines-II to map with laboratory course.
- It is decided to offer skill orient courses Basics of MATLAB/Simulink and PLC Programming for Automation in III and IV semesters, respectively, as per the APSCHE and alumna feedback analysis guideline.
- It is decided to facilitate JAVA Programming and Python and its applications Laboratories as advanced skill course in V and IV semesters, respectively, as per the guideline of APSCHE and alumna feedback analysis. Therefore, a course Data Structure and Data Structure laboratory is introduced in the IV semester.
- It is decided to normalize the courses Managerial Economics & Financial Analysis and Management Science suitably in the name of Principle of Economics and Management. The same course is introduced in the IV semester.
- It is decided to normalize the courses Power System-I and II as Power Generation and Transmission Systems. The same course is introduced in the V semester.
- In the course, Electrical Measurement (R16) is included Electronics Measurement and suitably named as Electrical and Electronics Measurement. The same course is introduced in the V semester. Consequently, a laboratory course, Electrical and Electronics Measurement, is included in the same semester.
- It is decided to normalize Power System Analysis, Switchgear & Protection for satisfying GATE syllabus and suitably named as Power System Analysis and Protection.
- It is decided to follow the APSCHE's course structure for VII and VIII semesters.
- Finally, the BOS has finalized the new course structure for K20 regulation unanimously.

**Agenda-5:** Finalization of the syllabus from semester I to semester IV.

- The BOS has deeply analyzed the drafted curriculum for K20 regulation, the course content of all subjects from semester I to semester IV have appropriately framed. The semester wise changes are:

**I semester:**

- For Mechanical Engineering (ME), Civil Engineering (CE), Computer Science Engineering (CSE), CSE-Data Science, and CSE-Artificial Intelligence branches have a course Basic of Electrical and Electronics Engineering this semester.
  - The first three units cover basic electrical engineering concepts (DC and AC circuits fundamentals, DC machines and single-phase Transformer, 3 phase induction motor, and alternator). The rest of the two units cover basic concepts of electronics engineering (Rectifiers and Transistors, Operational Amplifiers, and CRO).
  - It is found in the drafted copy that a topic solar cell fundamental is included in the first unit. The department offers non-conventional energy resources as an open elective course in the fourth coming semester. Therefore, the BOS decided to remove the first unit's content. At the same time, a topic introduction about uninterrupted power supply (UPS) is included in the fourth unit to facilitate UPS knowledge.
- The proposed course name Electrical and Electronics Engineering Workshop for EEE and ECE programs, is renamed Electrical Installation and Electronics Engineering Practice. The drafted course content of part-A (Electrical Installation) is reviewed and approved.

**II semester:**

- The EEE department offers a course Basic of Electrical and Electronics Engineering to the IT branch. The contents remain the same as ME, CE, CSE, CSE-AI & DS branches, but the course code is different.
- The EEE department commonly offers a course Network Analysis to EEE and ECE branches. The course comprises the following units fundamental of Electrical circuits, Network topology, Single phase AC circuits with resonance, Network theorems with DC and AC excitation, and Magnetic circuits. The contents are reviewed and approved.

**III Semester:**



- The Electrical Circuits and Synthesis comprises balanced and unbalanced three-phase circuits, transient analysis in DC and AC circuits using differential equation and Laplace transformation, two-port networks, and network synthesis. The contents are reviewed and approved.
  - Additionally, the BOS suggested that Fourier Analysis and Transforms be included in the course Signals and System. The students are studying fundamentals of the Fourier series and Transform in Mathematics-III in the same semester.
  - Electric Circuits, 5E (Schaum's Outline Series) (Sie). The United Kingdom, McGraw-Hill Education (India) Pvt Limited is included in the reference book list.
- The proposed course name DC Machines and Transformer is renamed Electrical Machines-I. The BOS reviewed and approved the course content with the following modification:
  - UNIT-I: Energy conversion and Introduction to DC Machines
  - UNIT-II: Performance of DC Machines
  - UNIT-III: Starting, Speed Control and Testing of DC Machines
  - UNIT-IV: Single Phase Transformer
  - UNIT-V: Testing of Transformers and 3-Phase Transformers
  - Additionally, the following books are included in the textbook list.
    - P. S. Bhimbra, Electrical Machinery, 7<sup>th</sup> ed., Khanna Publications, 2007.
    - S. K. Bhattacharya, Electrical Machines, 3<sup>rd</sup> ed., Tata McGraw-Hill Education, 2010.
    - A.E.Fitzgerald, Charles Kingsley, Stephen D. Umans, Electric Machinery, 6<sup>th</sup> ed., The McGraw-Hill Companies, 2017.
- The course contents of Electromagnetic Fields are reviewed and approved. These are Static electric field, conductors, dielectrics and capacitance, static magnetic fields, magnetic forces, materials and inductance, and time-varying fields and Maxwell's equations. Notably, the subheadings are rearranged as per the textbook.

- The Electrical Circuits and Simulation Laboratory experiments are grouped as per the units and decided to verify the experiments using any simulation tool.
  - The experiments in the Electrical Machines-I laboratory are grouped as per the theory contents. Simple experiments may be combined to facilitate a more significant number of experiments in the stipulated period. Additionally, the field test is included in the list of experiments.
- IV Semester:**
- The proposed course name AC Machines is renamed Electrical Machines-II. The BOS reviewed and approved the course content with the following modification:
    - UNIT-I & II address Three-phase induction motor whereas synchronous machines have discussed in the subsequent two units (UNIT-III & IV). Finally, single-phase induction motors have dealt with in the last unit (UNIT-V).
    - It is decided to include all starting methods of single-phase induction detailly in the syllabus.
    - The book following books is included in the textbook list.
      - P. S. Bimbhra, Electric Machines, 2nd ed., Khanna Publishing, 2017.
      - M. G. Say, The Performance and Design of Alternating Current Machines: Transformers, Three-Phase Induction Motors and Synchronous Machines. India, CBS Publishers & Distributors, 2005.
  - The experiments in the Electrical Machines-II laboratory are grouped as per the theory contents.
  - It is reviewed and approved the contents of the course control system. These are mathematical modeling of control systems, time response analysis, frequency response analysis and compensation, stability analysis, and state-space analysis. Additionally, the same course may be offered to ECE students in the same semester. In such a case, the course code must be the same.
- Agenda-6: Selection of skill orient courses**
- The following skill orient courses are selected at III-Semester and IV-semester, respectively.

- Introduction to MATLAB/Simulink
- PLC Programming for Automation

**Agenda-7: Selection of mandatory course**

- The following mandatory courses are selected.
  - Environmental Sciences,
  - Indian Constitution/Essence of Indian Knowledge Tradition
  - Professional Ethics and Human Values
  - IPR and Patent

**Agenda-8: Industry, Institute Interaction-Suggestions for excellence**

- MOUs with different industries to be increased for facilitating the knowledge in Solar PV, Electrical Vehicles, Switchgear and Protection, Industrial automation, etc.,

**Agenda-9: Any other matter with the permission of the chairperson**

Additionally, the following points are discussed/ensured:

- Weblinks to be included in each subject.
- Advanced or application topics may be included in each subject by referring latest edition of the textbook or journals.
- Industry-oriented subjects may be included in the elective course list.

The meeting ended with a vote of thanks.

Vinjanampadu

27/03/2021



Chairman

**CHAIRMAN**  
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