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Class: B.Tech. A and B

Semester: VII

Course: Computer Methods in Power Systems

Course Code: 1EEPE408

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Faculty Innovations in Teaching and Learning: Computer Methods in Power Systems

Introduction

This Course deals with the application of digital computers for power system analysis, including Network Topology, Computer Solution Methods Using the Admittance Matrix, Computer Solution Methods Using the Impedance Matrix, Computer techniques for Load flow analysis, Simultaneous Faults and Analytical Simplifications, Two Component Methods. It also covers the modelling of various power system components. The required mathematical background is presented at the stage. Each Topic includes a number of solved examples, so that students get an insight into the problems in practical power systems. Results from simulation are presented wherever applicable. The simulations have been carried out in MATLAB.

1. Simulation-Based Learning

One innovative approach to teaching Computer Methods in Power Systems involves the use of simulation-based learning tools. Simulation-based learning is a form of experiential learning that provides learners with a real-world-like opportunity to develop and practice their knowledge and skills but in a simulated environment. By providing hands-on experience with software tools and techniques, faculty members enhance student understanding and proficiency in computer methods in power systems.

2. Problem-Based Learning with Software

Another innovation is the incorporation of problem-based learning activities into the curriculum. Faculty members design real-world problems and allowing students to identify problems, and propose solutions. Problem-based learning activities engage students in collaborative problem-solving, critical thinking, and decision-making processes. By Utilizing advanced simulation software to create realistic scenarios for students to analyze and solve, allowing them to gain hands-on experience in computer methods in power systems.

3. Technology Integration and Digital Tools

Faculty members are integrating technology and digital tools into the teaching of computer methods in power systems to enhance student learning experiences. Online collaboration platforms, software tools are used to facilitate teamwork, communication, and data analysis. Students learn to use digital tools to manage problem solving and analyze numerical data in real-time. By incorporating technology into the curriculum, faculty members prepare students for the digital workplace and equip them with essential skills for managing problem solving in a technology-driven world.

4. Flipped Classroom Approach: Implementing a flipped classroom approach where students review lecture materials independently before class and use class time for hands-on activities, discussions, and problem-solving exercises.

5. Peer Teaching: Encouraging peer teaching and mentoring, where more experienced students assist their peers in understanding complex concepts and techniques related to computer methods in power systems.

Conclusion

Innovations in teaching computer methods in power systems are transforming the educational experience for students, fostering active learning, critical thinking, and practical application of knowledge. By leveraging simulation-based learning and digital tools, faculty members are equipping students with the skills, competencies, and mindset needed to succeed in numerical solving roles. As technology continues to advance and industry demands evolve, faculty members remain committed to innovating their teaching methodologies to prepare students for the challenges and opportunities of the future.

Subject In-charge:

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