

Outcome-Based Pedagogical Approach for Energy Conversion Laboratory Course of Mechanical Engineering UG Programme

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Abstract The Energy conversion course constitutes the application of knowledge acquired in different thermal engineering courses related to classical sciences of thermodynamics, fluid mechanics, turbo-machinery and heat transfer. The abstract ingredients in these courses demand an inquisitive approach of delivery and assimilation of the concepts due to which large group of learners lose focus on the course. This consequently ruins the attentiveness of learners towards these courses and hence demands for modified pedagogical practices that promote effective learning. The majority of learners have an apprehension to learn these courses owing to the phobia developed towards fundamental physics and mathematics. In view of this, the Energy conversion laboratory course that integrates the assimilated knowledge of thermal engineering courses demands special attention to keep the student fraternity informed about the latest innovations happening in this field of engineering.

The students undertaking this laboratory course will be given hands-on experience on the intricate concepts that was earlier restricted to mere reading of concepts. This approach will introduce the concept of categorizing the course content into different category of modules that includes demonstration, exercises, structured enquiry and open-ended projects. This practice will benefit the students to a great extent thereby promoting them to undertake capstone projects and research activities.

Keywords Energy conversion • IC engines • Structured enquiry and open-ended problems

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