Energy Engineering BS Degree

Department of Mechanical Engineering

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A Presentation to DIAC

Background

- “Energy Economy” is predicted to be dominant in next few decades.
- Significant federal funding has been and will be devoted to renewable energy research and technology development.
- Commercialization is the goal, meaning the energy sector will grow.
- The needs of engineers with training in energy engineering will be in demand.

Why us?

- Current BS programs in energy engineering are not research-based. The curriculum covers broad topics without depth.
- IUPUI has the research infrastructure (LCRE). It creates the depth and will provide frontier knowledge to students.
- Both ME and ECE programs can offer fundamental engineering courses required for energy engineering.
- The curriculum will provide bridge for students to energy related graduate programs.
- There are many energy related companies in Indiana, which provide internship and co-op opportunities and guidance to the new degree program.

Current Status

- LCRE has been supported by $5M external fund for renewable energy research. Research activities are increasing.
- IUPUI has created partnership with energy related companies, such as Earth Solar, AlgaeWheel, Xylanco, Horizon Wind Energy, I-Power Energy Systems, Tawas, Rolls-Royce, Cummins, IPL, Midwest ISO, and Delphi through E&T and LCRE. Collaborative research with national labs has been established.
- A proposal for the new degree has been developed.
- The proposal has been endorsed by the campus administration, both ME and ECE dept., and ME IAB.

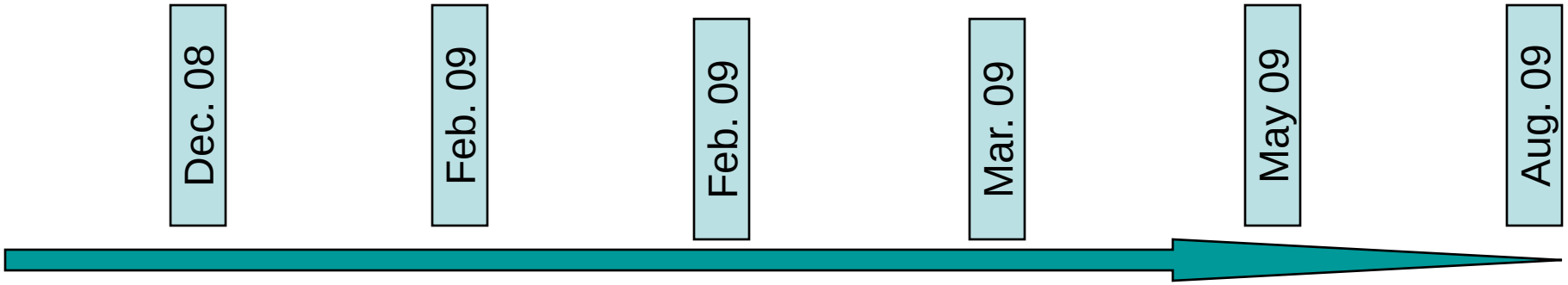
Curriculum

• Science and Math courses	30 cr.
• Engineering Fundamentals (ME and ECE)	44 cr.
• Energy Engineering courses	28 cr.
• Technical Electives	6 cr.
• General Education	21 cr.
Total	129 cr.

Resources Needed

- Six new faculty in the following six areas: solar energy, wind energy, fuel cell, bio-fuel, power electronics, and material engineering
- Research lab space: 2,500 s.f.
- Teaching lab space: 1,000 s.f.
- New faculty offices
- Startup fund
- Equipment budget

Critical Path for Approval



Dept. App → Senate App. → Budget → APPC Approv. → PU Approv. → ICHE Approv.

IAB Endorse.

ECE Endorse.

DIAC Endorse.

Market Survey

Industry survey

LCRE Endorse.

PUME Endorse.

SOS Endorse.