

# *Industry Expectations from Academia*

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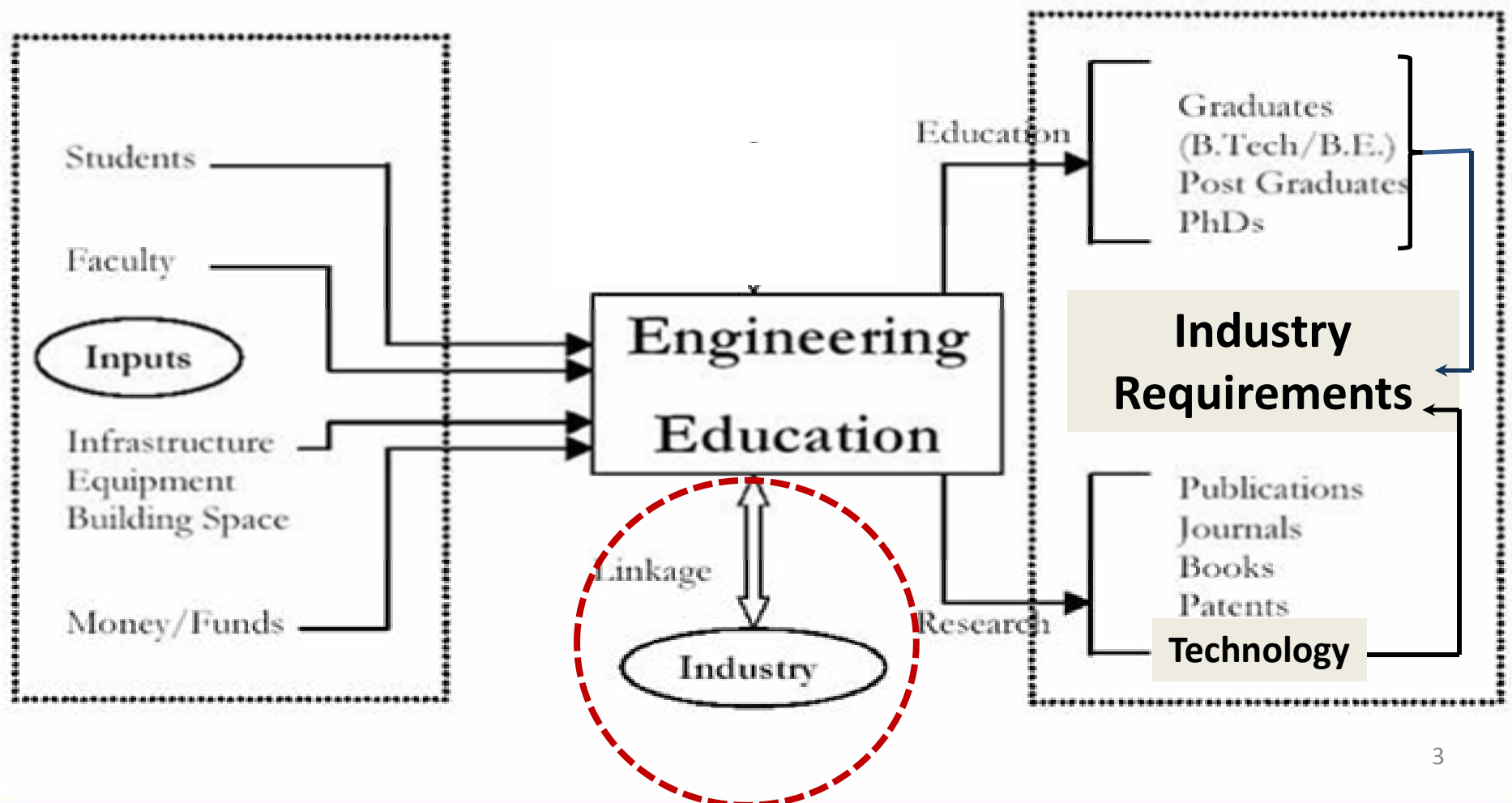
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## *Industry Expectations*

- ❑ Expects quality human resources with needed skills, good aptitude for team work and basic knowledge of system engineering
- ❑ Wants academic programmes and curriculum to stay aligned with Industries needs to the extent possible.
- ❑ Looks for inputs from academia in specific designs, process improvement and also bettering the machine performance
- ❑ Participation in technology development which requires specific research or development work.
- ❑ Use of specialised Labs in Academia for developmental and testing requirements.
- ❑ Involvement in long term research needed by Industry.

# Linkage with Industry and Education

## Input-Output for Engineering Education



## *Human Resource Skills needed for Industries*

- ❑ Abilities to apply knowledge of engineering or management sciences for development or overall management.
- ❑ Knowledge and aptitude for product and systems, facility build up, management of plants and facilities.
- ❑ Meeting the production needs understanding the quantity & quality requirements, the economic, constraints, environmental aspects and other related issues.
- ❑ System engineering and teamwork skills to function on multidisciplinary systems.
- ❑ Capability to identify, formulate and solve engineering problems of products and systems of the Industry.
- ❑ Self education and continuous learning relevant to the products, systems and management.
- ❑ Use of various techniques, skills and modern tools for engineering development and enhancement of production.

## *Possible Actions to meet Industry HR Needs*

- To give realistic practical orientation maximally by having close links with appropriate industrial establishments
- Design of innovative laboratories at institutions to include state-of-the art industrial experiments
- Focus on hands-on industrial experience with 'real life' experiments linking with curriculum right from day one.
- To set up suitable mechanisms to promote continuous interactions.
- Creation of “virtual” laboratories to mimic industrial environment, which can be funded from industry.
- Some of these suggestions are being practiced at IIST an Institute of Space Department.

## *Understanding the Academic Aspirations*

- ❖ Academic focus is by and large the addition of knowledge in their area of expertise.
- ❖ Prefers the research content and tries to solve by considering the multiple options. Time consuming.
- ❖ Research leads to publication of papers or filing the patents rather than realising the proto products in deliverable form.
- ❖ Question of patent rights where joint industry academia research is involved.
- ❖ Lack of interest or experience in transforming the Lab to technology development and to commercially viable production.

## *Gap between Industry expectation and Academia*

- ❑ Industry focus is always production orientation with commercial viability. Investment in research is very poor.
- ❑ HR needs are met by attitude based selection and impart intense training for the needed skills.
- ❑ The industry research, if any is need based, mostly application and economic oriented.
- ❑ Academic research is always open ended, mostly peer reviewed and publication oriented.
- ❑ Minimal interaction between academia, R&D engineers and industries in education and research projects.

## *How to bridge this Gap between Industry and Academia*

- ❑ Suitable mechanism to have continuous interaction to change the perceptions of research, technology development and production
- ❑ Carry out gap analysis periodically and tune the curriculum to meet the industry needs without affecting the academic requirements.
- ❑ Introducing the add-on or guest lectures from industry experts on the subject they learn aligning with curriculum.
- ❑ Arranging the visit for students to relevant identified Industries to expose them to practical applications of the subject they study.
- ❑ Seek the help of Industries in procuring the suitable equipment and machineries. Industries can even provide the old working equipments to academia.



## *Suggested Practical Solutions*

- ❑ Faculty members to go on sabbatical at Industrial establishments relevant to their area of expertise
- ❑ Establish a research wing in the Industry with enhanced funding and involve academic experts
- ❑ Joint development of advanced products needed by Industry in collaboration with academia.
- ❑ Introduce Industry experts in committees which frame academic programmes.
- ❑ Setting up Industry parks near the academic Institutions. (These exercises are successful in a few Institutions)

*Thank You*