Student projects in the BSc and MSc programs of Medicine and Technology

Supervision with external and internal clients

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Medicine and Technology

• Enrollment at:
  • University of Copenhagen (30%)
  • Technical university of Denmark (70%)

• Admits 60 students per year to the Bachelor program

• Enrollment: 200 bachelor students and 100 Master students

• Projects:
  • Part of course
  • Directed research (special courses)
  • Bachelor projects
  • Master theses
Projects partners within Medicine and Technology

- **Project day** once a year with presentation of approximately 60 projects

- Interdisciplinary: Math, physics, chemistry, physiology, anatomy, cell biology
Rules

- Main advisor from either DTU or KU
- Advisor from company or hospital
- Must have a strong component of biomedical engineering
- Duration:
  - Bachelor thesis:
    - 15-20 ECTS concurrent with other courses
  - Master thesis:
    - 30-35 ECTS (5-6 months)
Aims of student projects

• Student point of view:
  • To graduate
  • Good personal and professional perspectives
  • Feeling of ownership
  • “Making a difference” for society

• University point of view:
  • STÅ
  • Increasing the competencies of the student
  • Publications
  • Innovation

• Industry point of view:
  • Products
  • Innovation

• Hospital point of view:
  • Solving a problem for the patient
  • Publications
  • Innovation
Advantages of including external partners

- **Advisor aspects:**
  - Larger group of advisors to select from
  - Increased pool of advisors and their capacity
  - Increase the pool of advisor competencies
  - A successful project can open doors for future collaboration

- **Student aspects:**
  - Very relevant and therefore more motivating
  - Takes place in a new environment
  - Larger sense of responsibility
  - Can be a career booster at the external partner

- **Company/hospital**
  - Effective way of recruiting
  - Access to university expertise and resources
Disadvantages of including external partners

- **Advisor aspects:**
  - More pressure on university advisor for project to be a success (No guarantee for successful project every time)
  - Much more time spent on meetings out of office and on coordination
  - Can be time consuming to create relationship with extern partner

- **Student aspects:**
  - More demands to fulfill
  - Being caught in clash of culture

- **External partner:**
  - Not same thorough “employment process” as with new employees
Things to consider

• Challenges:
  • Ensure that everybody (including extern partners) have the same expectation of academic demands
  • The student is an ambassador of the education and university
  • Maintain a total sum of responsibility of 100%
  • In some cases, the role of the advisor should be explicitly defined

• Practical matters
  • Non-disclosure agreements
  • Strict hand-in dates
Challenges for the students

• The student must be the project leader of his project

• The student must choose external partner and advisor him/herself

• The student must be self-driven, and take initiative to arrange meetings with advisors and plan what she/he wants to do

• The student must take care to obtain a balance, so input from all advisors are considered
The process

- Find project and advisors (at least one university and company/hospital)
- Write and agree on thesis statement and learning objectives
- Arrange where to carry out project
- Regular meetings with one or more of the advisors
- Status reports or two-week reports?
- Ensure apprenticeship (mesterlære)
- Planning report and defense
- Hand-in
- Defense
Questions to group session

• How do the student, the university advisor and the company/hospital advisor look at the *usefulness*?

• Should the advisor be from DTU or KU?

• Advantages and disadvantages: both scientifically and from a management point of view?

• Standard duration is 5 months: advantages? disadvantages?

• What are the advantages and disadvantages of it being easy/difficult to find a good project?