Master Research Program

Electrical Engineering and Information Technology

- Example for Problem and Process Based Learning -

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Introduction

Vision and History

Program Description

Organisation and Quality Control

Experiences

Conclusions
The German HE System

University

- Diplom-Ingenieur 9 (10) semesters
- Bachelor 6 semesters
- Master 4 semesters
- PhD

University of Applied Sciences

- Bachelor 7(6) semesters
- Master 3(4) semesters
- Diplom-Ingenieur (FH) 8 semesters

The traditional German institution for project and problem based learning
Our Vision

- faculties with successful research activities
- integration of postgraduate students in R&D teams
- project experience coaching academic reflexion
- methodic competences personal competences problem-solving competences
- applied research and development projects
- improvement of R&D quality
- technological and educational competences of professors and staff members
Our History

2004

Joint program of three faculties

2006

GERMANY

Aschaffenburg

Frankfurt

Erfurt

Schweinfurt

Coburg

Würzburg

Nürnberg

Bavaria

2007

FHW-S

Fachhochschule Würzburg-Schweinfurt
University of Applied Sciences

Faculty of Electrical Engineering Schweinfurt
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University of Applied Sciences
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The Master Research Program: Our Solution

Semester 1
- Seminar I
- Project Module I
- 2 CP
- 18 CP

Semester 2
- Seminar II
- Project Module II
- 2 CP
- 18 CP
- 10 CP
- External university
- Techno-logical Module
- 5 CP
- Inter-disciplinary Module
- 5 CP

Semester 3
- Seminar III
- Project Module III
- Master Thesis
- 2 CP
- 12 CP
- 16 CP

- Reflexion
- Project experience
- Knowledge
Organization and Quality Control

Faculty boards in Schweinfurt, Aschaffenburg and Coburg

6 professors and 1 external professor

Professors of the three faculties
(Supervisors / project managers)

Application
Project selection Consultation

Applicants (graduates)

Project proposals and supervision agreement

Board of Examiners
Master Research Program

Approval

Admission test

Approval of individual course tables

Supervision by seminars open to all university members (semi-public)

Each board member can ask for a third expertise

Successful project termination

Graduation "M.Eng."

External university

Project pool

Semester 1
Semester 2
Semester 3
(Master Thesis)

Approval

Registration

Admission

Course tables

Graduation "M.Eng."
Research Proposals

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Supervisor/Coach

Title

Description of the problem

Description of the aim

Initial steps (intended)

Scientific value of project

Proposals for examiners

Decision
Experiences

- 93 research proposals approved
- 63 students approved
- 32 graduates
- 3 students left without degree
- 3 graduates in cooperative PhD programs in Schweinfurt, Aschaffenburg and Coburg
- Some more graduates are actually applying for PhD programs
- Graduates are in responsible positions in research and industry
Conclusions

- Synergetic amplification of research and HE quality
- Project and problem-based learning
- Integration of postgraduate students in R&D teams
- Methodic competences
  - Personal competences
  - Problem-solving competences
- Applied research and development projects
- Technological and educational competences
  - Of professors and staff members
- Project experience
  - Coaching
  - Academic reflexion
- Enhancement of R&D quality
- Faculties with successful research activities
- Integration of postgraduate students in R&D teams
- Project experience
  - Coaching
  - Academic reflexion