

Dual Engineering Study Programme with Focus on Sustainability in Côte d'Ivoire

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Background

- Public universities in Côte d'Ivoire: Learning is **more theoretical** than **practical**
- Human resources managers at Ivorian companies are often convinced that the **knowledge of university graduates** is based on a purely **theoretical foundation**
 - **Graduates** start to work as **trainees** in **industrial companies** for around **two years** after graduation, in order to be considered **full employees**.
 - **Collaboration** between **universities** and **companies** is almost **inexistent**.
- Aim of Dual Engineering Study Program:** Enable students to simultaneously **gain theoretical knowledge** and **learn from practical work** in a **local company** in the field of e.g. **energy** or **water supply**

Methodology

Development of the Study Program

- Creation of a draft of the curriculum to be transferred to Côte d'Ivoire by Hochschule Niederrhein, Germany.
- Matching the draft with the companies needs and government development plan
 - Integration of companies and their interests into the curriculum: Representatives of interested companies and ministries were invited to the workshops.
- Matching the draft with the academic framework at the University NANGUI ABROGOUA
 - Definition of the level of knowledge of an Ivorian bachelor's graduate, so the missing competencies are identified

Selection Process

- Pre-selection with a written test (tasks testing e.g. logical thinking, basic scientific knowledge, etc.)
- Assessment Centre (see Fig. 1)
 - Determine, which competencies are to be tested in which disciplines
 - Determine, which tasks and instruments will be used to test these competencies in an objective way

	Individual Assessment (From Questionnaire)							Group Assessment	Individual Assessment	
	Thermodynamics	Engineering Fundamentals	Mathematics	Energy Management	Design / Construction	Data Analysis & Modelling	Business Fundamentals		Group Exercise or Case study	Project Presentation
Analytical Thinking	A1	B1	C1	D1	E1	F1	G1	GE1	PP1	
Communication				D2			G2	GE2	PP2	INT2
Cultural Sensitivity								GE3		INT3
Team Work								GE4		INT4
Creative Thinking					E5			GE5	PP5	
Problem Solving	A6	B6	C6	D6	E6	F6	G6	GE6	PP6	
Scientific / Technical Credibility	A7	B7	C7	D7	E7	F7	G7	GE7	PP7	INT7

Figure 1: Assessment Centre Evaluation Matrix

Each column = Assessment task to be done by the applicants (partly as group work)

Each row = Competency to be evaluated at different tasks

Each task is used to evaluate several competencies, which are shown in detail as coloured fields in blue, red, and green and their corresponding abbreviations (e.g. A1).

Results

Curriculum-Workshop in October 2021 in Côte d'Ivoire

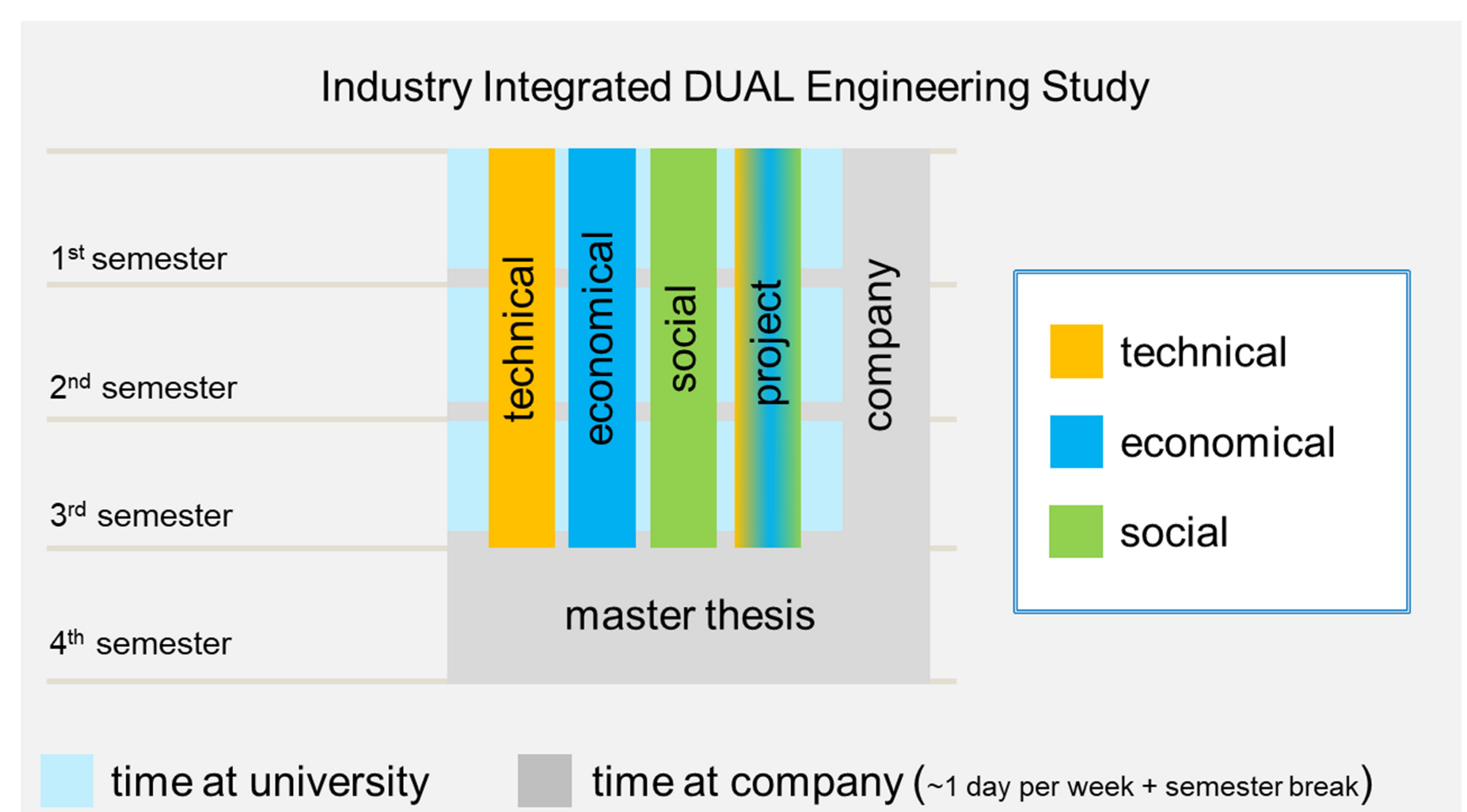


Figure 2: Basic Structure of the Dual Study Programme

- 3 main subjects: "technical studies", "economical studies" and "social studies"
- Modules based on needed competencies are developed
- Additional project modules: Planning, design, construction and economic feasibility calculation of solar-powered electricity and water supply systems for rural regions in Côte d'Ivoire.
- The curriculum is successfully developed and approved to be implemented at the University NANGUI ABROGOUA
- First group selected via the selection process
 - 3 weeks application period
 - 385 interested persons
 - 166 complete applications (35 from female applicants)
 - Best 10 students among the applicants (5 females, 5 males) selected through the assessment centre

Outlook

- Further building of a network of interested business partners from the sectors of electricity or water supply with the willingness to participate in the study programme
 - Explain the company benefits of hiring students from the dual study programme
 - Actively invite companies to information events at the university
 - Open up platforms for the specific exchange between academia and industry
- Develop future projects (e.g. new types of prototypes) within the curriculum
- Develop a possible new main focus for the next group of students
- Expand the dual study programme into other topics of interest

Cooperation Partners



Financial Support

