

# Diferencias entre Arquitectura, Ingeniería Civil e Ingeniería de la Edificación en todo el mundo / Differences between Architecture, Civil Engineering and Building Engineering worldwide

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## Introduction

This report will be a research about the differences between architecture, building engineering and civil engineering, and a global view of them around the world.

## Background

Nowadays engineering is not standardised in a global level, so the problem is that people need to clarify the competence of each one.

The research question is what are the differences between Architecture, Civil Engineering and Building Engineering worldwide?

Observing their definitions: Building engineering is the application of engineering principles and technology to building design and construction; civil engineering deals with the design, construction, and maintenance of the physical and naturally built environment, including works like roads, bridges, canals, dams, and buildings; and architecture is both the process and product of planning, designing and construction.

## Research Aim and Objectives

Against the background earlier outlined, this research project will be undertaken with the aim of differentiate the field of application of these three degrees and become internationalized building engineering.

To achieve this aim, the following objectives will be pursued:

- Objective #1-Look for some countries, and investigate the existence of these careers in the chosen countries.
- Objective #2-Collect data like salaries, years of training, credits, denominations and competences.
- Objective #3-Analyse the result using graphics.
- Objective #4- Compare and draw conclusions.
- Objective #5- Propose a way to make standard these three degrees or to do easier to work in every country having the same qualification.

## Research methodology

The proposed research methodology will be an investigation in order to get more information, due to the almost inexistent study on this topic. It will follow the objectives. The resources required will be non material. Only it is necessary the cooperation of the chosen universities. Therefore this research will be exempt of costs.

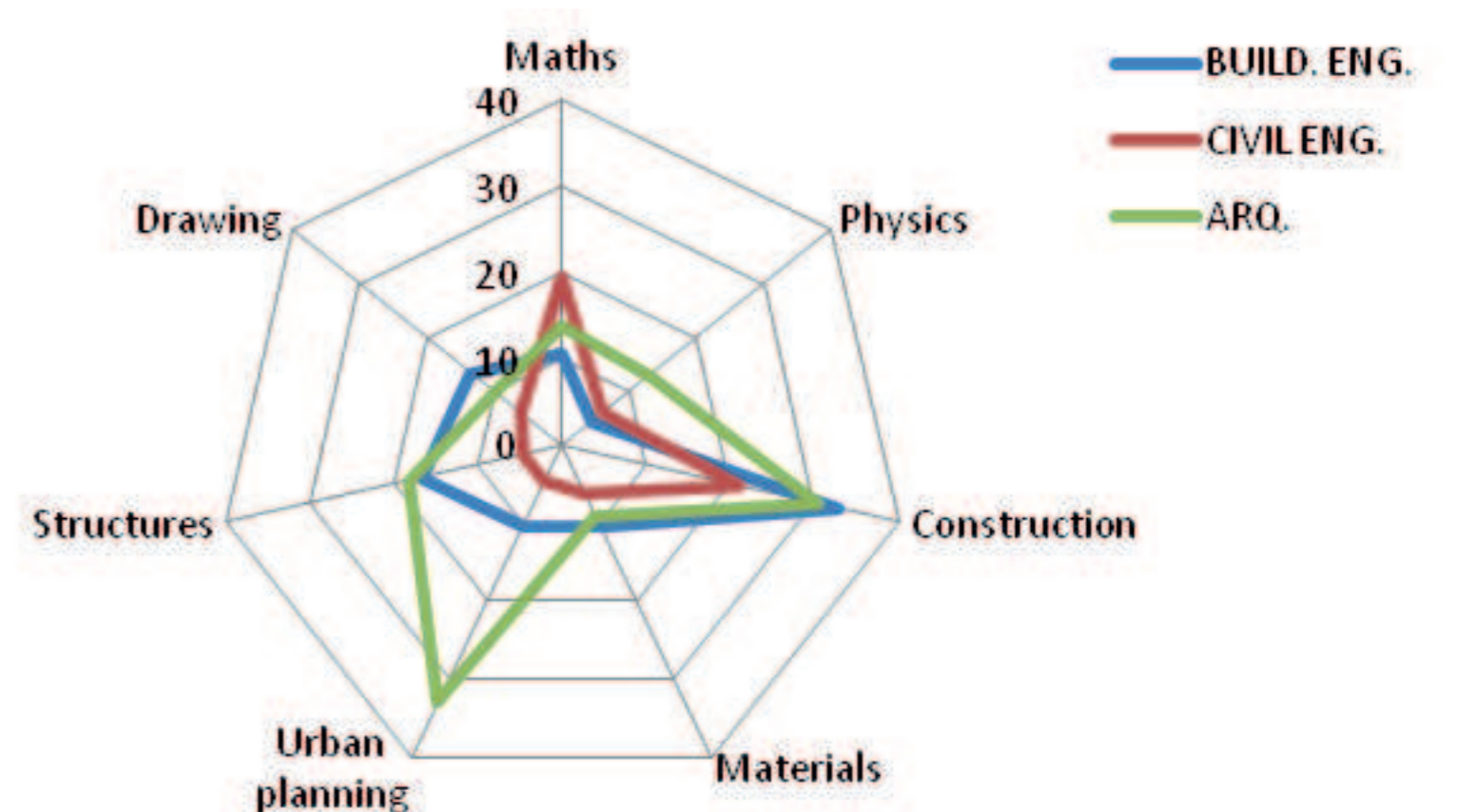
## Literature review

A publication in the Journal of Engineering Design (Nigel Cross & Norbert Roozenburg, 1992) describes the convergence of architecture and engineering in their beginning. Saying that models of the design process in architecture have diverged from the engineering consensus, in response to criticisms from both theorists and practitioners. The authors explain the differences between the engineering and architectural design models and suggest to reintegrate both models to improve design education and practice across the disciplines. And a study of the access profiles of new students to Engineering and Architecture (Vicerrectorado de Ordenación Académica y Planificación Estratégica, 2008), give an idea to compare data by spider graphics.

## Data analysis

The analysis is wide, and here is showed a spider graphic result. Taking into account that before getting this graphic, it has been done: course structure and subject analysis of every chosen country. Besides the chosen countries (Spain, United Kingdom and Germany), it has been done some comparisons between more countries about salaries, years of training and credits.

SUBJECT COMPARISON. SPAIN



## Outcomes

1. Subject's comparisons by country show clearly the existence of wide differences between degrees.
2. Course structure analysis is the more similar between degrees (5 years), with the exemption of Spain.
3. Architecture is the most standardised degree between the chosen countries.
4. Where Building Engineering is standardised, salaries are higher.
5. Despite Building engineering is not internationalised is not the only with differences in the duration and credits between countries. So the way to internationalise is not