



## **ACADEMIC YEAR 2014 – 2015**

### **TITLE OF DIPLOMA THESIS:**

Modeling the relation between safety and productivity in construction sites

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### **ABSTRACT**

One of the main goals for an engineering project coordinator is to ensure health and safety in the working environment. However, most times it turns out difficult to accomplish such a goal, since the construction sector can be really dynamic and the smallest change can impose modifications on the whole project. Health and safety management has been of interest for many researchers, who have over the years concluded to a number of models and management systems. It is widely known that the vast majority of such coordinators intend to achieve the maximum possible profit of each project, as well as the competitiveness of the company they represent and a high level of productivity. However, in case of an accident in the workplace, the repercussions on managing the above goals can be direct. Thus, there is an imperative need to ensure a safe working environment. Nonetheless, most of the times, the case is that a coordinator does not comprehend the interaction among these factors, focusing only on the measurable profit of the project. Taking all the above into account, this paper intends to develop a model to quantify this connection between safety and productivity. The procedure began with an in-depth research of published scientific literature, followed by the discrimination of the factors that can influence health, safety and productivity and were gathered via a questionnaire, replied by experts in health and safety matters. At last, a dynamic model has been developed to foresee any incident in the workplace and quantify its impact on the productivity, by measuring the fluctuation of the safety coefficients.

### **KEYWORDS**

Productivity, Health & Safety, Accident, Modeling