

# A Methodological Approach for the Quality Assurance of Virtual Platforms Delivering Short-Term Online IT Courses.

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**Abstract**— Online course delivery democratizes learning throughout life and creates opportunities for knowledge socialization. Short online IT courses have become famous among the audience. This research paper specifies weights by applying the Best Worst Method (BWM) for the dimensions and indicators determined as criteria a platform needs to meet to be a quality short online IT course delivery platform (SOITCDP). In this context, the paper considers thirteen popular SOITCDP and ViseKriterijumska Optimizacija I Kompromisno Resenje (VIKOR) method to rank them based on their performance. The Sensitivity analysis ensures that the framework universally applies to evaluating any SOITCDP. The evaluation results are presented through comprehensive and interactive dashboards demonstrated on Power BI. The result of the research depicts that the “Teaching Resources” of the dimensions gained the highest weight while the “Attraction” indicator secured the rank one.

The overall performance of platforms showcases that “Udemy” has excelled in all dimensions and indicators. The subsequent study also provides directions for implementing a framework to evaluate the performance of the platforms. The novelty of the research is highlighted on the grounds of implementing a framework unique to the evaluation of short-term online IT courses and the demonstration of results on interactive dashboards.

**Keywords**—BWM, VIKOR, Framework, SOITCDP, Sensitivity analysis.

## I. INTRODUCTION

### A. Background

Education aims to enhance students' personal development in a competence-oriented way to achieve more employment opportunities. "Framework of qualifications" refers to a complete list of benchmarks of competencies. ("Bologna Working Group on Qualifications Frameworks, 2005") It is anticipated that, in the future, online courses will be evaluated concerning the skills that a participant obtained from the selected course and the curriculum it provided. [9]

### B. 21st century learning mechanism

Although reading, writing, and arithmetic skills are traditionally considered fundamental personal development requirements, the new century requires novel approaches. P21-the Partnership for the 21st century has created "The 21st-century Learning Skills Framework" that focuses on the mandatory skills in the continuously changing digital world, namely communication, critical thinking, collaboration, and creativity. [16]

### C. Short online IT courses.

A degree or an apprenticeship is a leap qualification to be recruited for an IT career. But the additional knowledge offered by the short online IT courses keeps a person up to date with the latest advancements in technology and a requirement satisfaction for the promotions. Reputed employers in the IT industry expect candidates to occupy professional certifications in programming languages, methodologies, or software packages. Hence a professional certificate to prove expertise in a programming language, project management, cyber security, or any other discipline is valuable for a person's curriculum vitae despite being a graduate, undergraduate, professional, or schooling student [1].

### D. Quality Assurance

The quality assurance of online education or platforms is a great challenge. Regular assessment of these platforms is necessary to ensure the quality of the service, users' trust, and their believability towards the platform's credibility. Quality is critical for online course delivery platforms to maintain the developer's productivity, user motivation, and the institution's reputation. These assessments need to be complex and should cover all the components or features of the platform. Online education delivery platforms are different from the traditional education delivery setting. Hence the same quality assessments and models do not apply to both types of education. [15]

### E. Problem Definition

Despite the popularity and demand for short online IT courses, they will still be criticized for the platform's quality. Often, the users need help adapting to the pedagogical