



## PROGRAM FOR PASSING PROFESSIONAL EXAM FOR POSITION OF MACHINE DRIVER EXPERIENCE AND CHALLENGES IN FUTURE

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**Abstract** – *The program of preparation for taking the professional exam for the position of train driver and the Program for taking the professional exam for the position of train driver are determined by the Rulebook on professional training, professional qualification and professional examination for the positions of railway workers, Annex 3, which was adopted by the Directorate of Railways on 30.05.2022, Official Gazette of the Republic of Serbia No. 66/22 of June 10, 2022. In order for the train driver trainee to be able to pass the professional exam, it is necessary to pass the preparation for taking the professional exam as well as to master the program for passing the professional exam. The period of preparation and the program for taking the professional exam was reviewed from the current situation, an analysis was made of the preparation and program for taking the professional exam for the position of train driver. The main recommendation is that it is necessary to introduce practicing on simulators into the training program, because some special cases are insufficiently practiced or excluded from practice during the preparation for the professional exam and can only be dealt with in theory*

**Keywords** – *professional exam, train driver, experiences, simulator for train drivers.*

### 1. INTRODUCTION

This paper will present the program for taking the professional exam for the position of train driver, the current method and the experience. The professional exam determines the employee's knowledge to independently perform the work of a train driver. The traineeship of train driver candidates represents an important stage in their professional development because during their career they will face situations that require an accurate and quick reaction. With the introduction of new vehicles appeared the need to increase the level of knowledge and skills as well as to introduce simulators as an addition to the program for passing the train driver professional exam.

#### 1.1. The preparation and program for taking the professional exam for the position of driver

The preparation and program for taking the professional exam is determined by the rulebook on professional training, qualification and examination Attachment 2 and Attachment 3. The time needed for preparation for passing the professional exam is determined by the rulebook and is divided in 2 parts- 12 week period of introduction to other work and 14 weeks of work under supervision of another train

driver. In the first week the candidate will be introduced with the regulations on personal safety, safety and health at work and with the work organisation in the business unit where the professional training is performed. Introducing to a certain jobs means acquiring skills and understanding the work process, getting familiar with the steps and procedures that are part of those jobs. That means knowing the equipment, tools, facilities and devices that are used on those jobs, and specific skills and knowledge needed for those jobs. That also means knowing how to apply regulations relevant for that job and how that affects train drivers work, how to communicate between jobs and train drivers and how to collaborate with other employees. The program for passing the professional exam includes training, knowledge in vehicles and infrastructure. It also includes knowledge in safety regulations, trains braking, managing emergency situations and accidents. This part of the program is highlighted as important because it enables train drivers to assure safety while driving the train. This program includes comprehensive training and examining the theoretical and practical skills. Theoretical exam includes knowing towing vehicles and infrastructure which are key for safety and efficiency of a railway traffic. The ability to notice and react to driving

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irregularities, as well as dealing with accidents and incidents, are essential. The practical exam includes work in the field, where the commission evaluates the application of theoretical knowledge in practice. This includes knowledge of the towing vehicle, traffic and signal regulations, and infrastructure. Successfully passing these exams ensures that train drivers have all the necessary skills and knowledge to perform their jobs safely and efficiently, which is of utmost importance to the entire railway system. Wanting to raise the level of knowledge, skills, and training of train drivers who have mastered the Program and those who have little experience, some companies introduce a simulator into the training of candidates as the most modern tool that will enable raising the level of knowledge and training of train drivers. During the preparation for taking the professional exam, the candidates will have the opportunity to see the application of theoretical knowledge on the simulator, which allows the candidate to see it as a real train ride.

## **2. METHOD OF TAKING THE PROFESSIONAL EXAM FOR THE TRAIN DRIVERS**

The professional exam is determined by the Rulebook on professional training, professional qualification and professional exam. The professional exam is taken before the first independent performance of the driver's duties after employment. The professional exam for the position of driver consists of a theoretical and a practical part. For passing the professional exam, the preparation for taking the professional exam is also determined by the Rulebook on professional training, professional qualifications and professional exam. In order for the employee, sent to take the professional exam, to continue with the program and to be sent to work under supervision, the candidate for train driver first takes the theoretical part of the exam according to the program for taking the professional exam. The theoretical part of the exam is taken after the theoretical training. In the theoretical part of the exam, the employee must demonstrate theoretical knowledge for the duties of a train driver and the tasks of that workplace, and in the practical part, the employee must demonstrate the skills to apply theoretical knowledge in practice in such a way that he can independently perform the duties of a train driver. The theoretical part of the exam is conducted by the employee verbally giving answers to the questions. The practical part of the exam is taken after passing the theoretical part and performing work under the supervision of another train driver for 14 weeks. The test of skills and abilities is evaluated through the jobs and tasks that the candidate demonstrates during the exam while performing the tasks as a train driver.

## **3. EXPERIENCE OF THE PROGRAM FOR TAKING THE PROFESSIONAL EXAM FOR THE POSITUION OF TRAIN DRIVER**

The current way of taking the professional exam for train drivers includes theoretical part that includes theoretical knowledge and practical part where candidates apply their skills and knowlegde in operating the train under real conditions. The program is very specific and precise in terms of requirements and procedures, which helps create a standardized approach to driver training. Although the program is theoretically comprehensive, there is a possibility that the candidate will not be able to apply all the acquired knowledge in practice due to the lack of real situations. Here it is important to draw attention to the following. Many candidates will not experience all the critical situations during the expected 14 weeks of supervised work. Therefore, it is necessary to supplement the practical training with simulator training, as this will provide the necessary experience in rare but very dangerous situations for the safety of the train.

The need to add to the program for passing the professional exam for the position of driver by introducing training on simulators

Introduction of additional training on simulators in the training of train drivers, advantages and importance.

Learning simulators have become an indispensable part of train driver education, offering numerous advantages that complement and improve traditional training methods. Several key arguments that confirm the usefulness of simulators in this area:

**Realistic experience:** Simulators provide a realistic environment that mimics train driving, including visual and auditory elements, haptic feedback and simulation of different driving scenarios. This allows train drivers to gain experience in operating a train in a safe environment, without the risk of accidents or injuries.

**Controlled environment:** Simulators allow control over all aspects of the environment, including weather conditions, traffic situations and technical failures. It gives instructors the opportunity to challenge drivers in a controlled environment that helps them develop decision-making and problem-solving skills in real-world situations.

**Repetition of exercises:** Simulators allow train drivers to repeat exercises and scenarios as many times as they want, without additional costs or time constraints. This helps them to improve their skills and build confidence in operating a train in all conditions

**Cost savings:** Simulators are significantly cheaper to use than training on real rails. Savings are achieved through lower fuel costs, wear and tear of rolling

stock and infrastructure maintenance.

**Safety:** Simulators eliminate the risks of accidents and injuries that are inherent in training on real rails. This results in safer and more efficient train driver education.

**Environmental sustainability:** Simulators are a more environmentally friendly alternative to training on real rails, because they do not produce noise, air pollution and consume less fuel.

**Training for specific situations:** Simulators can be used to train drivers to operate specific types of trains, drive on specific lines or face specific challenges. This helps prepare drivers to work in real-world scenarios.

**Development of soft skills:** Simulators can be used to train drivers in soft skills such as teamwork, communication and decision-making under stress. This helps them become better and more efficient drivers.

**Adaptability:** Simulators can be adapted to the individual needs and abilities of the driver, which makes them ideal for education at all levels of experience.

**Availability:** Simulators have become increasingly available and inexpensive, making them a more accessible option for educational institutions and railway companies.

#### 4. CONCLUSION

The introduction of simulators in the program for taking the professional exam for train drivers represents a significant improvement in training, enabling more efficient, safer, and more economical preparation of candidates. Although there are implementation and maintenance challenges, the benefits of simulators in terms of training quality and safety significantly outweigh these obstacles. Train drivers who have started to drive independently are

expected to prioritize safety over efficiency. However, proper and efficient driver handling is critical to safety when it comes to and life and infrastructure, time efficiency and economy. Even a small difference in expertise can make a big difference in terms of increased risk. It can therefore be argued that candidate training with simulator training should ensure that most of the potentially critical situations that may occur should be practically trained until candidates have mastered them. Simulator training can be used as a supplement to internships to ensure that train drivers can handle a variety of situations and special cases that rarely occur in real life.

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