



## DEVELOPMENT OF FIRE PROTECTION ENGINEERING EDUCATION IN HUNGARY

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### ABSTRACT:

The disaster management legal and administrative basic education has taken place since 2013. at the National University of Public Service. The experiences of the basic education are available, and based on them there is necessary to create a fire protection engineering higher education. In this article the authors will in detail introduce and analyse the essential professional conditions of the creation of fire protection engineering higher education within the organisation of National University of Public Service.

### Keywords:

disaster management, basic higher education, engineering education, fire protection, Hungary

## 1 FOREWORD

The National University of Public Service (hereinafter: NKE) fulfills a vital role in Hungary in the higher education of the main administrative branches. It integrates the organizations of three predecessors since 2012: Zrínyi Miklós University of National Defense, the Police College and the Public Administration Faculty of Corvinus University, Budapest. The NKE supplies sufficient number of public service

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experts for the Hungarian public administration with excellent professional skills having basic, master level and PhD doctoral education.

The Institute of Disaster Management (hereinafter: Institute) is an inter-faculty unit of NKE, delivering policing higher education about political sciences. It is managed by the rector of the university and the pro-rector for education. The legal relationship between the Institute and the National Directorate General for Disaster Management of the Ministry of Interior (hereinafter: BM OKF) is based on a cooperation agreement. The close relationship between these two organizations is reflected by the structure of three faculties of the Institute (Industrial Safety Faculty, Disaster Management Operational Faculty, and Fire Prevention and Rescue Control Faculty), therefore adjusted to the special task system of BM OKF. [1]

The purpose of the training delivered by the Institute is training of specialists who can perform legal, administrative, operation control and command tasks of disaster management in disaster management organizations, professional, local government and plant fire brigades, in administrative and economic organizations. In order to achieve this objective, the Institute plans to introduce accreditation of new faculties in addition to the existing trainings, especially in the fire safety areas in order to train enough experts to supplement the missing manpower. We can state in general that the role of disaster management services in the present world full of challenges is more and more respected, what is also manifested in development of training experts.

## **2 THE PRESENT EDUCATIONAL SYSTEM OF THE INSTITUTE**

The enrolled students study in the Institute, what has been ever developing since 2012, under control of the Law enforcement faculty, what trains the officer candidates, using the student services of the Department of Education Organization. The number of staff of the Institute is 26 people on March 10, 2018. 20 out of them are professional firefighters. 3 out of them are part time tutors, and 8 of them support the work of the Institute as public servants. [2] The organizational and educational activities of the predecessor institutions in relation to disaster management were taken over by our Institute completely. Its legal position, structure and procedures are regulated by an independent organizational and operational regulation, just like in case of the faculties.

Professional and human support of the education performed by the Institute supplied by BM OKF, what greatly contributes to further practice-oriented development of the educational and research activities. The Institute personnel shall take part in the management meetings of their professions, and in the professional meetings with the main inspector. Conferences and professional days are usually organized jointly. The day-time students perform their obligatory professional training and practical training in the internship positions created by BM OKF. In addition to this, the students participate the professional and authority courses what are required for them to obtain their first officer positions. Additionally, the instructors of the

Institute participate in the activities of the bodies of BM OKF performing professional consultant and scientific organizing tasks. [3]

Education is delivered in the Institute in Bologna system: after performing 6 semesters of basic education (BA), the students can continue their studies in the 4 semester long master training (MA) faculty. In the Disaster Management basic training faculty, the candidates can select from 3 branches: Industrial Safety Faculty, Disaster Management Operational Faculty, and Fire Prevention and Rescue Control Faculty. It is important to emphasize that the basic training belongs under the scope of administrative, military and police trainings. We mainly deliver administrative type subjects in the frames of the training, but the trainees also acquire all the basic science and technical knowledge that are indispensable for successful performance of their specialist functions. [4]

A uniform legal, institute and facility system for industrial safety has been created by enacting Act CXXVIII of 2012 on disaster management, on January 1, 2012. Industrial safety is divided into 4 additional branches: performing the disaster management tasks concerning hazardous plants, hazardous deliveries, vital systems and installations, and prevention of nuclear accidents. Appropriately qualified and adequately educated staff is an essential prerequisite of effective operation of the uniform industrial safety system. The industrial safety professional organizer training and most of the specialist trainings are delivered in frames of the Disaster Management Educational Center (KOK), supervised by BM OKF. [4]

The certificate acquired by the basic training entitles the graduates to perform authority law enforcer, manager and consultant activities, and the industrial safety faculty entitles them to perform jobs in relation to operation of hazardous installations, delivery of hazardous materials and protection of key systems and installations. [5]

The students have to perform a 6-week long professional practice before being allowed to do their final exams. They must perform it in the regional and local training positions operated by BM OKF. (6) This professional practice contributes significantly to the practice-oriented training of students.

In addition to integrating the faculties of BA training, the Disaster Management MA training extends the skills of the students that they obtained during the basic training - especially improving their managing skills. After completion of the master training, the most talented students can continue their doctoral education (PhD) in the NKE Military Technical Doctorate School, whose research areas include “Disaster management” since 2015. Education is delivered in day and night classes in all three levels of training.

In summary of the above facts, we can state that establishment of the Institute and then accreditation of the master training and participation in the doctoral training resulted in creation of such a higher education portfolio that allows the required expert supply for disaster management.

### **3 DEVELOPMENT OF THE FIRE SAFETY ENGINEER TRAINING**

Based on the contents of the previous section, we can say with sufficient certainty that since establishment of the Institute in 2012, it fulfills a primary role in our country in the field of higher education of disaster management experts. However, the educational experiences of the last period of education, and of BM OKF show that deficiencies may occur both in the field of technical training and in the current fire safety engineer training system. The professional disaster management bodies and the involved business stakeholders do not have a sufficient number of certified personnel with the appropriate fire safety engineer education. According to the opinion of the Hungarian Chamber of Engineers and the Hungarian Chamber of Architects, based on the educational requirements of the business participants in the construction and processing industry, about 40-50 new fire safety engineer graduates are required every year. [7]

As there is no independent fire safety engineer training in the Hungarian higher education, NKE has started execution of the education and institute development measures that are absolutely inevitable for establishment and to commencement of such training.

According to the plans, the educational and research activities in relation to applied fire safety will be performed by the existing Fire Prevention and Rescue Control Faculty. They would teach the current subjects and also basic science subjects. The faculty teaching the preliminary technical subjects for fire safety would also teach the preliminary general engineering and fire safety technical subjects and the related basic engineering subjects. The faculty teaching the tasks of the fire safety engineers would teach the professional skills of the fire safety engineers. [7]

The training levels would be as follows: The basic training of the independent fire safety engineer (BSc) would be integrally followed by a fire safety engineers master training, and also a fire safety specialist engineer training would be introduced for students who still do not have a fire safety specialist engineer certificate. The faculty that consist of 8 semesters would be commenced at the beginning of the 2019 scholastic year. [7]

The basic period would ensure the training of the designers, inspectors, special installation managers and the experts with authority education in the field of fire safety and the industrial safety (industrial fire protection). The purpose of the basic training is that the students are able to perform complex technical tasks, engineering and management tasks, independent professional work, as well as have such depth of theoretical knowledge what allows that the training can be continued in the second cycle. [7]

To start the fire safety training, infrastructural developments are necessary, including construction of a fire safety laboratory, a computer classroom, and supplying engineering designer and analyzer software, library, a specialist cabinet, textbooks and

informatics devices. NKE plans further facility developments until 2020. Supplying the financial requirements of disaster management education and the residence requirements of students is planned in frames of construction of a special disaster management training center in Ludovika Campus project (II). The central complex of the university will house the Institute; therefore the prerequisites of independent operation will be available as planned. [1]

## 4 CONCLUSIONS

Disaster management will have an ever increasing importance in the present world full of natural and civilizational challenges, in order to protect the public administration of the country, the business companies, the competition participants and common people. Consequentially, training of disaster management experts has more and more priority in Hungary, in NKE. The purpose of training of specialists is to supply enough professional fire safety experts for the involved organizations, with the required qualification, graduated in the field of political sciences and technical-engineering fields, who can keep pace with the changes in the nature and technology. This article described the present educational system of NKE Institute of Disaster Management, its legal status, the scope of its tasks and authority, and its development plans for the near future in the field of training fire safety engineers.

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