

## Olga Ignatyuk, Oksana Panchenko

An extended abstract of a paper on the subject of:

### “Modeling of motivated development of professional thinking of the future mechanical engineers in the technical university”

**Problem setting.** *The relevance of the research into training of mechanical engineers at higher educational institutions is due to the toughening requirements for their professional and personal potential. Among the most relevant modern worldwide expectations from a future mechanical engineer is the ability to think professionally. Thus, it is obvious that educational processes aim to take into account this expectation. Along with that the researchers continue to focus on the problem of motivated development of professional thinking of the future mechanical engineers.*

**Recent research and publications analysis.** *The review of recent scientific papers shows that skillful and competent experts with highly developed professional and personal qualities are really much sought after at the contemporary labour market (ref. H. Bal, I. Beh, V. Kremen, V. Luhovyi, I. Prokopenko, O. Romanovskyi, S. Sysoieva, L. Sushchenko, T. Sushchenko et al.). The activities of engineers always imply some inventions, innovations, creativity, management and regular changes. In view of this future competent experts in engineering are supposed to combine all the required styles of thinking such as activity-oriented (B. Ananov, O. Vyhotskyi, T. Hura, V. Shadrikov), innovative (M. Hurevychoy, M. Kozyar, L. Shumelchik), leadership-oriented (S. Kalashnikova, O. Romanovskyi), scientific research (L. Sushchenko, O. Terekhina), lateral (O. Dolska, P. Ricoeur), strong (O. Ignatyuk, Yu. Tymofieieva), systemic (S. Aliluyko, M. Lazarev) and creative thinking (D. Bohoiavlenska, M. Berdiaiev, O. Matiushkin).*

*Unfortunately, in our opinion, the literature does not properly cover theoretical and applied issues of professional thinking modeling for future mechanical engineers. On the one hand, the purpose of the training practice is to provide scientific and organizational means to develop professional thinking in future mechanical engineers. On the other hand, the available relevant theoretical provisions are insufficient for this purpose. Here is where the contradiction appears which is to be eliminated.*

**Paper objective** *The purpose of the paper is to explain and describe the structural components of a model for motivated development of professional thinking in future mechanical engineers.*

**Paper main body.** *In the modern world of rapid technological, economic and political changes, where a person has to constantly adapt to these changes, future competitive mechanical engineers are expected to be able to come up with smart creative solutions. To offer creative ideas an engineer must have greatly developed skills for professional thinking.*

*Thus, a lot of research is conducted to provide the educational process with theoretical and practical material on how to develop professional thinking of the future specialists. Professional thinking of a future mechanical engineer requires particular approach because it encompasses socio-technical, engineering reproductive and productive styles of thinking. Besides, the whole problem has not yet received a full coverage from modern scholars.*

*The study of motivated development components is based on the assumption that the process of professional thinking development in future mechanical engineers is an integral part of their training and achieving to their personal capabilities. The development of the professional thinking components such as 1) motivation; 2) search for meaning and values; 3) integrated intelligence; 4) professional engagement and activities in informational and educational environment; 5) reflexive reasoning and evaluation contributes to the conscious, professional and personal development of a future mechanical engineer. As a result, the engineer has well-developed motivational and cognitive spheres, a well-developed system of values and professional behavior.*

*Taking into account the research into the training of modern competitive engineering personnel and the ideas of teachers, employers and students about how to successfully solve the problem of efficient development of professional thinking in future mechanical engineers, we have identified three components of the model, namely 1) theoretical and methodical, 2) conceptual and operational, and 3) progress assessment. We have found that the first theoretical and methodical component of the model consists in the identification of the required scope of scientific, theoretical and practical procedural knowledge that will ensure the efficient development of professional thinking. To determine the essential content of the knowledge and skills for the efficient development of professional thinking of a future mechanical engineer we need to consider the learning outcomes and a number of competencies that a modern competitive mechanical engineer is supposed to have.*

*The research has shown that according to the model the development of professional thinking of a future mechanical engineer must come in stages. In particular, there are three technological stages such as initial, procedural and reflexive and evaluative ones. The quality of the development of professional thinking of a future mechanical engineer is assessed by the level of its development. There are the following assessment criteria such as 1) motivational and impelling, 2) integrative and cognitive, and 3) reflexive and correctional.*

**Conclusions of the research.** *As a result of the research a modeling of motivated development has been designed for professional thinking development of the future mechanical engineers. The model is aimed to find successful solutions to career orientation problems. It consists of the interrelated components. The proper training in the process of motivated development of professional thinking of the future mechanical engineers has proved the hypothesis of the research and provided a favorable environment for the general intelligent development of the students, increasing the level of their professional thinking. The active involvement of the students based on a genetic origin (a desire to learn the world) will be greatly successful with the appropriate training support provided.*

*Thus, further research will be focused on the development of a strategy for training support in order to develop professional thinking of future mechanical engineers that will contribute to their professional activities, creativity, independence and so on.*