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PROFESSIONAL PSYCHOLOGICAL SELECTION AS A TREND IN NUCLEAR EDUCATION

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The process of nuclear energy production is strongly associated with danger for employees, satellite cities and neighbor regions, risk of radioactive contamination of environment, threats to public and national security – all this necessitates constant work on improving all aspects of the physical protection of nuclear facilities.

At present, more and more attention is focused on training of specialists of material protect, control and account of nuclear materials – MPC&A. And one of the newest trends in professional education is careful consideration to human factor.

In the course of theoretical and methodological analysis we identified the following psychological characteristics of a person that can contribute to the possibility of unauthorized actions at nuclear facility – low intellectual abilities; low emotional stability; high self-incrimination; low self control; high anxiety; neuroticism; low goodwill; low integrity; low performance; low neuro-psychological stability; aggressiveness; propensity to addictive behavior; propensity to suicidal reactions, e.t.c. Different studies indicate the possibility of timely and reliable detection of such person's psychological negative characteristics by using methods of professional psychological selection [1].

For the purposes of improving of professional nuclear education, we suggest to include psychological selection to the Model of professional training of nuclear specialists as it depicted on fig. 1.

So, we suggest using professional psychological selection for candidates at the stage of their entry examination at universities or technical colleges. Also training centers of nuclear enterprises can use professional psychological selection methods for candidates to get qualification upgrade.

As example, we can see how appropriable scheme of professional psychological selection can work. For the purposes of professional psychological selection we can apply the following methodics: Testing of intellect structure [2]; Multilevel personal questionnaire «Adaptivity» [3]; «16 Personality Factors Questionnaire» (16 PF) [4]; Technique of 5-factor model of personality [5], and so on.

It is better to use automatized psychodiagnostical methods due to large number of candidates at entry examinations. There is a possibility of psychological correction [6] of some characteristics during the process of education.

To sum up, we can say – during their career, all nuclear specialists must have access to upgrading the level of qualification and competence. Only this approach can ensure the safe use of nuclear energy, protect employees and environment. As well as professional psychological selection found its place in nuclear industry – it is a new and perspective trend to include its elements in nuclear education on all levels.

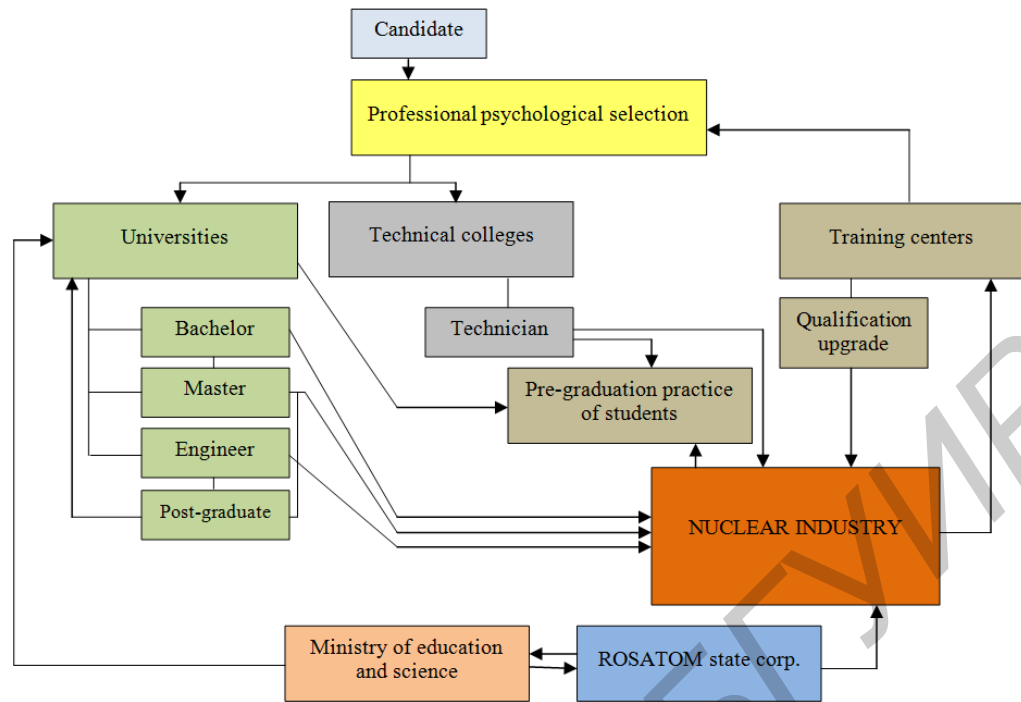


Fig. 1. Model of psychological selection in typical structure of professional training of nuclear specialists

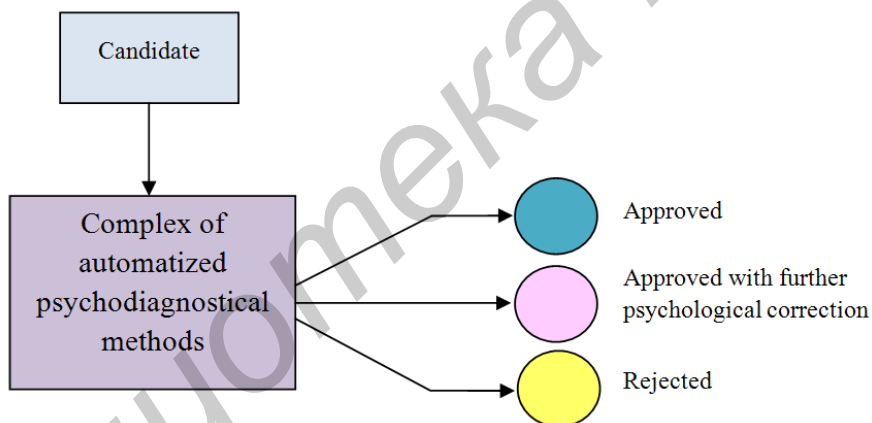


Fig. 2. Scheme of professional psychological selection with use of automatized psychodiagnostical methods

References

1. *Shmelev A.G.* Basics of psychodiagnosis. Moscow, 1996.
2. *Amthauer R.* I-S-T 70. Intelligenz-Struktur-Test. Handanweisung für die Durchführung und Auswertung. 4, unveränderte Auflage.
3. *Maklakov A.G.* Professional psychological selection of the personnel. Theory and practice. Saint-Petersburg, 2008.
4. *Cattell R.B., Eber H.W., Tatsuoka M.M.* Handbook for the Sixteen Personality Factor Questionnaire (16PF). Champaign, IL: Institute for Personality and Ability Testing. 1970.
5. *Goldberg L.R.* The development of markers for the Big-Five factor structure. *Psychological Assessment*. 1992. № 4.
6. *Hawk K.M.* Personal reflections on a career in correctional psychology. *Professional Psychology: Research and Practice*. 1997. № 28 (4).