

**МІНІСТЕРСТВО ОСВІТИ І НАУКИ УКРАЇНИ  
СУМСЬКИЙ ДЕРЖАВНИЙ УНІВЕРСИТЕТ  
ФАКУЛЬТЕТ ІНОЗЕМНОЇ ФІЛОЛОГІЇ  
ТА СОЦІАЛЬНИХ КОМУНІКАЦІЙ**



# **СОЦІАЛЬНО-ГУМАНІТАРНІ АСПЕКТИ РОЗВИТКУ СУЧАСНОГО СУСПІЛЬСТВА**

**МАТЕРІАЛИ ВСЕУКРАЇНСЬКОЇ НАУКОВОЇ КОНФЕРЕНЦІЇ ВИКЛАДАЧІВ,  
АСПІРАНТІВ, СПІВРОБІТНИКІВ ТА СТУДЕНТІВ**

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the curvilinear incisions or thin solid plugs was further investigated. The study showed that the algorithm has a high speed of the degree of convergence. The accuracy of calculations up to  $10^{-10}$  was made at 50 points of the collocation of every circuit. The convergence of the algorithm doesn't depend on the number of cracks. In the diffraction problem SH-waves on the system of solid plugs parallel algorithms allow to reduce time of the calculation and to analyze the characteristics of the wave field in details.

The combination of the method of integral equations that declines the problem dimension, and saves the calculations time due to parallelizing of the calculating procedures leads to the increase of the efficiency of the suggested algorithm.

## **INCREASING EFFICIENCY OF MACHINING HIGH-PRECISION HOLES WITH NONCONTINUOUS SURFACES**

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This paper is about a center hole with noncontinuous surface of a centrifugal pump impeller. The main subject is deviation of cylindrical shape of an impeller center hole and its concentricity to sealing surfaces. The purpose is finding a logarithm of getting precise cylindrical shape of the hole.

The research is connected with detecting defects that occur while rotor assembling, moreover the focus must be made on additional hole elements that an impeller may be constructed of. The approach to avoid this is the surface hardening of a shaft or electrical-spark alloying of an impeller hole.

As world's companies dealing with vibration characteristics control in atomic aggregates like IAEA are increasing the requisition in this field, the technology of their manufacturing has to be improved.

The analysis and monitoring of local pump manufacturing shows quite old approaches, technologies and fixtures that stand away from modern analogs. After analysis of the existing processing techniques and the experiments made an idea to combine the positive properties and eliminate the disadvantages of honing and rubbing was suggested. That is why the

opportunity of learning alternative technologies applied abroad is of great interest.

The math modeling of the processes of the holes machining is being built. The results will be used to find possible ways of decreasing the deviation. There is also an intention to broaden knowledge in modeling technologies.

In the frame of the research, the problem of central holes with noncontinuous surfaces of impellers and its derivation as a cause of vibration increase is being investigated.

The preliminary results show that inelastic deformations might be a huge problem; however the technology heredity thought the whole manufacturing and assembling processes is ideal. The next step is making math models to get approximate results and test them through natural experiments.

Since, those deformations on the sides of keyway are smaller than the radius of metal cutting tool's edge, so the methods of removing them can be rubbing or honing. Both processes are characterized by a number of disadvantages.

One possible tool, suggested for solving the above described problem, is combination of hone and rubber. The tool suggested in the paper may be used effectively not only in impeller production, but also for manufacturing of any other curved surface hole.

After introduction of the suggested innovation into the modern manufacturing process the UA companies may occupy higher market positions.

## **CERTIFICATION OF THE TEACHING STAFF IN DISTANCE EDUCATION**

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Globalization of educational environment and technological progress put forward new requirements for the competence of teachers as a major factor in ensuring the competitiveness of universities. One of the most popular and current methods of evaluation of knowledge, abilities and skills of the teaching staff (TS) is a certification. Unfortunately, even today quite a lot of schools do not understand the content of the certification process, mistakenly identifying it with certification and other conformity assessment procedure. Certification of teachers is a procedure to match the quality of their characteristics to the requirements of national and international standards, designed to assess the level of professionalism under external professional standards that developed