Design of process of forming of time-tables

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Resume – **actuality of design of process of forming of time-tables is Described. The existent systems and algorithms are analysed that used for forming of curricula of lessons, oriented to the increase of the productivity of process of studies.**

Keywords: **educational process, genetic algorithm, chromosome, evolutional design.**

I. INTRODUCTION

Organization of educational process substantially influences on quality of preparation of future specialists. Substantial description of quality of organization of educational process is forming of the balanced curriculum of lessons of, which provides the optimum use of educational resources.

II. AN ANALYSIS OF APPROACHES IS TO FORMING OF POSSIBLE TIME-TABLES AND CRITERIA OF THEIR OPTIMUM

As a rule the task of forming of time-tables assumes the plural of feasible solutions. It stipulates the necessity of choice of criteria of their optimum. This problem did not find a synonymous decision among the analysed researches. So the amount of free of employments workings days of teacher comes forward in working [2] as the criterion of optimum, that it is impossible to consider an uniquely possible criterion qualities of the formed time-table. More general approaches are formed in works [1][3]. What assume the use of different criteria of optimum of time-table. Thus there is a problem of concordance of these criteria. In work [1] a resulting criterion is formed as a sum of partial criteria of R_{ij}, the scales of which it is suggested to pick up by a genetic algorithm. Coefficients are examined, as genes of chromosome, where m is an amount of coefficients. The purpose of work of genetic algorithm consists in achieving a maximum of functional:

$$R = \sum_{i=1}^{n} R_i \rightarrow \max, \qquad (1)$$

The coefficients of plenitude of implementation of the educational loading are used in work [3] in quality the partial criteria of optimum k_1, to evenness of division of the educational loading of k_2, even division of complication of employments of k_3, account of wishes of teachers of k_4, and absence of breaks of employments of k_5. However in this work little attention is spared forming of the initial approaching at the construction of time-tables. In quality the instruments of such forming offered multidimensional matrices with the use of procedures of consolidation, cutting away and procedures of rotation. Thus realization of these operations and their role does not open up in detail. Yet less attention it is devoted the construction of feasible solutions in work [4], and in work [2] she is carried out only facilities of genetic algorithm. Only in work [1], forming of the initial approaching at the construction of time-tables is carried out in the sequence of diminishing of objective test of freedom of location of employment in a time-table.

$$S_i = \frac{a_i}{g_i \cdot p_i}, \qquad (2)$$

where a_i - amount of audiences, p_i – an amount of employments is for a teacher, g_i - an amount of employments is for a student.

III. ANALYSIS OF METHODS OF OPTIMIZATION OF POSSIBLE TIME-TABLES

The algorithm of scheduling employments by an evolutional design consists of a few stages. The first step at development of mathematical model is development of structure of chromosome a decision will be saved in which, that is why such «chromosome» is a time-table. A structure is select must take into account all features and limitations of the sought after decision. On a next step from chromosomes form initial population. For creation of new generation with the best indexes from the aggregate of chromosomes it is necessary to choose the best for subsequent reproduction. To get new population, chromosomes are selected in pairs cross between itself by homogeneous crossovers: chromosomes break up to pieces. Automatizing only the process of forming of time-tables we will not simplify the task of operator which forms a time-table by the automated facilities substantially. Such simplification is possible only on condition of the use of the special system that allows converting the unclear wishes of commons of users in strict not different requirements to the difficult system of educational resources of establishment.

IV. CONCLUSIONS

Basic problems which arise up in the process of creation of algorithms for formalization of curriculum of lessons are analysed in work, a few algorithms of decision of such tasks the basic from which is a genetic algorithm are considered.

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