**Research Skills and Methodologies - 1**

1. The main objective of the project is to acquire skills for making investigations concerned efficiency and comparison of ‘problem solvers’ (methods, approaches, mostly algorithms), in order to recommend the best of the considered problem solvers.

2. The main objective of the seminar is: (i) acquiring skills in preparing presentations concerned problem area of the assigned project, and (ii) presenting the results of own research.

3. The project and presentations are being prepared individually or in two-person teams. The tasks (topics) are assigned to students by the tutor (by his acceptance of the PROJECT CARD fulfilled by the student).

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The preliminary PROJECT CARD should be prepared by student by Monday, March, 21 and delivered (in printed form) to Leszek Koszalka and Róża Goścień.

The final PROJECT CARD should be prepared by student by Saturday, April, 22 and delivered (in printed form) to Leszek Koszalka and Róża Goścień.

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**RSM PROJECT CARD**

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Student - Full Name(s)

(1) Piotr Gacka (2) Karolina Lemparty

(3) Piotr Trocki (4) Marcin Tymoszewski

Topic

**Single machine total weighted tardiness problem.**

Formulation of the considered problem (mathematical model of the problem)

**Task allocation**

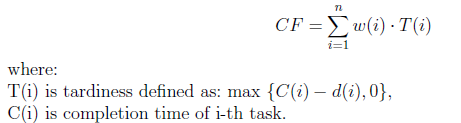
Given

**Text file containing list of tasks, defined as a triple: time (*p*), priority (*w*), deadline (*d*).**

To find

**processing order of the jobs**

Such that



Subject to the constraints

ALGORITHMS for solving the problem (with info: ‘known’, ‘modified’, ‘own’)

* **Genetic Algorithm - own**
* **Ant colony algorithm – own**

Basic references (min. 1 max. 3)

1. <https://www.hindawi.com/journals/cin/2015/838925/> (available March 17, 2017)

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MODE: passive partially active **active**

(circle one)

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Own **CONTRIBUTION**

* Algorithm implementation
* Generating own input data
* Export output to MS Excel format
* Documentation
* Design and analysis

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EXPERIMENTATION SYSTEM

please regard (preliminary) the process of experiment as an input–output system by defining inputs (i.e., problem’s parameters and algorithm’s parameters) – specify these variables and introduce (define) the index (indices) of performance, i.e. measures of efficiency treated as the output(s) – please show such a created system in figure in the form of a block-scheme.

Block-diagram

Definitions of the variables: (with a symbols)

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Additional information and declaration

Deadline by 26 May 2017

Signature(s) of student(s)

(1)………………………. (2)………………………

(3)………………………. (4)………………………