PUBLIC SELECTION BASED ON QUALIFICATIONS AND INTERVIEW FOR THE AWARDING OF NO. 1 EARLY STAGE GRANT LASTING 12 MONTHS FOR CONDUCTING RESEARCH PURSUANT TO ART. 22 OF LAW NO. 240/2010 AT THE DEPARTMENT OF MANAGEMENT, INFORMATION AND PRODUCTION ENGINEERING A.R.F. 09/B2 - INDUSTRIAL MECHANICAL SYSTEMS ENGINEERING A.D. ING-IND/17 - INDUSTRIAL MECHANICAL SYSTEMS ENGINEERING (TYPE B)

announced with decree of the Chancellor Rep. no. 301/2019 of 29.05.2019 and posted on the official registry of the University on 29.05.2019

RESEARCH PROJECT

<u>Optimization of the asset management activities for water supply plants in the integrated</u> <u>water system</u>

Research structure: Department of Management, information and production engineering

Duration of the grant: 12 months

Scientific Area: 09 - Industrial and information engineering

Academic recruitment field: 09/B2 – Industrial mechanical systems engineering

Academic discipline: ING-IND/17 - Industrial mechanical systems engineering

Scientific Director: Prof. Sergio Cavalieri

The aim of the research project is to develop and to optimize the maintenance processes for the supply phases in the integrated water system to guarantee the expected service level and the quality standards, minimizing management cost and unexpected downtime. Based on the positive results obtained in previous collaboration with the company Uniacque S.p.A., the research activity will be focused on the implementation of a reliability study of the water supply plants for the main municipalities managed by Uniacque.

This project is aimed to improve the management of maintenance activities and increasing the operating availability of the plants subject of the analysis. Particularly, a reliability analysis is required for the water supply systems in order to optimize the maintenance activities.

Related to this analysis, the development and implementation of models to manage the maintenance spare parts of the most critical components of the plants, is required.

Summarizing, the research activities are:

1. to map the maintenance processes for water supply plants;

- 2. to analyse failures and the reliability of the machines;
- 3. to define the models to manage the spare parts;

4. to design preventive maintenance plans and condition based maintenance activities.