

# Prospective supervisor's form

Name of the supervisor: Robert Piotrowski

Academic title: D.Sc.

Orcid ID number: <https://orcid.org/0000-0002-8660-300X>

Gdańsk University of Technology Faculty of Electrical and Control Engineering

Department of Electrical Engineering, Control Systems and Informatics

Phone: +48 58 347 20 67

E-mail: robert.piotrowski@pg.edu.pl

Personal web page: <https://pg.edu.pl/> <https://eia.pg.edu.pl/robert-piotrowski>

Discipline: control, electronic and electrical engineering none Optional

Key words (obligatory four key words describing research interests / expertise):

# modelling

# control systems

# optimization

# industrial systems

## Bibliometric indicators

1. Number of journal publications in WoS/ Scopus 20/36

2. Citations excluding self-citations WoS 144 Scopus 324

3. Hirsch index WoS 8 Scopus 10

1. The number of PhD students who have graduated under your supervision: 0

2. The number of PhD students currently supervised:

a. within the current doctoral school 3

b. within doctoral studies (previous system)

3. Are you currently accepting new PhD students:

a. Polish Yes/No Yes

b. Foreign Yes/No No

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### Research interests or topics offered for PhD research (no more than 2000 characters)<sup>ii</sup>

#### Topics:

1. Multi-criteria optimisation of biological processes in a wastewater treatment plant of the batch type.
2. Multiple reactor management system in a wastewater treatment plant of the batch type.
3. Design of observers for control and optimization of biological processes in a wastewater treatment plant of the batch type.
4. Use of fractional calculus in modelling and control of a biological wastewater treatment plant of the batch type.

#### Requirements:

1. Knowledge of control and optimization.
2. Expert knowledge of the Matlab environment.
3. Preference will be given to candidates who have completed their studies in Automation and Robotics.

### Funding or special equipment needed to carry out a PhD project <sup>iii</sup>:

1. Is funding available for experimental work: *Yes/No/not needed*

No

2. Is the equipment needed to complete a PhD project

available in your lab/department: *Yes/No/not needed*

Yes

### Most important publications – no more than 5 published after 1.01.2018

No	Authors/title/journal	Number of points according to the current list of the Ministry of Science and Higher Education	Publication year
1.	Piotrowski R., Lewandowski M., Paul A. (2019). Mixed integer nonlinear optimization of biological processes in wastewater sequencing batch reactor. <i>Journal of Process Control</i> , Vol. 84, pp. 89-100.	140 (WOS, Scopus)	2019
2.	Piotrowski R., Paul A., Lewandowski M. (2019). Improving SBR performance alongside with cost reduction through optimization of biological processes and dissolved oxygen concentration trajectory. <i>Applied Sciences-Basel</i> 2019, 9, 1-15.	70 (WOS, Scopus)	2019

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3.	Piotrowski R. (2018). Advanced control and optimization algorithms in biological wastewater treatment plant of the batch type. Monographs 169, Gdańsk University of Technology Publishing House, 161 pages (in Polish).	80	2018
4.			
5.			

**Most recent externally funded projects you were involved in – no more than 3**

No	Project title, the name of the Principal Investigator (PI) and the institution the project was carried out	Years	Role in the project <sup>i</sup>
1.	Decision support system for industrial installations - implementation PhD	2019	PI
2.	Development of a method and execution of an exemplary system analysis of the operation of a nuclear unit with a water reactor at partial cogeneration	2012	R
3.			PI

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**Additional relevant information (no more than 1600 characters)<sup>v</sup>**

Detailed information can be obtained at the meeting, room 110.

- <sup>i</sup> You may select up to two disciplines out of 12 disciplines represented in the Doctoral School
- <sup>ii</sup> Observe the limit of not more than 2000 characters
- <sup>iii</sup> Leave only one answer
- <sup>iv</sup> Select the role in the project: PI stands for principal investigator (refers to the holder of an independent grant and the lead researcher for the grant project), Co-I for co-investigator (Co-I assists the principal investigator in the management and leadership of the research project), R for researcher
- <sup>v</sup> Add any other relevant information e.g. awards for PhD students whom you supervised (no more than 1600 characters)