

Prowadzący	dr Jarosław Banaś
Oferta PJO*	TAK**
Oferta PJOE*	TAK**
Kierunek, rok, stopień dla PJO (*obowiązkowe)	Zarządzanie, Ekonomia, Finanse i rachunkowość, rok II albo III – stopień I lub rok I – stopień II Erasmus+
Semestr roku 2022/2023	letni**

* PJO – przedmiot w języku obcym dla studentów polskich / PJOE – przedmiot w języku obcym dla studentów Erasmus+

** zostawić właściwe

BASIC INFORMATION ABOUT THE SUBJECT (INDEPENDENT OF THE CYCLE)

Module name	Robotic Process Automation
Erasmus code	
ISCED code	
Language of instruction	English
Website	https://www.umcs.pl/en/courses-in-english-2021-2022,21582.htm (dla PJOE)
Prerequisites	Possessing theoretical knowledge in the field of economics, logistics and management. Basic spreadsheet skills. It would be advisable to have your own computer (e.g. laptop; for the purposes of the exercises) with min. Windows 10, MS Excel 2019.
ECTS points hour equivalents	Contact hours (work with an academic teacher): 30h Total number of hours with an academic teacher: 30h Number of ECTS points with an academic teacher: 2 ECTS Non-contact hours (students' own work): 15h Total number of non-contact hours: 15h Number of ECTS points for non-contact hours: 1 ECTS Total number of ECTS points for the module: 3 ECTS
Educational outcomes verification methods	Individual development of the project
Description	Robotic Process Automation (RPA) is an automation technology based on bots or AI digital workers, used for processing data without manual intervention. Those tools watch the task performed by the user in order to automatically repeat it in the application's graphical user interface. The aim of RPA is to increase productivity and effectiveness, therefore soon many jobs can be automated (human labor will be replaced). During the course students will learn: RPA fundamentals, how to use the popular RPA tool, basics of business process flow and modeling, bots creation, case and error management. At the end of the course students will develop the RPA project. The project will consist of the following steps: selecting the right process for automation, mapping the business process, choosing the tool for automation, building the digital worker, and testing the bot performance.
Reading list	Basic literature: 1. Dumas, M., La Rosa, M., Mendling, J., Reijers, Hajo A., Fundamentals of Business Process Management, Springer, 2018. 2. Tripathi, A.M., Learning Robotic Process Automation. Create Software robots and automate business processes with the leading RPA tool – UiPath, Packt Publishing Ltd., 2018. 3. Ying, L.M., Robotic Process Automation with Blue Prism Quick Start Guide. Create software robots and automate business processes, Packt Publishing Ltd., 2018. 4. Blokdyk, G., Business Process Automation BPA. A Complete Guide - 2019 Edition, 5STARCOoks, 2019. 5. Wibbenmeyer, K., The Simple Implementation Guide to Robotic Process Automation (RPA). How to Best Implement RPA in an Organization, iUniverse, 2018.

	Supplementary literature: 1. Smart, G., Practical Python Programming for IoT, Packt Publishing, 2020. 2. Oner, V.O., Artificial Intelligence for IoT Cookbook, Packt Publishing, 2021. 3. Majekodunmi, D., Business Process Automation with ProcessMaker 3.1. A Beginner's Guide, Apress, 2018. 4. Ter Hofstede, A.H.M., Van der Aalst, W., Adams, M., Russell, N. (Eds.), Modern Business Process Automation, Springer, 2010. 5. Lacity, M.C., Willcocks, L.P., Robotic Process Automation and Risk Mitigation. The Definitive Guide, SB Publishing, 2017. Internet sources: 1. https://www.uipath.com/rpa/academy 2. https://www.blueprism.com/university
Educational outcomes	KNOWLEDGE 1. The student knows the basics of modeling and automation of processes in the enterprise. 2. Student describes concepts related to Robotic Process Automation (RPA) and process modeling. 3. Student explains the role of Robotic Process Automation in economic sciences. SKILLS 1. Student recognizes the use of Robotic Process Automation for task automation. 2. The student is able (independently and in a team) to design a software robot to support real processes. 3. The student uses robotization of processes for the purpose of improving the company's operations (maintaining and increasing the competitive position). ATTITUDES 1. The student willingly undertakes the creation of software robots and carrying out (series) tests in every area of economics and management. 2. The student shows attitudes of independent action in learning and organization of own work.
Practice	n/a

INFORMATION ABOUT CLASSES IN THE CYCLE

Website	https://www.umcs.pl/en/courses-in-english,21103.htm (dla PJOE)
Educational outcomes verification methods	Individual development of the project
Comments	Classes will be conducted using distance learning methods and techniques (MS Teams application).
Reading list	Basic literature: 1. Dumas, M., La Rosa, M., Mendling, J., Reijers, Hajo A., Fundamentals of Business Process Management, Springer, 2018. 2. Tripathi, A.M., Learning Robotic Process Automation. Create Software robots and automate business processes with the leading RPA tool – UiPath, Packt Publishing Ltd., 2018. 3. Ying, L.M., Robotic Process Automation with Blue Prism Quick Start Guide. Create software robots and automate business processes, Packt Publishing Ltd., 2018. 4. Blokdyk, G., Business Process Automation BPA. A Complete Guide - 2019 Edition, 5STARCOOKS, 2019. 5. Wibbenmeyer, K., The Simple Implementation Guide to Robotic Process Automation (RPA). How to Best Implement RPA in an Organization, iUniverse, 2018. Supplementary literature: 1. Smart, G., Practical Python Programming for IoT, Packt Publishing, 2020. 2. Oner, V.O., Artificial Intelligence for IoT Cookbook, Packt Publishing, 2021. 3. Majekodunmi, D., Business Process Automation with ProcessMaker 3.1. A Beginner's Guide, Apress, 2018. 4. Ter Hofstede, A.H.M., Van der Aalst, W., Adams, M., Russell, N. (Eds.), Modern Business Process Automation, Springer, 2010. 5. Lacity, M.C., Willcocks, L.P., Robotic Process Automation and Risk Mitigation. The Definitive Guide, SB Publishing, 2017. Internet sources: 1. https://www.uipath.com/rpa/academy 2. https://www.blueprism.com/university
Educational outcomes	KNOWLEDGE (K) 1. The student knows the basics of modeling and automation of processes in the enterprise. 2. Student describes concepts related to Robotic Process Automation (RPA) and process modeling. 3. Student explains the role of Robotic Process Automation in economic sciences. SKILLS (S) 1. Student recognizes the use of Robotic Process Automation for task automation. 2. The student is able (independently and in a team) to design a software robot to support real processes. 3. The student uses robotization of processes for the purpose of improving the company's operations (maintaining and increasing the competitive position). ATTITUDES (A) 1. The student willingly undertakes the creation of

	software robots and carrying out (series) tests in every area of economics and management. 2. The student shows attitudes of independent action in learning and organization of own work.
A list of topics	1. Robotic Process Automation (RPA) – introduction, basic concepts, RPA benefits, types of robots. Dedicated process automation software. 2. RPA software – installing, switching between program versions. 3. RPA software – user interface. 4. Creating first robot ["Hello World"]. 5. Recordings and sequences. 6. Activities and snippets. 7. Creating simple processes (among others: UI interactions, variables [save for later], files and directories, handling of errors, use of the console [output], simple and advanced editor). 8. Cooperation with spreadsheets (as Notebook and as external files). Data processing. 9. Cooperation with text and presentation editors. 10. Loops and conditions. 11. Downloading and processing data from the www. 12. RPA software – advanced (software) capabilities. Flowcharts. Variables (scope of variable) and arguments. 13. Working with web forms. 14. E-mail automation. 15. Working with optical character recognition (OCR). 16. Reading and writing data from pdf files. 17. Data processing – working with data tables. 18. The use of scripts (eg Python) in process automation. 19. Designing own software robot. 20. Discussing the assumptions and presenting the capabilities of the software robot (in a group). Additionally: presentation of the stages of work on the project (important moments when creating the robot), problems encountered and ways to overcome them, functionalities used, etc.
Teaching methods	Laboratory exercises. Case study. Sharing teaching materials in the MS Teams application. Consultations conducted in person or via the functionality of the MS Teams application (group videoconference, individual videoconference, chat, file sharing).
Assessment methods	Assessment based on individual projects. Project guidelines – MS Teams application. The project will be presented at a meeting for the group (K1, K2, K3, S1, S2, S3). Additionally: presentation of the stages of work on the project (important moments when creating the robot), problems encountered and ways to overcome them, functionalities used, etc. This presentation is also intended to show a wide range of possibilities offered by software for creating software robots and to be a source of experience exchange for the participants of the classes. Activity (work) in class (A1, A2).