Osoba zgłaszająca z PW	
Tytuł i stopień naukowy	Dr hab. inż.
Imię i nazwisko	Aldona Kluczek
Wydział	Wydział Mechaniczny Technologiczny, IOSP
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Propozycja osoby zgłaszanej jako visiting professor	
Tytuł i stopień naukowy	Professor
Imię i nazwisko	Abhay Sharma
Dokładna afiliacja	School of Graphic Communications Management, Toronto Metropolitan University, Heidelberg Centre (HEI Building) 125 Bond Street Toronto ON M5B 1Y2 Canada
Mail kontaktowy	sharma@torontomu.ca
Opis osiągnięć (1/2-1 strony)	Dr Sharma has a PhD from King's College, London, England. He has taught at University of Westminster, London, and Western Michigan University, Michigan, USA. Abhay has served as Chair and now full Professor at Toronto Metropolitan University. As a member of international committees-CIP4 (JDF and print automation) and ICC (International Color Consortium) he has been involved with development of standards. Dr. Sharma has authored many textbooks, a text used in his teaching is Understanding Color Management, Sharma, Wiley, 2018. Workflow automation for computer-based processes are very relevant skills for today's PhD candidates. Sharma has explored with students an automated sticker printing app, see Facebook post from a software startup company in Kraków. In a recent article in Print Action magazine, Sharma describes Microsoft's Power automation tools that use AI

Code of the course	4606-VP-ES-00031	Name of the course	Polish	Workflow i automatyzacja oparta na systemach komputerowych
			English	Workflow and computer-based automation

Type of the course	Specialty subject			
Course coordinator	Prof. Abhay Sharma	Course teacher	Prof. Abhay Sharma	
Implementing unit	WMT WUT	Scientific discipline / disciplines*	Mechanical Engineering, Management and Quality Studies	
Level of education	Doctoral studies	Semester	Winter 15.10-15.12.2025 (online)	
Language of the course	English			
Type of assessment	Grade	Number of hours in a semester	60	ECTS credits	4
Minimum number of participants	10	Maximum number of participants	100	Available for students (BSc, MSc)	~~Yes~~/No

Type of classes		Lecture	Auditory classes	Project classes	Laboratory	Seminar
Number of hours	in a week					
	in a semester	30		30		

* does not apply to the Researcher's Workshop

1. Prerequisites
None

2. Course objectives
The aim of the course is to familiarize participants with modern concepts and tools for automating business and professional processes, with a particular focus on low-code/no-code platforms, Robotic Process Automation (RPA), and Artificial Intelligence (AI). Participants will learn how to identify repetitive tasks within workflows, design and implement automation solutions.

3. Course content (separate for each type of classes)
Lecture
Today users seek to automate many aspects of our business and professional activities ranging from if our company is mentioned on X (Twitter) then send an email to alert the product or marketing manager. We see growing interest in apps and utilities that offer a friendly interface with tools that are moving to a world of "automation for the masses". A big player in this area is Microsoft with a user friendly, powerful suite of Power automation tools that provide "low code" or "no code" applications. New generation products are mostly cloud-based and fully AI-enabled. An umbrella term for modern automation is RPA - Robotic Process Automation. An underlying technology is XML and Artificial Intelligence (AI).

Lecture Topics by Week (10 weeks):

- Week 1: Introduction to Workflows and Process Automation
- Week 2: Markup Languages - SGML, HTML, XML
- Week 3: XML Basics - Declaration, Elements, Attributes
- Week 4: XMLSchema, XML Validation

• Week 5: Applications of XML - Esko Automation Engine	
• Week 6: Parsing XML and XPATH	
• Week 7: Automating with XML - InDesign, CSS, XML	
• Week 8: Applications of XML - Microsoft Excel	
• Week 9: XML and JDF print automation	
• Week 10: Web store automation	
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Project classes
Project Activities by Week • Week 1: Photoshop Actions • Week 2: Google Sheets - Macros • Week 3: Acrobat Pro - Action Wizard • Week 4: Microsoft Power Automate • Week 5: MarketDirect StoreFront • Week 6: Adobe Express • Week 7: CSS XML • Week 8: Excel XML • Week 9: IFTTT • Week 10: XML W3C Validation

4. Learning outcomes			
Type of learning outcomes	Learning outcomes description	Reference to the learning outcomes of the WUT DS	Learning outcomes verification methods*
Knowledge			
K01	global achievements covering theoretical foundations and general issues, as well as selected detailed issues – appropriate to the represented scientific discipline, including the latest scientific achievements in the field of conducted research – to the extent allowing for the revision of the existing paradigms	SD_W2	Evaluation, active participation during lectures
K02	the main development trends of the represented scientific discipline with the related research methodology	SD_W3	Evaluation, active participation during lectures
K03	basic principles of knowledge transfer to the economic and social field, as well as commercialization of the results of scientific activity and know-how related to these results, including protection of intellectual property issues, also in open access	SD_W5	Evaluation, active participation during lectures
Skills			
S01	utilize knowledge from various scientific fields to creatively identify, formulate, and innovatively solve complex problems or perform research tasks, in particular: • define the purpose and subject of research, formulate a research hypothesis;	SD_U1	Evaluation, active participation during lectures

	• develop research methods, techniques and tools and use them in a creative way; • infer on the basis of the research results		
S02	perform critical analysis and evaluation of the results of research, expert works, and other creative activities, as well as their contribution to the development of knowledge, in particular - evaluate usefulness and the ways to use the results of theoretical works in practice	SD_U2	Evaluation, active participation during lectures
S03	transfer the results of research activity to economic and social field	SD_U3	Evaluation, active participation during lectures
Social competences			
SC01	critically assess the achievements within the represented scientific discipline and own contribution to the development of this discipline	SD_K1	Evaluation, active participation during lectures
SC02	think and act in a creative and entrepreneurial way	SD_K4	Evaluation, active participation during lectures

*Allowed learning outcomes verification methods: exam; oral exam; oral test; project evaluation; report evaluation; presentation evaluation; active participation during classes; homework; tests

5. Assessment criteria
There are 10 weekly online lectures There are 10 weekly software/project demonstration. There is drop-in time, during which the instructor is available online to answer questions about the projects or lecture content. The students are required to work on the weekly computer-based project in their own time using readily available software such as IFTTT (Android/iOS, free), Excel, Photoshop, Google Sheets, etc.

6. Literature
Primary references: [1] Automation for the masses, A Sharma, Print Action magazine, pp. 15-19, Mar/April, 2025 [2] Workflow Automation with Microsoft Power Automate, A, Guilmette, Packt Publishing, 2022 [3] Basic Concepts of Workflow Automation, T. Hoffmann-Walbeck, Springer, 2022 **Secondary references:** [1] JDF Workflow: A Guide to Automation in the Graphic Communications Industry, Thomas Hoffmann-Walbeck, Sebastian Riegel, PIA, 2018 [2] Whitepaper-Process Automation, retrieved 7 July, 2025

7. PhD student's workload necessary to achieve the learning outcomes**		
No.	Description	Number of hours
1	Hours of scheduled instruction given by the academic teacher in the classroom	60
2	Hours of consultations with the academic teacher, exams, tests, etc.	10
3	Amount of time devoted to the preparation for classes, preparation of presentations, reports, projects, homework	20
4	Amount of time devoted to the preparation for exams, test, assessments	20

Total number of hours	110
ECTS credits	4

** 1 ECTS = 25-30 hours of the PhD students work (2 ECTS = 60 hours; 4 ECTS = 110 hours, etc.)

8. Additional information	
Number of ECTS credits for classes requiring direct participation of academic teachers	
Number of ECTS credits earned by a student in a practical course	