DOCTORAL SCHOOL OF WROCŁAW UNIVERSITY OF SCIENCE AND TECHNOLOGY

SUPERVISOR/TEAM/ DECLARING/CONDUCTING COURSE: W.A Sokalski
DEPARTMENT: Chemical Department
SCIENTIFIC DISCIPLINE: Chemical Engineering

COURSE CARD

Course name in Polish: Warsztat badacza
Course name in English: Research skills
Course language English
The course is intended for all PhD students: YES / ~~NO~~
1) ~~basic course~~
2) ~~specialist course~~
3) ~~seminar~~
4) ~~humanistic course~~
5) ~~language~~
6) research skills

Subject code: CIQ100208W

	Lecture	Foreign language course	Seminar	Mixed forms
Number of hours of organized classes in university (ZZU)	30			
Grading	zaliczenie			

PREREQUISITES RELATING TO KNOWLEDGE, SKILLS AND OTHER COMPETENCES
1. basic computer skills
2. communication in English language

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COURSE OBJECTIVES
C1 Teaching basic concepts of scientific literature and writing research papers
C2 Teaching practical use of scientific literature and factographic databases
C3 Preparing conference presentations, arranging international cooperation
C4 Teaching basic concepts of organization and funding scientific research and writing grant applications, career planning
C5 Teaching basic concepts of ethical problems in science and engineering

PROGRAM CONTENTS

Form of classes		Number of hours
Mix1	Initial information, explanation of course goals and composition of the final report, assigning accounts, computer network services	2
Mix2	Writing scientific publications, preparing manuscripts and correspondence with research journals editors.	2
Mix3	Boole algebra, keywords, composing search queries, Current Contents database and systematic collection of research literature	2

Mix4	Web of Science literature database, scientometric analysis, impact factors, Hirsch index, etc.	2
Mix5	Domestic and foreign research grants and fellowships. Searching relevant projects in domestic and foreign research grant databases.	2
Mix6	Searching review papers, experts and research centers	2
Mix 7	Writing research grants and applications for fellowships	2
Mix8	Composing CV	2
Mix9	Collecting job offers and preparing for job interview	2
Mix10	Preparing conference presentations and applying for conference grants	2
Miz11	Planning research career, postdoc training, arranging international cooperation	2
Mix12	Searching domestic and foreign patent databases	2
Mix13	Ethical problems in science and industry	2
Mix14	Use of selected factographic databases	2
Mix15	Report grading	2
	Total hours	30

TEACHING TOOLS USED

N1. Multimedia presentation
N2. Solving problems
N3. Discussion with course participants

ACHIEVED SUBJECT LEARNING OUTCOMES

Type of learning outcome	Code of learning outcome	Assessment of learning outcome
Knowledge	P8U_W	Report
Knowledge	P8S_WK	Report
Skills	P8U_U	Report
Skills	P8S_UK	Multimedia presentation Funding application
Skills	P8S_UO	Report
Skills	P8S_UU	Report
Social competence	P8S_K	Report
Social competence	P8S_KK	Report
Social competence	P8S_KR	Report

PRIMARY AND SECONDARY LITERATURE

PRIMARY LITERATURE:

1. D. Lindsay, A guide to scientific writing, Longman, 1984
(Dobre rady dla piszących teksty naukowe, Oficyna Wydawnicza PWr, 1995)
2. D. Ridley, Finding scientific information –information retrieval, Wiley, 2002
3. M. Carter, Designing Science Presentations, Academic Press, 2013
4. On Being Scientist: A Guide to Responsible Conduct in Research: Third Edition, National Academy of Sciences (2009)

SECONDARY LITERATURE:

1. M. Heller, Jak być uczonym, Znak, 2013
2. N. Hertz, Eyes wide open, Harper Collins, 2013

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SUBJECT SUPERVISOR (NAME AND SURNAME, E-MAIL ADDRESS)
Prof. dr hab.inż. W. Andrzej Sokalski, sokalski@pwr.edu.pl

SHORT COURSE DESCRIPTION AND GRADING
Interactive course in computer laboratory for beginning graduate students from all departments delivered since 1995. Course includes hands-on systematic retrieval and critical evaluation of scientific information from literature, patent, dissertation and research grant databases. Composing database search queries. Writing and editing research papers, selection of most appropriate journals, correspondence with editors and reviewers. Preparing grant, fellowship or conference support applications. Career planning. Arranging international and interdisciplinary collaborations. Searching for best research centers, experts, job and postdoctoral fellowship offers. Writing CV and preparing for interview. Avoiding ethical problems in science. Use of factographic databases and resources of national supercomputer centers. Course grading is based on the quality of report containing critical evaluation of various kinds of information (reviews, books, experts, patents, grants, job offers, conferences, etc.) related to the topics of PhD thesis.