Course title:	Research methodologies and construction of research stations
Course title in Polish:	Metodyki badań i konstruowanie stanowisk badawczych
Course for discipline:	Forestry

Semester:	4	**Status of course:**	faculty	**Language:**	english
Academic year:	2026/27	**Catalog number:**	184/2025/26		

Coordinator of course:	prof. dr hab. Piotr Beer
Lecturer od course:	prof. dr hab. Piotr Beer
Executing unit:	INDM
Ordering unit:	Doctoral School SGGW
Assumptions, goals and description of the course:	Object of the course is to prepare students to analyze the needs arising from the completion of a doctoral thesis in terms of carrying out experimental research. The analysis formulates the method of conducting research, i.e. determines its methodology. The aim of the course is to inspire students to take the initiative to create and construct their own individual research stations or equip existing ones with original equipment that will be used to carry out the research intended in the work or verify hypotheses. Classes will be conducted in a mixed lecture/practice format. The lecture will define the problem that needs to be solved. The exercises will define possible solutions. A given solution will be determined by each student individually, defined and presented in the form of a presentation and visualization/mock-up. The final discussion of individual solutions will contribute to a critical analysis of the way of thinking.
Didactic form, number of hours:	Lectures, exercises, 15
Teaching methods:	Case study, problem method, discussion
Limit of people in the group:	13

Learning outcomes

KNOWLEDGE - the graduate knows and understands:	**SKILLS - the graduate is able to:**	**COMPETENCES - the graduate is ready to:**
To the extent enabling to revise the existing pradigms in the field/discipline - the world achievments, gathering theoretical background as well as general and selected detailed issues	Carry out critical assessment of the scientific research findings and expert activities and their contribution to the knowledge development in the field/discipline	Critically evaluate the achievments in the field/discipline represented
Major general development trends in the field/discipline		Recognise knowledge in solving cognitive and practical problems characteristic for the area of research (field/discipline) and in an interdisciplinary aspect
		Support the ethos of scientific circles and conduct independent research

The method of verification of learning outcomes:	Oral examination
Form of documentation of achieved learning outcomes:	Presentation
Elements and weights of the final grade:	Presentation 80%, activity during classes 20%
Place of the course:	Building 34, room 1/36

Basic and supplementary literature

Ashby M.F., Jones D.R.H. (1996): Materiały inżynierskie. Wyd. Naukowo-Techniczne, Warszawa, s. 472
Baldwin R.F. (1995): Plywood and veneer-based products: manufacturing practices. Wood technology book. ISBN: 0-87930-371-9.
Burakowski T., Wierzchoń T. (1995): Inżynieria powierzchni metali , Wydawnictwa Naukowo-Techniczne, Warszawa, Polska, ISBN 83-204-1812-7, s.555.
CTB (Centre Technique du Bois) (1979) : Technologie du déroulage , Cahier du Centre Technique du Bois, vol.115, Paris, France, 1979: 64
Kivimaa E. (1952): Die Schnittkraft in der Holzbearbeitung. Holz als Roh- und Werkstoff 10(3) (1952) 94-108.
Kollman F., Côté W., Principles of wood science and technology. Springer-Verlag, Volume I : Solid Wood, 1984, p. 592.
Lawrowski Z. (1993): Tribologia ; tarcie, zużywanie i smarowanie. Wydawnictwo Naukowe PWN, Warszawa, Polska, s.315.
Orlicz T. (1988): Obróbka drewna narzędziami tnącymi , Wydawnictwo SGGW-AR, wyd.IV, Warszawa, Polska, ISBN 83-00-02116-7, s: 504
Małdziński L., Tacikowski J. (1998): Inżynieria powierzchni. Wydawnictwo Naukowe PWN: 49
Przybyłowicz K. (1996) Metaloznawstwo , Wydawnictwa Naukowo-Techniczne, Warszawa, Polska, s. 426.
Walczak J. (1967) Wytrzymałość materiałów oraz podstawy teorii sprężystości i plastyczności, Państwowe Wydawnictwo Naukowe, Warszawa, Polska, s. 312.
Żmichorski E. (1976) Stale narzędziowe i obróbka cieplna narzędzi , Wydawnictwa Naukowo-Techniczne, Warszawa, Polska, s. 520.

Comments:	

Estimated number of hours of work of the doctoral student necessary to achieve the assumed learning outcomes:	

Leraning outcomes reference to the second degree characteristics of the National Qualification Framework (level 8) covering doctoral competences:

Symbol:	**Learning outcomes:**	**8 level NQF**
SD1_KW01	To the extent enabling to revise the existing pradigms in the field/discipline - the world achievments, gathering theoretical background as well as general and selected detailed issues	P8S_WG
SD1_KW02	Major general development trends in the field/discipline	P8S_WG
SD1_KU05	Carry out critical assessment of the scientific research findings and expert activities and their contribution to the knowledge development in the field/discipline	P8S_UW

SD1_KK01	Critically evaluate the achievments in the field/discipline represented	P8S_KK
SD1_KK03	Recognise knowledge in solving cognitive and practical problems characteristic for the area of research (field/discipline) and in an interdisciplinary aspect	P8S_KK
SD1_KK08	Support the ethos of scientific circles and conduct independent research	P8S_KR