CONTENT

1. Acquirement of Internal Grant	3		
2. Aplikácie kvantovej teórie poľa v súčasnej fyzike kondenzovaných látok			
3. Author's patents, discoveries, software	6		
4. Citation in monograph7			
5. Citation in scientific journal published abroad	8		
6. Citation in scientific journal published in the country of residence	9		
7. Citation registered in Science Citation Index	.10		
8. Co-worker of project supported by international grant schemes	11		
9. Co-worker of project supported by national grant schemes	.12		
10. Defence of Doctoral Thesis.	.13		
11. Dissertation examination	.14		
12. Domain and Domain Walls	15		
13 Elaboration of reviewer report	16		
14 English Language for PhD Students 1	17		
15 Fnolish Language for PhD Students 2	18		
16. Experimenálne metódy fyziky nízkych tenlôt	20		
17. Experimentatile metody ryziky mzkych teplot	20		
18 Home Conference with Foreign Participation	$\frac{22}{24}$		
10. Implementation of new experimental methodology	27		
20 International Conference	25		
21. Intruduction to Condensed Metter	.20		
22. Initiaduction to Condensed Matter	21		
22. Journals Registered by Current Contents Connect detabase and published abroad	20		
23. Journals not registered in the Current Contents Connect database and published in the country.	29 f		
24. Journals not registered in the Current Contents Connect database and published in the country	20		
	30		
25. Journals registered in the Current Contents Connect database and published in the country of	21		
	31		
26. Macroscopic quantum systems	32		
27. Magnetic Materials	34		
28. Magnetotochemistry	.33		
29. Makroskopické kvantové systemy II	.37		
30. Modern Methods of Solids Structure Investigation	39		
31. National Conference.	41		
32. Non-reviewed collections of papers and monographs published abroad or in the country of			
residence	42		
	12		
33. Pedagogy for university teachers	43		
33. Pedagogy for university teachers	43 44		
 33. Pedagogy for university teachers	43 44 45		
 33. Pedagogy for university teachers	43 44 45 47		
 33. Pedagogy for university teachers	43 44 45 47 49		
 33. Pedagogy for university teachers	43 44 45 47 49 50		
 33. Pedagogy for university teachers	43 44 45 47 49 50 51		
 33. Pedagogy for university teachers	43 44 45 47 49 50 51 .52		
 33. Pedagogy for university teachers	43 44 45 47 49 50 51 .52 .53		
 33. Pedagogy for university teachers	43 44 45 47 49 50 51 .52 .53 .54		
 33. Pedagogy for university teachers	43 44 45 47 49 50 51 .52 .53 .54 .55		
 Pedagogy for university teachers. Presentation in Seminar. Processing, properties and applications of nanomaterials. Psychology for University Lecturers. Psychology for University Lecturers. Quantum Theory of Magnetism. Rastrovacie sondové mikroskopie. Reviewed Proceedings. Selected problems of numerical methods in micro-magnetism. Seminar in Solid State Physics. 	43 44 45 47 49 50 51 .52 .53 .54 .55		

46. Seminar in Solid State Physics	
47. Seminar in Solid State Physics	59
48. Seminar in Solid State Physics	60
49. Sensors and actuators based on selected physical phenomena	61
50. Spring School for PhD Students	
51. Structural properties of materials	
52. Study Stay Abroad	64
53. Supervision of Student's Scientific Activity	65
54. Supervisor/consultant of bacelor thesis	66
55. Teaching activities	67
56. Termodynamika supravodičov	
57. Teória silne korelovaných elektrónových systémov	70
58. Work in Organizing Committee of Conference	71
59. Writing Dissertation Work	72

University: P. J. Šafá	University: P. J. Šafárik University in Košice		
Faculty: Faculty of Science			
Course ID: ÚFV/ IG/04	Course ID: ÚFV/ Course name: Acquirement of Internal Grant G/04		
Course type, scope and the method: Course type: Recommended course-load (hours): Per week: Per study period: Course method: present			
Number of ECTS cr	edits: 10		
Recommended seme	ster/trimester of the cours	e:	
Course level: III.			
Prerequisities:			
Conditions for cours	e completion:		
Learning outcomes:			
Brief outline of the c	ourse:		
Recommended litera	iture:		
Course language:			
Notes:			
Course assessment Total number of assessed students: 123			
abs n			
100.0 0.0			
Provides:			
Date of last modification:			
Approved: prof. Ing.	Approved: prof. Ing. Martin Orendáč, CSc.		

University: P. J. Šafárik University in Košice		
Faculty: Faculty of S	cience	
Course ID: ÚFV/ AKTP/12	Course name: Aplikácie kvantovej teórie poľa v súčasnej fyzike kondenzovaných látok	
Course type, scope and the method: Course type: Lecture Recommended course-load (hours): Per week: 2 Per study period: 28 Course method: present Number of ECTS credits: 5 Recommended semester/trimester of the course:		
Conditions for course completion: exam		
Learning outcomes: To acquaint the stude condensed matter ph	ents with modern methods of quantum field theory and their application in the vsics.	

Brief outline of the course:

Hypothesis of scaling (critical scaling) in thermodynamics; Ising model and thermodynamics of ferromagnetism; Scaling of Green functions; Landau theory; Fluctuation theory and critical behaviour; Foundations of quantum field theory; Physical quantum fields and their equations – Dirac equations, Klein-Gordon equaiton; Quantization of fields; Evolution operator; S-matrix; Green functions and generation functional; T- and N-products; Wick theorems; Feynman diagrammatic technique; Functional form of Green functions, generating functional and statistical sum; Phase transitions; Universal behaviour of statistical sum in the vicinity of phase transition point; Landau fluctuation theory for description of phase transitions; Anomalous scaling; Renormalization of Landau theory; Epsilon-expansion and calculation of renormalization constants; Renormalization group and differential equations for Green functions; Asymptotic scaling solutions in the region of large scales, determination of their stability; Calculation of anomalous and critical exponents.

Recommended literature:

 N.N. Bogolyubov, D.V. Shirkov: Quantum fields, Nauka, Moskva, 2005 (in russian)
 A.N. Vasilev: Renormalization group in Critical Behavior Theory and Stochastic Dynamics Chapman & Hall/CRS, Boca Raton London New York Washington D.C., 2004.

Course language:

slovak, english

Notes:

Course assessment		
Total number of assessed students: 0		
N P		
0.0 0.0		
Provides: prof. RNDr. Michal Hnatič, DrSc.		
Date of last modification: 03.05.2015		
Approved: prof. Ing. Martin Orendáč, CSc.		

University: P. J. Šafá	University: P. J. Šafárik University in Košice		
Faculty: Faculty of Science			
Course ID: ÚFV/ PVS/04	vurse ID: ÚFV/ Course name: Author's patents, discoveries, software		
Course type, scope and the method: Course type: Recommended course-load (hours): Per week: Per study period: Course method: present			
Number of ECTS cr	edits: 2		
Recommended seme	ster/trimester of the cours	e:	
Course level: III.			
Prerequisities:			
Conditions for cours	e completion:		
Learning outcomes:			
Brief outline of the c	ourse:		
Recommended litera	iture:		
Course language:			
Notes:			
Course assessment Total number of assessed students: 37			
abs n			
100.0 0.0			
Provides:			
Date of last modification:			
Approved: prof. Ing. Martin Orendáč, CSc.			

University: P. J. Šafá	University: P. J. Šafárik University in Košice		
Faculty: Faculty of Science			
Course ID: ÚFV/ CM/04	Course ID: ÚFV/ Course name: Citation in monograph		
Course type, scope and the method: Course type: Recommended course-load (hours): Per week: Per study period: Course method: present			
Number of ECTS cr	edits: 20		
Recommended seme	ster/trimester of the cours	e:	
Course level: III.			
Prerequisities:			
Conditions for cours	e completion:		
Learning outcomes:			
Brief outline of the c	ourse:		
Recommended litera	iture:		
Course language:			
Notes:			
Course assessment Total number of assessed students: 1			
abs n			
100.0 0.0			
Provides:			
Date of last modification:			
Approved: prof. Ing. Martin Orendáč, CSc.			

University: P. J. Šafá	University: P. J. Šafárik University in Košice		
Faculty: Faculty of Science			
Course ID: ÚFV/ CZC/04	rse ID: ÚFV/ Course name: Citation in scientific journal published abroad /04		
Course type, scope and the method: Course type: Recommended course-load (hours): Per week: Per study period: Course method: present			
Number of ECTS cr	edits: 10		
Recommended seme	ster/trimester of the cours	e:	
Course level: III.			
Prerequisities:			
Conditions for cours	se completion:		
Learning outcomes:			
Brief outline of the c	ourse:		
Recommended litera	nture:		
Course language:			
Notes:			
Course assessment Total number of assessed students: 60			
abs n			
100.0 0.0			
Provides:			
Date of last modification:			
Approved: prof. Ing. Martin Orendáč, CSc.			

University: P. J. Šafá	University: P. J. Šafárik University in Košice		
Faculty: Faculty of S	Faculty: Faculty of Science		
Course ID: ÚFV/ CDC/04	Course name: Citation in scientific journal published in the country of residence		
Course type, scope and the method: Course type: Recommended course-load (hours): Per week: Per study period: Course method: present			
Number of ECTS cr	edits: 5		
Recommended seme	ster/trimester of the cours	e:	
Course level: III.			
Prerequisities:			
Conditions for cours	e completion:		
Learning outcomes:			
Brief outline of the c	ourse:		
Recommended litera	iture:		
Course language:			
Notes:			
Course assessment Total number of assessed students: 4			
abs n			
100.0 0.0			
Provides:			
Date of last modification:			
Approved: prof. Ing. Martin Orendáč, CSc.			

University: P. J. Šafá	University: P. J. Šafárik University in Košice		
Faculty: Faculty of Science			
Course ID: ÚFV/ SCI/04	Course name: Citation registered in Science Citation Index		
Course type, scope and the method: Course type: Recommended course-load (hours): Per week: Per study period: Course method: present			
Number of ECTS cr	edits: 20		
Recommended seme	ster/trimester of the cours	e:	
Course level: III.			
Prerequisities:			
Conditions for cours	e completion:		
Learning outcomes:			
Brief outline of the c	ourse:		
Recommended litera	iture:		
Course language:			
Notes:			
Course assessment Total number of assessed students: 177			
abs n			
100.0 0.0			
Provides:			
Date of last modification:			
Approved: prof. Ing. Martin Orendáč, CSc.			

University: P. J. Šafá	rik University in Košice		
Faculty: Faculty of Science			
Course ID: ÚFV/ SMPR/04	Course ID: ÚFV/ SMPR/04Course name: Co-worker of project supported by international grant schemes		
Course type, scope and the method: Course type: Recommended course-load (hours): Per week: Per study period: Course method: present			
Number of ECTS cr	edits: 15		
Recommended seme	ster/trimester of the cours	e:	
Course level: III.			
Prerequisities:			
Conditions for cours	e completion:		
Learning outcomes:			
Brief outline of the c	ourse:		
Recommended litera	iture:		
Course language:			
Notes:			
Course assessment Total number of assessed students: 95			
abs n			
100.0 0.0			
Provides:			
Date of last modification:			
Approved: prof. Ing. Martin Orendáč, CSc.			

University: P. J. Šafá	rik University in Košice		
Faculty: Faculty of Science			
Course ID: ÚFV/ SDPR/04	ourse ID: ÚFV/ DPR/04Course name: Co-worker of project supported by national grant schemes		
Course type, scope and the method: Course type: Recommended course-load (hours): Per week: Per study period: Course method: present			
Number of ECTS cr	edits: 2		
Recommended seme	ster/trimester of the cours	e:	
Course level: III.			
Prerequisities:			
Conditions for cours	e completion:		
Learning outcomes:			
Brief outline of the c	ourse:		
Recommended litera	iture:		
Course language:			
Notes:			
Course assessment Total number of assessed students: 485			
abs n			
100.0 0.0			
Provides:			
Date of last modification:			
Approved: prof. Ing. Martin Orendáč, CSc.			

University: P. J. Šafá	rik University in Košice		
Faculty: Faculty of S	cience		
Course ID: ÚFV/ ODZP/14	ourse ID: ÚFV/Course name: Defence of Doctoral ThesisDZP/14		
Course type, scope and the method: Course type: Recommended course-load (hours): Per week: Per study period: Course method: present			
Number of ECTS cr	edits: 30		
Recommended seme	ster/trimester of the cours	e:	
Course level: III.			
Prerequisities:			
Conditions for cours	e completion:		
Learning outcomes:			
Brief outline of the c	ourse:		
Recommended litera	iture:		
Course language:			
Notes:	Notes:		
Course assessment Total number of assessed students: 71			
N P			
0.0 100.0			
Provides:			
Date of last modification: 03.05.2015			
Approved: prof. Ing. Martin Orendáč, CSc.			

University: P. J. Šafá	University: P. J. Šafárik University in Košice		
Faculty: Faculty of Science			
Course ID: ÚFV/ DZS/14	ourse ID: ÚFV/ ZS/14Course name: Dissertation examination		
Course type, scope and the method: Course type: Recommended course-load (hours): Per week: Per study period: Course method: present			
Number of ECTS cr	edits: 20		
Recommended seme	ster/trimester of the cours	e:	
Course level: III.			
Prerequisities:			
Conditions for cours Obtaining required no	e completion: umber of credits as given by	the study plan.	
Learning outcomes: Evaluation of compet	tences of the student accordi	ng to his/her scientific profile.	
Brief outline of the course: Presentation of the results in the thesis for disertation exam, responding to referee's comments, answering questions of exam committee. Two questions are selected subsequently from one compulsory and one optional subject, respectively. The subjects are selected by guarantee of the program according to the study plan and scientific profile of the student. The third question addresses the current state of work on dissertation thesis			
Recommended literature:			
Course language: english			
Notes:			
Course assessment Total number of assessed students: 100			
	Ν	Р	
	0.0	100.0	
Provides:			
Date of last modification: 03.05.2015			
Approved: prof. Ing. Martin Orendáč, CSc.			

Г

University:	University: P. J. Šafárik University in Košice						
Faculty: Fa	Faculty: Faculty of Science						
Course ID: DDS/15	ÚFV/	FV/ Course name: Domain and Domain Walls					
Course typ Course tyj Recomme Per week: Course me	Course type, scope and the method: Course type: Lecture Recommended course-load (hours): Per week: 2 Per study period: 28 Course method: present						
Number of	ECTS cr	edits: 3					
Recommen	ded seme	ster/trimester o	of the cours	e:			
Course leve	el: II., III.						
Prerequisit	ies:						
Conditions Exam	for cours	e completion:					
Learning o The objecti their structu	Learning outcomes: The objective is to acquaint the students with the basis of the domain and domain wall formation, their structure, static and dynamic properties in magnetic materials.						
Brief outlin Domain str Anisotropie motion indu	Brief outline of the course: Domain structure. Experimental study of domain structure. Calculation of domain structure. Anisotropies. Domain wall types. Domain wall potential. Domain wall dynamics. Domain wall motion induced by electrical current.				n structure. omain wall		
Recommended literature: 1. B.D. Cullity, C.D. Graham, "Introduction to magnetic materials", John Wiley & Sons, New Jersy (2009) 2. S. Chikazumi, Physics of Ferromagnetism, Oxford University Press, USA (2009) 3. S. Tumanski, Handbook of Magnetic Measurements, CRC Press (2011) 4. N. A. Spaldin, Magnetic Materials: Fundamentals and Device Applications. Cambridge University Press (2003)							
Course language: slovak, english							
Notes:							
Course assessment Total number of assessed students: 6							
А	В	С	D	Е	FX	N	Р
66.67	0.0	33.33	0.0	0.0	0.0	0.0	0.0
Provides: prof. RNDr. Rastislav Varga, DrSc.							
Date of last modification: 03.05.2015							
Approved: prof. Ing. Martin Orendáč, CSc.							

University: P. J. Šafá	rik University in Košice		
Faculty: Faculty of S	cience		
Course ID: ÚFV/ VPBP/04	ÚFV/ Course name: Elaboration of reviewer report		
Course type, scope and the method: Course type: Recommended course-load (hours): Per week: Per study period: Course method: present			
Number of ECTS cr	edits: 2		
Recommended seme	ster/trimester of the cours	e:	
Course level: III.	Course level: III.		
Prerequisities:			
Conditions for cours	e completion:		
Learning outcomes:			
Brief outline of the c	ourse:		
Recommended litera	iture:		
Course language:			
Notes:	Notes:		
Course assessment Total number of assessed students: 19			
abs n			
100.0 0.0			
Provides:			
Date of last modification:			
Approved: prof. Ing. Martin Orendáč, CSc.			

University: P. J.	Šafárik Univers	ity in Košice			
Faculty: Faculty	of Science				
Course ID: CJP/ AJD1/07	Course name: English Language for PhD Students 1				
Course type, sco Course type: Pr Recommended Per week: 2 Per Course method	pe and the met actice course-load (h study period: present	thod: ours): 28			
Number of ECT	S credits: 2				
Recommended s	emester/trimes	ster of the cours	e: 1.	_	
Course level: III.					
Prerequisities:					
Conditions for course completion: Written assignments - professional CV, short academic biography (200-350 words). distance mode of instruction using MS teams					
Learning outcon	Learning outcomes:				
Brief outline of t	he course:				
Recommended li	iterature:				
Course language	•				
Notes:					
Course assessment Total number of assessed students: 649					
N	Ne	Р	Pr	abs	neabs
0.0	0.0	51.31	0.0	48.69	0.0
Provides: PhDr. Helena Petruňová, CSc., Mgr. Zuzana Kolaříková, PhD.					
Date of last modification: 11.02.2021					
Approved: prof. Ing. Martin Orendáč, CSc.					

University: P. J. Šafá	rik University in Košice		
Faculty: Faculty of S	cience		
Course ID: CJP/ AJD2/07	Course name: English Language for PhD Students 2		
Course type, scope a Course type: Practic Recommended cour Per week: 2 Per stu Course method: pre	nd the method: ce rse-load (hours): dy period: 28 esent		
Number of ECTS cr	edits: 3		
Recommended seme	ster/trimester of the course: 2.		
Course level: III.			
Prerequisities:			
Conditions for cours Distance mode of ins Test, oral exam in acc cjp/doktorandi-upjs/)	e completion: truction. Online consultations. ordance with the exam requirements (https://www.upjs.sk/filozoficka-fakulta/		
Learning outcomes: Development of stu (selected aspects of pragmatic competence and specific purposes	idents' language skills, improvement of students' linguistic competencies English pronunciation, vocabulary and syntax), development of students's e (selected aspects of functional grammar) with focus on English for academic s. B2/C1 level of lanugage competence (according to CEFR.)		
Brief outline of the course: Specific aspecs of academic and professional English with focus on vocabulary development (noun and verb collocations, phrasal verbs, prepositional phrases, word-formation, formal/informal language, etc.), selected aspects of English grammar (prepositions, grammar tenses, passive voice, etc.), selected functional grammar (expressing opinion, cause/effect, arguments, examples, etc.). Academic communication. Cross-language interference.			
Recommended litera Kolaříková, Z., Petru UPJŠ Košice, 2015 McCarthy, M., O'Del Štepánek, L., J. De H 2011 Blašková, K.: Handbo Dušková, L. a kol.: H Bratislava, 1982 Armer, T.: Cambridge Porter, D.: Check you Oxford Collocations Ims.upjs.sk	 hture: ňová, H., Timková, R.: Angličtina v akademickom prostredí (cvičebnica). II, F.: Academic Vocabulary in Use. CUP, 2008 aff a kol.: Academic English-Akademická angličtina. Grada Publishing, a.s., ook of English for Postgraduate Students. Vyd. SPRINT Bratislava, 2007 lovorová angličtina pre vedeckých a odborných pracovníkov. Veda. e English for Scientists. CUP, 2011 ar vocabulary for Academic English. Macmillan Publishers Limited, 2008 Dictionary for students of English. OUP, 2002 		
Course language:			

B2/C1 level according to CEFR					
Notes:					
Course assessm Total number of	nent f assessed studen	ts: 607			
Ν	Ne	le P Pr abs neabs			
0.33	0.0	92.59	1.32	5.77	0.0
Provides: PhDr. Helena Petruňová, CSc., Mgr. Zuzana Kolaříková, PhD.					
Date of last mo	dification: 10.02	2.2021			
Approved: prof. Ing. Martin Orendáč, CSc.					

University: P. J. Šaf	árik University in Košice
Faculty: Faculty of	Science
Course ID: ÚFV/ EMFNT/12	Course name: Experimenálne metódy fyziky nízkych teplôt
Course type, scope Course type: Lectu Recommended cou Per week: 2 Per st Course method: pr	and the method: are arse-load (hours): udy period: 28 resent
Number of ECTS c	redits: 3
Recommended sem	ester/trimester of the course:
Course level: III.	
Prerequisities:	
Conditions for cour Succesful passing te	rse completion: est and final exam.
Learning outcomes Introduction to fund and technical realizatechniques. Introduct temperature physicator ordinary life.	: amental principles and methods of cooling to low and ultra low temperatures ation of low temperature facilities. Fundamentals of the vacuum physics and ction to low and ultra low temperature measurements and specifics of the low all measurements. Applications of low temperature physics and techniques in
Brief outline of the Physical principles of	course: of cooling below ambient temperature. Liquefaction of gases and manipulation

with cryogenic liquids. Fundamentals of vacuum techniques and leak detection of vacuum systems. Physical principles and methods of cooling to low and ultra low temperatures. Measurements of low and ultra low temperatures, temperature scale definition. Physical properties of condensed matters at low temperatures. Construction of low temperature refrigerators and apparatures. Low temperature electronics and measurements of physical quantities at low and ultra low temperatures. Applications of low and ultra low temperature physics and techniques.

Recommended literature:

F. Pobell: Matter and Methods at Low Temperatures, Springer Verlag Berlin 1995.

Ch. Enss and S. Hunklinger: Low Temperature Physics, Springer Verlag Berlin 2005.

L. Skrbek a kolektív: Fyzika nízkych teplot, matfyz press, Praha 2011

G.K. White and P.J. Meeson: Experimental Techniques in Low Temperature Physics, Clarendon Press, Oxford 2002.

Š. Jánoš: Fyzika nízkych teplôt, Alfa, Bratislava 1982.

J. Jelínek a Z. Málek: Kryogénní technika, SNTL Paraha 1982.

Course language:

Slovak, English

Notes:

Course assessment			
Iotal number of assessed students: 7			
Ν	Р		
0.0 100.0			
Provides: RNDr. Peter Skyba, DrSc.			
Date of last modification: 03.05.2015			
Approved: prof. Ing. Martin Orendáč, CSc.			

University: P. J. Šafá	University: P. J. Šafárik University in Košice				
Faculty: Faculty of S	cience				
Course ID: ÚFV/ FVT/12	Course name: Fyzika vysokých tlakov				
Course type, scope a Course type: Lectur Recommended cour Per week: 2 Per stu Course method: pre	Course type, scope and the method: Course type: Lecture Recommended course-load (hours): Per week: 2 Per study period: 28 Course method: present				
Number of ECTS cr	edits: 5				
Recommended seme	ster/trimester of the course:				
Course level: III.					
Prerequisities:					
Conditions for cours Succesful passing fin	e completion: al exam				
Learning outcomes: Introduction to the Students will learn a superconducting, mag	high pressure physics and technique including experimental practice. about importance of thermodynamic parameter – pressure in the study of gnetic, strongly correlated or structure properties of materials.				
Brief outline of the c Pressure as paramet physical properties i piston cylinder and E phase transitions. Th at high pressures an Moesbauer, NMR an pressure induced qu anti-/ferromagnet-sup on electronic structu properties of molecul	Brief outline of the course: Pressure as parameter in solid state physics and general mechanism of pressure effect on physical properties in condense matter. Experimental techniques for high pressure generation: piston cylinder and Bridgman cells, diamond anvil and Al2O3 cells. Pressure induced structural phase transitions. The measurement of magnetic, transport and thermal properties of solid state at high pressures and very low temperatures. Spectroscopy under pressure: Raman, UV VIS, Moesbauer, NMR and neutron diffraction. Typical examples of high pressure physics study: pressure induced quantum phase transitions in electronic systems (metal-insulator transition, anti-/ferromagnet-superconductor transition, Non-Fermi-liquid behavior). Influence of pressure on electronic structure, strongly correlated systems and superconductivity. Tuning of magnetic properties of molecular magnets by pressure				
Recommended litera 1. M. I. Eremets: Hig 2. J. Loveday: High p 3. S. Sachdev: Quant 4. T. Vojta: Quantum 5. G. R. Stewart: Nor 797-855 (2001) 6. W. Buckel and R. I Weinheim (2004)	h pressure experimental methods, Oxford University Press, Oxford, (2002) pressure physics, CRC Press, Taylor&Francis Group (2012) um Phase Transitions, Cambridge University Press, Cambridge (2000) phase transitions in electronic systems, Ann. Phys. 9, 403-440 (2000) n-Fermi-Liquid behavior in d- and f- electron metals, Rev. Mod. Phys. 73, Kleiner: Superconductivity, Wiley-VCH Verlag GmbH & Co. KGaA,				
Course language: Slovak, English					
Notes:					

Course assessment			
Total number of assessed students: 10			
Ν	Р		
0.0 100.0			
Provides: doc. RNDr. Slavomír Gabáni, PhD., RNDr. Marián Mihálik, CSc., RNDr. Mária Zentková, CSc.			
Date of last modification: 03.05.2015			
Approved: prof. Ing. Martin Orendáč, CSc.			

University: P. J. Šafá	rik University in Košice		
Faculty: Faculty of S	Faculty: Faculty of Science		
Course ID: ÚFV/ DKZU/04	: ÚFV/ Course name: Home Conference with Foreign Participation		
Course type, scope and the method: Course type: Recommended course-load (hours): Per week: Per study period: Course method: present			
Number of ECTS cr	edits: 4		
Recommended seme	ster/trimester of the cours	e:	
Course level: III.	Course level: III.		
Prerequisities:			
Conditions for cours	e completion:		
Learning outcomes:	Learning outcomes:		
Brief outline of the c	ourse:		
Recommended litera	iture:		
Course language:			
Notes:			
Course assessment Total number of assessed students: 293			
abs n			
100.0 0.0			
Provides:			
Date of last modification:			
Approved: prof. Ing.	Approved: prof. Ing. Martin Orendáč, CSc.		

University: P. J. Šafá	University: P. J. Šafárik University in Košice		
Faculty: Faculty of Science			
Course ID: ÚFV/ NEM/04	Course name: Implementation of new experimental methodology		
Course type, scope and the method: Course type: Recommended course-load (hours): Per week: Per study period: Course method: present			
Number of ECTS cr	edits: 15		
Recommended seme	ster/trimester of the cours	e:	
Course level: III.			
Prerequisities:			
Conditions for cours	Conditions for course completion:		
Learning outcomes:			
Brief outline of the c	ourse:		
Recommended literature:			
Course language:			
Notes:			
Course assessment Total number of assessed students: 74			
abs n			
100.0 0.0			
Provides:			
Date of last modification:			
Approved: prof. Ing. Martin Orendáč, CSc.			

University: P. J. Šafá	University: P. J. Šafárik University in Košice		
Faculty: Faculty of Science			
Course ID: ÚFV/ MK/04	ourse ID: ÚFV/ Course name: International Conference		
Course type, scope and the method: Course type: Recommended course-load (hours): Per week: Per study period: Course method: present			
Number of ECTS cr	edits: 6		
Recommended seme	ster/trimester of the cours	e:	
Course level: III.			
Prerequisities:			
Conditions for cours	e completion:		
Learning outcomes:			
Brief outline of the c	Brief outline of the course:		
Recommended litera	iture:		
Course language:			
Notes:			
Course assessment Total number of assessed students: 393			
abs n			
100.0 0.0			
Provides:			
Date of last modification:			
Approved: prof. Ing. Martin Orendáč, CSc.			

University: P. J. Šafárik University in Košice				
Faculty: Faculty of S	Faculty: Faculty of Science			
Course ID: ÚFV/ VKFKL/04	Course name: Intruduction	n to Condensed Matter		
Course type, scope and the method: Course type: Lecture Recommended course-load (hours): Per week: 4 Per study period: 56 Course method: present				
Number of ECTS cr	edits: 9			
Recommended seme	ster/trimester of the cours	e: 1.		
Course level: III.				
Prerequisities:				
Conditions for cours Oral examination	e completion:			
Learning outcomes: Introduction to basic	pronciples of solid state phy	vsics as well as recently studied phenomena		
Brief outline of the course: Crystal structure. Crystal bonds. Phonons. Fermi gas of free electrons. Energy bands. Fermi surfaces and metals. Superconductivity. Non conventional superconductivity. Diamagnetism and paramagnetism. Ferro- and antiferromagnetism. Strongly correlated electron systems.				
Recommended literature: Ch. Kittel: Introduction to Solid State Physics, 7th edition, John Wiley and sons, New York 1996. H.Ibach, H.Luth: Solid-State Physics, Springer, Berlin 1996. M Tinkham: Introduction to Superconductivity, 2-nd edition, Mc Graw- Hill, New York 1996				
Course language: slovak, english				
Notes:				
Course assessment Total number of assessed students: 77				
	Ν	Р		
0.0 100.0				
Provides: prof. RNDr. Peter Samuely, DrSc., prof. Ing. Martin Orendáč, CSc.				
Date of last modification: 28.03.2020				
Approved: prof. Ing. Martin Orendáč, CSc.				

University: P. J. Šafárik University in Košice			
Faculty: Faculty of Science			
Course ID: ÚFV/ ZKC/04	Course name: Journals Registered by Current Contets Database		
Course type, scope and the method: Course type: Recommended course-load (hours): Per week: Per study period: Course method: present			
Number of ECTS cr	edits: 20		
Recommended seme	ster/trimester of the cours	e:	
Course level: III.			
Prerequisities:			
Conditions for cours	Conditions for course completion:		
Learning outcomes:	Learning outcomes:		
Brief outline of the c	ourse:		
Recommended literature:			
Course language:			
Notes:			
Course assessment Total number of assessed students: 455			
abs n			
100.0 0.0			
Provides:			
Date of last modification:			
Approved: prof. Ing. Martin Orendáč, CSc.			

University: P. J. Šafá	University: P. J. Šafárik University in Košice		
Faculty: Faculty of Science			
Course ID: ÚFV/ ZNC/04	Course name: Journals not registered in the Current Contents Connect database and published abroad		
Course type, scope and the method: Course type: Recommended course-load (hours): Per week: Per study period: Course method: present			
Number of ECTS cr	edits: 5		
Recommended seme	ster/trimester of the cours	e:	
Course level: III.			
Prerequisities:			
Conditions for cours	e completion:		
Learning outcomes:			
Brief outline of the c	ourse:		
Recommended litera	Recommended literature:		
Course language:			
Notes:			
Course assessment Total number of assessed students: 49			
	abs n		
100.0 0.0			
Provides:			
Date of last modification:			
Approved: prof. Ing. Martin Orendáč, CSc.			

University: P. J. Šafá	University: P. J. Šafárik University in Košice		
Faculty: Faculty of Science			
Course ID: ÚFV/ DNC/04	Course name: Journals not registered in the Current Contents Connect database and published in the country of residence		
Course type, scope and the method: Course type: Recommended course-load (hours): Per week: Per study period: Course method: present			
Number of ECTS cr	edits: 5		
Recommended seme	ster/trimester of the cours	e:	
Course level: III.			
Prerequisities:			
Conditions for cours	e completion:		
Learning outcomes:	Learning outcomes:		
Brief outline of the c	ourse:		
Recommended literature:			
Course language:			
Notes:			
Course assessment Total number of assessed students: 21			
abs n			
100.0 0.0			
Provides:			
Date of last modification:			
Approved: prof. Ing. Martin Orendáč, CSc.			

University: P. J. Šafá	University: P. J. Šafárik University in Košice		
Faculty: Faculty of Science			
Course ID: ÚFV/ DKC/04	Course name: Journals registered in the Current Contents Connect database and published in the country of residence		
Course type, scope and the method: Course type: Recommended course-load (hours): Per week: Per study period: Course method: present			
Number of ECTS cr	edits: 15		
Recommended seme	ster/trimester of the cours	e:	
Course level: III.			
Prerequisities:			
Conditions for cours	Conditions for course completion:		
Learning outcomes:			
Brief outline of the c	ourse:		
Recommended litera	Recommended literature:		
Course language:			
Notes:			
Course assessment Total number of assessed students: 8			
	abs	n	
100.0 0.0			
Provides:			
Date of last modification:			
Approved: prof. Ing. Martin Orendáč, CSc.			

University: P. J. Šafárik University in Košice			
Faculty: Faculty of S	cience		
Course ID: ÚFV/ MKS I/04	Course name: Macroscopic quantum systems		
Course type, scope and the method: Course type: Lecture Recommended course-load (hours): Per week: 2 Per study period: 28 Course method: present			
Number of ECTS cr	edits: 5		
Recommended seme	ster/trimester of the cours	e: 1.	
Course level: III.			
Prerequisities:			
Conditions for course completion: Two written tests from topics "Superconductivity" and "Superfluidity" Evaluation is based on the results of the two tests. If score of one of the tests is lower than "C", then student has to pass oral exam.			
Learning outcomes:			
Brief outline of the course: Superconductivity: experiment and theory. High-temperature superconductivity. Josephson effect. Superfluidity of 3He and 4He and 3He-4He solutions. Quantum vortices. Quantum crystals. Superconductivity and superfluidity in other systems. Quantum Hall effect. Macroscopic quantum tunneling in magnetic systems. Bose-Einstein condensation of weakly interacting atoms.			
 Recommended literature: W. Buckel: Superconductivity. VCH, Weinheim, 1991. K. H. Bennemann, J. B. Ketterson: The Physics of liquid and solid Helium. A Wiley Interscience Publication. K.N.Shrivastava; Introduction to Quantum Hall Effect; Nova Science, Hauppauge, N.Y. 2002 K. N. Shrivastava: Introduction to Quantum Hall Effect. Nova Science, Hauppauge, N.Y. 2002. S. Takagi: Macroscopic Quantum Tunneling. Cambridge U. Press, N. Y. 2002. D. R. Tilley, J. Tilley: Superfluidity and Superconductivity. Adam Hilger Itd., Bristol. E. R. Dobbs: Helium Three. Oxford Science publications, 2000. 			
Course language: Slovak, English			
Notes:			
Course assessment Total number of assessed students: 21			
	Ν	Р	
	0.0	100.0	
Provides: Dr.h.c. prof. RNDr. Alexander Feher, DrSc., doc. RNDr. Karol Flachbart, DrSc.			

Date of last modification: 03.05.2015

Approved: prof. Ing. Martin Orendáč, CSc.

Faculty of Science Course ID: ÚFV/ Course name: Magnetic Materials MVV1/07 Course name: Magnetic Materials Course type, scope and the method: Course type; Lecture Recommended course-load (hours): Per week: 2 Per study period: 28 Course method: present Course method: Course method:		
Course ID: ÚFV/ MVV1/07Course name: Magnetic MaterialsCourse type, scope and the method: Course type: Lecture Recommended course-load (hours): Per week: 2 Per study period: 28 Course method: present		
Course type, scope and the method: Course type: Lecture Recommended course-load (hours): Per week: 2 Per study period: 28 Course method: present		
Number of ECTS credits: 5		
Recommended semester/trimester of the course:		
Course level: III.		
Prerequisities:		
Conditions for course completion: test and oral examination.		
Learning outcomes: To obtain a general view on the magnetic properties an application of soft and hard magnetic materials.		
Brief outline of the course: Magnetic properties of iron, cobalt and nickel and alloys. Magnetic properties of Fe-Si steels (oriented and non-oriented). Structure and magnetic properties af amorphous and nanocrystalline alloys. Magnetic properties of permanent magnets. The principle of magnetic recording and magnetic recording media. Preparation, structure and magnetic properties of thin films and multilayers.		
 Recommended literature: S. Chikazumi: Physics of Magnetism, J.Willey and Sons, Inc. New York, London, Sydney, 1997. D. Jiles: Introduction to magnetism and magnetic materials, Chapman&Hall, London, New York, Tokyo, Melbourne, Madras, 1991 R. C. O'Handley: Modern Magnetic Materials, Principles and Applications, J.Willey and Sons, Inc. New York, 1999 		
Course language:		
Notes:		
Course assessment Total number of assessed students: 39		
N P		
0.0 100.0		
Provides: doc. RNDr. Ján Füzer, PhD., RNDr. Ivan Škorvánek, CSc.		
Date of last modification: 03.05.2015		
Approved: prof. Ing. Martin Orendáč, CSc.		

University: P. J. Šafá	rik University in Košice			
Faculty: Faculty of S	cience			
Course ID: ÚFV/ MGCH/04	ourse ID: ÚFV/ IGCH/04Course name: Magnetotochemistry			
Course type, scope a Course type: Lectur Recommended cour Per week: 2 Per stu Course method: pre	Course type, scope and the method: Course type: Lecture Recommended course-load (hours): Per week: 2 Per study period: 28 Course method: present			
Number of ECTS cr	edits: 5			
Recommended seme	ster/trimester of the cours	e: 1., 3.		
Course level: III.				
Prerequisities:				
Conditions for cours examination	e completion:			
Learning outcomes: Introduction to the basic interactions in the electron subsystem of insulators, demonstration of the correlations between the structure and magnetic properties. Students will learn the basic standard methods used in the analysis of thermodynamic data (specific heat, susceptibility, magnetization) and EPR, since the study of magnetic properties yield an important information about the structure of material especially at low temperatures.				
Brief outline of the course: Electronic states in hydrogen atom, electronic configuration, term, multiplet. Paramagnetic and diamagnetic atoms. Atom in magnetic field: specific heat, susceptibility, magnetization and electron paramagnetic resonance (EPR). Atom in the crystal field. Freezing of angular momentum. Spin Hamiltonian. Termodynamics and EPR of paramagnetic atoms in the crystal field. Exchange and dipole interaction.Heisenberg Hamiltonian. Magnetic dimer. Long-range and short- range order. Low-dimensional magnets. Spatial anisotropy of exchange coupling. Exchange anisotropy. Heisenberg, Ising and XY model.				
 Recommended literature: 1.R.L. Carlin, A.J. Duyneveldt: Magnetic properties of transition metal compounds. New York, inc. Springer Verlag, 1977. 2. A.B.P.Lever, Inorganic electronic spectroscopy, Elsevier, Amsterdam, 1987. 				
Course language: english				
Notes:				
Course assessment Total number of assessed students: 36				
	N	Р		
	0.0	100.0		

Provides: doc. RNDr. Alžbeta Orendáčová, DrSc., RNDr. Róbert Tarasenko, PhD.

Date of last modification: 03.05.2015

Approved: prof. Ing. Martin Orendáč, CSc.
University: P. J. Šafárik University in Košice					
Faculty: Faculty of S	Faculty: Faculty of Science				
Course ID: ÚFV/ MKS II/12	Course name: Makroskopi	cké kvantové systémy II			
Course type, scope a Course type: Lectu Recommended cou Per week: 1 Per stu Course method: pr	Course type, scope and the method: Course type: Lecture Recommended course-load (hours): Per week: 1 Per study period: 14 Course method: present				
Number of ECTS cr	redits: 3				
Recommended seme	ester/trimester of the course)• •			
Course level: III.					
Prerequisities:					
Conditions for cour Successful passing o	se completion: f the final exam				
Learning outcomes: Elucidate to student of SQUIDs, the for the quantum Hall eff relations between the	Learning outcomes: Elucidate to students the properties of heavy fermion systems, the principles and applications of SQUIDs, the formation and properties of Bose - Einstein condensates in diluted gases, and the quantum Hall effect and its utilization. During the course students will learn and acquire the relations between these effects, and the quantum and macroscopic quantum phenomena				
Brief outline of the course: Heavy fermions - their formation and properties, unconventional superconductivity in these systems. Tunneling in superconductors and the Josephson effect. SQUIDs - their principles and applications. Further applications of superconductivity. Bose - Einstein condensation in weakly interacting diluted gases, principles of their cooling by lasers. Methods of condensate formation and the observation of its properties. The quantum Hall effect - conditions of its appearance and applications of this effect. The fractional quantum Hall effect - its properties and explanation.					
Recommended liter: J.F. Annet: Supercom 2. W. Buckel, R. Kle	ature: ductivity, Superfluids and Co iner: Superconductivity, Wile	ondensates, Oxford Univ. Press, Oxford (2003), ey-WCH, Weinheim (2004).			
Course language: Slovak, English					
Notes:					
Course assessment Total number of asse	essed students: 13				
	N	Р			
	0.0 100.0				
Provides: doc. RNDr. Karol Flachbart, DrSc.					
Date of last modification: 03.05.2015					

Approved: prof. Ing. Martin Orendáč, CSc.

University: P. J. Šafá	rik University in Košice
Faculty: Faculty of S	cience
Course ID: ÚFV/ MMTL/04	Course name: Modern Methods of Solids Structure Investigation
Course type, scope a Course type: Lectur Recommended cour Per week: 2 Per stu	and the method: re rse-load (hours): ady period: 28

Course method: present

Number of ECTS credits: 5

Recommended semester/trimester of the course: 2.

Course level: III.

Prerequisities: ÚFV/MSA1/03

Conditions for course completion:

75% written test

25% the ppt presentation from selected topic

Learning outcomes:

To obtain knowledges about frontier microskopic techniques and XRD techniques for structural analysis of materials.

Brief outline of the course:

New trends in Optic microscopy, Electron microscopy, Electron diffraction. Electron microprobe analysis: WDX spectrometer, EDX spectrometer, Auger spectroscopy. Self-emision microscopy. Modern electron diffracion methods (CBD, nanodiffraction), X-ray diffractometry, phase and profile analysis. Synchrotron radion: sources and application of SR in material science research, neutron scattering , Small angle scattering. Modern methods of surface observation: STM, AFM. Synchrotron radiation in material science research.

Recommended literature:

1.S. Amelincks, D.van Dyck, J. van Landyut, Electron Microscopy – Principles and Fundamentals, VCH, 1997.

2.M.H. Loretto, Electrom beam analysis of materials. Springer, 2002.

3.Fundamentals of Powder Diffraction and Structural Characterization of Materials, Vitalij K. Pecharsky & Peter Y. Zavalij , Kluwer Academic Publishers, 2003.

4.Structure Determination from Powder Diffraction Data, Edited by W.I.F. David, K. Shankland, L.B. McCusker, C. Bärlocher, Oxford University Press, 2006

Course language:

English

Notes:

Course assessment				
Total number of assessed students: 64				
Ν	Р			
0.0	100.0			
Provides: prof. RNDr. Pavol Sovák, CSc., Ing. Karel Saksl, DrSc.				
Date of last modification: 03.05.2015				
Approved: prof. Ing. Martin Orendáč, CSc.				

University: P. J. Šafá	University: P. J. Šafárik University in Košice				
Faculty: Faculty of S	cience				
Course ID: ÚFV/ DK/04	Course name: National Co	onference			
Course type, scope a Course type: Recommended cour Per week: Per stud Course method: pre	Course type, scope and the method: Course type: Recommended course-load (hours): Per week: Per study period: Course method: present				
Number of ECIS cr	edits: 2				
Recommended seme	ster/trimester of the cours	e:			
Course level: III.					
Prerequisities:					
Conditions for cours	e completion:				
Learning outcomes:					
Brief outline of the c	ourse:				
Recommended litera	iture:				
Course language:					
Notes:					
Course assessment Total number of assessed students: 137					
abs n					
100.0 0.0					
Provides:					
Date of last modification:					
Approved: prof. Ing. Martin Orendáč, CSc.					

University: P. J. Šafá	rik University in Košice			
Faculty: Faculty of S	cience			
Course ID: ÚFV/ NZ/04	Course ID: ÚFV/ NZ/04Course name: Non-reviewed collections of papers and monographs published abroad or in the country of residence			
Course type, scope a Course type: Recommended cour Per week: Per stud Course method: pre	Course type, scope and the method: Course type: Recommended course-load (hours): Per week: Per study period: Course method: present			
Number of ECTS cr	edits: 2			
Recommended seme	ster/trimester of the cours	e:		
Course level: III.				
Prerequisities:				
Conditions for cours	e completion:			
Learning outcomes:				
Brief outline of the c	ourse:			
Recommended litera	iture:			
Course language:				
Notes:	Notes:			
Course assessment Total number of assessed students: 104				
abs n				
100.0 0.0				
Provides:				
Date of last modification:				
Approved: prof. Ing. Martin Orendáč, CSc.				

University: P. J. Šafá	rik Univers	ity in Košice			
Faculty: Faculty of S	cience				
Course ID: KPE/ PgVU/17	Course na	me: Pedagogy for university teac	hers		
Course type, scope a Course type: Lectur Recommended cour Per week: Per stud Course method: pre	Course type, scope and the method: Course type: Lecture Recommended course-load (hours): Per week: Per study period: 28s Course method: present				
Number of ECTS cr	edits: 5				
Recommended seme	ster/trimes	ster of the course:			
Course level: III.					
Prerequisities:					
Conditions for cours	e completi	on:			
Learning outcomes:					
Brief outline of the c	ourse:				
Recommended litera	iture:				
Course language:					
Notes:	Notes:				
Course assessment Total number of assessed students: 32					
abs n neabs					
100.0 0.0 0.0					
Provides: PaedDr. Renáta Orosová, PhD.					
Date of last modification: 12.02.2021					
Approved: prof. Ing. Martin Orendáč, CSc.					

University: P. J. Šafá	rik University in Košice				
Faculty: Faculty of S	cience				
Course ID: ÚFV/ VYS/04	Course name: Presentation	n in Seminar			
Course type, scope a Course type: Recommended cour Per week: Per stud Course method: pre	Course type, scope and the method: Course type: Recommended course-load (hours): Per week: Per study period: Course method: present				
Number of ECTS cr	edits: 2				
Recommended seme	ster/trimester of the cours	e:			
Course level: III.					
Prerequisities:					
Conditions for cours	e completion:				
Learning outcomes:					
Brief outline of the c	ourse:				
Recommended litera	iture:				
Course language:					
Notes:					
Course assessment Total number of assessed students: 345					
abs n					
100.0 0.0					
Provides:					
Date of last modification:					
Approved: prof. Ing. Martin Orendáč, CSc.					

Faculty: Faculty of Science Course ID: ÚFV/ NSM/12 Course name: Processing, properties and applications of nanomaterials Course type, scope and the method: Course type: Lecture Recommended course-load (hours): Per week: 2 Per study period: 28 Course method: present Course method: present	University: P. J. Šafá	University: P. J. Šafárik University in Košice			
Course ID: ÚFV/ NSM/12Course name: Processing, properties and applications of nanomaterialsCourse type, scope and the method: Course type: Lecture Recommended course-load (hours): Per week: 2 Per study period: 28 Course method: present	Faculty: Faculty of S	cience			
Course type, scope and the method: Course type: Lecture Recommended course-load (hours): Per week: 2 Per study period: 28 Course method: present	Course ID: ÚFV/ Course name: Processing, properties and applications of nanomaterials NSM/12				
	Course type, scope and the method: Course type: Lecture Recommended course-load (hours): Per week: 2 Per study period: 28 Course method: present				

Number of ECTS credits: 5

Recommended semester/trimester of the course:

Course level: III.

Prerequisities:

Conditions for course completion:

Final written test: 50%

The ppt presentation from selected topic:50%

Learning outcomes:

To obtain the newest information about processing of nanostructured materials. To use concrete examples of nanostructured materials for documentation of their unique properties and also to indicate their possibilities for applications in real technical practise.

Brief outline of the course:

Processing of magnetic nanomaterials using litography methods. Production and properties of thin films and multilayers. Processing of nanocrystalline metals, alloys and composites by electrodeposition. Diffusion in nanocrystalline materials: modelling of interface diffusion, specific aspects, correlation between diffusion and grain boundaries, selected examples of diffusion. Magnetic nanoparticles and their applications, fundamental physics of nanoparticles: bulk feromagnetism, magnetic clusters, molecular magnetism, ideal monodomain particle, surface and interface effects, exchange interactions between nanoparticles. Magnetic properties of some nanosystems: amorphous Fe-M-B alloys, FINEMET, influence of atomic substitutions on properties of FINEMET based alloys, Fe-Zr-Nb-B alloys, Fe-Nb-B-P-Cu alloys produced in atmosphere, influence of grain size on Currie temperature and on volume fraction of amorphous matrix. Mechanical properties of NCM: models and computer simulations of mechanical behaviour, density, pores and microcracks, hardness, yield and ultimate strengths, ductility of NCM. Nanostructured Electronics and Optoelectronic materials: NCM and data storage, nanorobotics, nanoelectronics – superlattice, quantum waves and dots, porous Si and Si clusters.

Recommended literature:

1. C.C. Koch, Nanostructured Materials – processing, Properties and Applications, WA Publishing, 2007.

Springer Hanbook of Nanotechnology, B. Bhusnan (Ed.), Springer 2007.

- 2. Nanomagnetism and Spintronics, T. Shinjo (Ed.) Elsevier 2009.
- 3. M.A. White, Physical Properties of Materials, CRC Press 2012.
- 4. N. Dahotre and A. Samant, Laser Machining of Advanced Materials, CRC Press 2011.
- 5. R. Oganov, Modern Methods of Crystal structure Prediction, Wiley-VCH, 2011.

6. G.B. Sergeev, Nanochemistry, Elsevier 2008.7. M.A.Mayers et al: Nano and Microstructural Design of Advanced Materials, Elsevier 2003.				
Course language: english				
Notes:				
Course assessment Total number of assessed students: 17				
Ν	Р			
0.0	100.0			
Provides: Mgr. Vladimír Komanický, Ph.D., pro	f. RNDr. Pavol Sovák, CSc.			
Date of last modification: 03.05.2015				
Approved: prof. Ing. Martin Orendáč, CSc.				

University: P. J. Šafárik University in Košice					
Faculty: Faculty of S	Faculty: Faculty of Science				
Course ID: KPPaPZ/PsVU/17	Course name: Psychology for University Lecturers				
Course type, scope a Course type: Lectu Recommended cou Per week: Per stud Course method: pro	and the method: re rse-load (hours): ly period: 28s esent				
Number of ECTS cr	redits: 5				
Recommended seme	ester/trimester of the course:				
Course level: III.					
Prerequisities:					
Conditions for cours Case study, micro-ou Current modification board of the course.	se completion: htput, its analysis as of the course for the semester 2020/2021 are listed in the electronic bulletin				
Learning outcomes: Acquisition of psychology teaching practice of a knowledge from co psychology, develop enable university te of human developm application in practic	ological skills necessary for professional, competent performance of university doctoral students on the basis of acquisition and use of selected psychological gnitive psychology, psychology of emotions and motivation, personality mental, social, pedagogical psychology and health psychology. They will achers - doctoral students to understand the psychological interpretation ent, upbringing and education. The acquired knowledge will enable better e, are closely linked to practice and are based on current knowledge of the field.				
Brief outline of the of University teacher and teacher in relation to use of methods), in selected areas of cog psychology, social psy the university enviro	course: nd his work in the teaching process with a focus on: himself (cognitive, personality, social competencies and competencies in the relation to students and as part of the teacher-student relationship based on gnitive psychology, psychology of emotions and motivation, developmental sychology , educational psychology and health psychology with application to nment.				
Recommended litera Alexitch, L. R. (2003 Schneider F., Gruma Fry, H., Ketteridge, S education: Enhancing Mareš, J.: Pedagogic Kniha psychologie. U Čáp, J., Mareš, J.: Ps Vágnerová, M.: Škol	 Applying social psychology to education. Social Psychology.–Ed.: n J., Coutts L.–Sage Publications, Inc, 205-228. S., & Marshall, S. (2008). A handbook for teaching and learning in higher g academic practice. Routledge. ká psychologie. Portál, 2013. Universum, 2014 cychologie pro učitele. Praha: Portál 2007. ní poradenská psychológie pro pedagogy. Praha: Karolínum 2005. 				
Course language:					

Notes:							
Course assessment Total number of assessed students: 27							
abs n neabs							
100.0	100.0 0.0 0.0						
Provides: Mgr. Marta Dobrowolska Kulanová, PhD., doc. PhDr. Beata Gajdošová, PhD., PhDr. Anna Janovská, PhD.							
Date of last modification: 17.02.2021							
Approved: prof. Ing. Martin Orendáč, CSc.							

University:	University: P. J. Šafárik University in Košice						
Faculty: Fa	culty of Sci	ence					
Course ID: KTM/14	ÚFV/	Course name:	Quantum T	heory of Mag	gnetism		
Course typ Course tyj Recomme Per week: Course me	e, scope an pe: Lecture nded cours 3 Per stud ethod: pres	d the method e-load (hours y period: 42 ent	: s):				
Number of	ECTS crea	lits: 5					
Recommen	ded semest	er/trimester	of the cours	e:			
Course leve	el: II., III.						
Prerequisit	ies:						
Conditions	for course	completion:					
Learning o	utcomes:						
The definition one-dimension o	The definition of basic lattice-statistical models in the quantum theory of magnetism. The one-dimensional quantum Heisenberg model, spin waves and the grounds of Bethe-ansatz method. Valence-bond-crystal ground states of the Majumdar-Ghosh and Shastry-Sutherland models. The one-dimensional quantum XY model in a transverse magnetic field, Jordan-Wigner fermionization and quantum critical points. The spin-wave theory, bosonization and Holstein-Primakoff transformation.						
Recommen 1. J. B. Parl Physics 816 2. U. Schol Physics 643 3. N. Majlis	 Recommended literature: 1. J. B. Parkinson, D. J. J. Farnell, An Introduction to Quantum Spin Systems, Lecture Notes in Physics 816 (Springer, Berlin Heidelberg, 2010). 2. U. Schollwock, J. Richter, D. J. J. Farnell, R. F. Bishop, Quantum Magnetism, Lecture Notes in Physics 645 (Springer, Berlin Heidelberg, 2004). 3. N. Mailis, The Quantum Theory of Magnetism (World Scientific, Singapore, 2000). 						
Course language: EN - english							
Notes:							
Course assessment Total number of assessed students: 22							
Α	В	C	D	Е	FX	Ν	Р
13.64	36.36	18.18	4.55	9.09	4.55	0.0	13.64
Provides: doc. RNDr. Jozef Strečka, PhD.							
Date of last	modificati	on: 03.05.201	15				
Approved:	prof. Ing. N	Iartin Orendá	č, CSc.				

University: P. J. Šafá	rik University in Košice					
Faculty: Faculty of Science						
Course ID: ÚFV/ RSM/12	Ourse ID: ÚFV/Course name: Rastrovacie sondové mikroskopieSM/12					
Course type, scope and the method: Course type: Lecture Recommended course-load (hours): Per week: 2 Per study period: 28 Course method: present						
Number of ECTS cr	edits: 3					
Recommended seme	ster/trimester of the cours	e:				
Course level: III.						
Prerequisities:						
Conditions for course exam	e completion:					
Learning outcomes: Students will learn ba	asic principles and state of the	ne art techniques of scanning probe microscopies				
Brief outline of the c Principles of scannin spectroscopy of met preparation of crystal	ourse: g probe microscopies (STM als and superconductors, ex l surfaces, monolayers and th	I, AFM, MFM etc.), tunneling and point contact speriments in vacuum and at low temperatures, nin films				
Recommended literature: Roland Wiesendanger: Scanning Probe Microscopy and Spectroscopy: Methods and Applications, Cambridge University Press 1994 Yu.G. Naidyuk, I.K. Yanson: Point contact spectroscopy, Springer, 2003 E.L. Wolf: Principles of electron tunneling spectroscopy, Oxford university press, 1989 K. Oura, V.G. Lifshits, A.A. Saranin, A.V. Zotov, M. Katayama: Surface Science: An Introduction, Springer, Berlín 2003 P. Samuely (ed.) Kryofyzika a papoelektronika. LIEE SAV 2011						
Course language: Slovak or English						
Notes:						
Course assessment Total number of asse	ssed students: 8					
N P						
	0.0 100.0					
Provides: Mgr. Tomáš Samuely, PhD.						
Date of last modifica	ition: 03.05.2015					
Approved: prof. Ing.	Martin Orendáč, CSc.					

University: P. J. Šafá	rik University in Košice				
Faculty: Faculty of S	Faculty: Faculty of Science				
Course ID: ÚFV/ RZ/04	Course ID: ÚFV/ Course name: Reviewed Proceedings Z/04 Z/04				
Course type, scope and the method: Course type: Recommended course-load (hours): Per week: Per study period: Course method: present					
Number of ECIS cr	edits: 5				
Recommended seme	ster/trimester of the cours	e:			
Course level: III.					
Prerequisities:					
Conditions for cours	e completion:				
Learning outcomes:					
Brief outline of the c	ourse:				
Recommended litera	iture:				
Course language:					
Notes:					
Course assessment Total number of assessed students: 219					
abs n					
100.0 0.0					
Provides:					
Date of last modification:					
Approved: prof. Ing. Martin Orendáč, CSc.					

University:	P. J. Šafári	k University i	n Košice					
Faculty: Fa	culty of Sci	ence						
Course ID: VPM/18	Course ID: ÚFV/ Course name: Selected problems of numerical methods in micro- magnetism							
Course type Course type Recommen Per week: Course me	e, scope an pe: Lecture nded cours 1 Per stud ethod: prese	d the method e-load (hours y period: 14 ent	: ;):					
Number of	ECTS cred	lits: 2						
Recommen	ded semest	er/trimester	of the cours	e: 2., 4.				
Course leve	e l: II., III.							
Prerequisit	ies:							
Conditions	for course	completion:						
Learning o	utcomes:							
Brief outlin	e of the co	urse:						
Recommen	ded literat	ure:						
Course lang	guage:							
Notes:								
Course asse Total numb	Course assessment Total number of assessed students: 0							
А	В	C	D	E	FX	N	Р	
0.0	0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0							
Provides: RNDr. Kornel Richter, PhD.								
Date of last modification: 09.03.2018								
Approved:	prof. Ing. N	Iartin Orendá	č, CSc.					

University: P. J. Šafá	University: P. J. Šafárik University in Košice				
Faculty: Faculty of S	Faculty: Faculty of Science				
Course ID: ÚFV/ SFKL1a/04	D: ÚFV/ Course name: Seminar in Solid State Physics				
Course type, scope a Course type: Lectur Recommended cour Per week: 1 / 1 Per Course method: pre	Course type, scope and the method: Course type: Lecture / Practice Recommended course-load (hours): Per week: 1 / 1 Per study period: 14 / 14 Course method: present				
Number of ECTS cr	edits: 3				
Recommended seme	ster/trimester of the cours	e: 1.			
Course level: III.					
Prerequisities:					
Conditions for cours Active participation a	e completion: at seminars.				
Learning outcomes: Students will obtain and from their cooper	informations about scientifi rating foreign institutions.	c results of various research groups from Košice			
Brief outline of the c Contents is determine	ourse: ed by the lectures and varies	every year.			
Recommended litera Selected scientific jou	iture: urnals.				
Course language: Slovak, English					
Notes:					
Course assessment Total number of asses	Course assessment Total number of assessed students: 99				
	abs n				
100.0 0.0					
Provides: doc. RNDr. Alžbeta Orendáčová, DrSc., Dr.h.c. prof. RNDr. Alexander Feher, DrSc., prof. Ing. Martin Orendáč, CSc.					
Date of last modification: 03.05.2015					
Approved: prof. Ing.	Martin Orendáč, CSc.				

University: P. J. Šafárik University in Košice					
Faculty: Faculty of Science					
Course ID: ÚFV/ SFKL1b/04	Course name: Seminar in	Solid State Physics			
Course type, scope a Course type: Lectur Recommended cour Per week: 1 / 1 Per Course method: pre	Course type, scope and the method: Course type: Lecture / Practice Recommended course-load (hours): Per week: 1 / 1 Per study period: 14 / 14 Course method: present				
Number of ECTS cr	edits: 3				
Recommended seme	ster/trimester of the cours	e: 2.			
Course level: III.					
Prerequisities:					
Conditions for cours Making a presentatio	e completion: n for selected research topic				
Learning outcomes: Students will obtain and from their cooper	informations about scientifi rating foreign institutions, st	c results of various research groups from Košice imulate their presentation skills.			
Brief outline of the c Contents is determine	Brief outline of the course: Contents is determined by the lectures and varies every year.				
Recommended literature: Selected scientific journals.					
Course language:					
Notes:					
Course assessment Total number of asses	Course assessment Total number of assessed students: 90				
abs n					
100.0 0.0					
Provides: Dr.h.c. prof. RNDr. Alexander Feher, DrSc., prof. Ing. Martin Orendáč, CSc.					
Date of last modification: 29.03.2020					
Approved: prof. Ing. Martin Orendáč, CSc.					

University: P. J. Šafá	University: P. J. Šafárik University in Košice				
Faculty: Faculty of Science					
Course ID: ÚFV/ SFKL2a/04	V/ Course name: Seminar in Solid State Physics				
Course type, scope a Course type: Lectur Recommended cour Per week: 1 / 1 Per Course method: pre	Course type, scope and the method: Course type: Lecture / Practice Recommended course-load (hours): Per week: 1 / 1 Per study period: 14 / 14 Course method: present				
Number of ECTS cr	edits: 3				
Recommended seme	ster/trimester of the cours	e: 3.			
Course level: III.					
Prerequisities:					
Conditions for cours Active participation a	e completion: at seminars.				
Learning outcomes: Students will obtain and from their cooper	informations about scientifi rating foreign institutions.	c results of various research groups from Košice			
Brief outline of the c Contents is determine	ourse: ed by the lectures and varies	every year.			
Recommended litera Selected scientific jou	iture: urnals.				
Course language: Slovak, English					
Notes:					
Course assessment Total number of asses	Course assessment Total number of assessed students: 86				
	abs	n			
	100.0 0.0				
Provides: doc. RNDr. Alžbeta Orendáčová, DrSc., Dr.h.c. prof. RNDr. Alexander Feher, DrSc., prof. Ing. Martin Orendáč, CSc.					
Date of last modification: 03.05.2015					
Approved: prof. Ing.	Martin Orendáč, CSc.				

University: P. J. Šafárik University in Košice					
Faculty: Faculty of Science					
Course ID: ÚFV/ SFKL2b/04	Course name: Seminar in	Solid State Physics			
Course type, scope a Course type: Lectur Recommended cour Per week: 1 / 1 Per Course method: pre	Course type, scope and the method: Course type: Lecture / Practice Recommended course-load (hours): Per week: 1 / 1 Per study period: 14 / 14 Course method: present				
Number of ECTS cr	edits: 3				
Recommended seme	ster/trimester of the cours	e: 4.			
Course level: III.					
Prerequisities:					
Conditions for cours Making a presentatio	e completion: n for a selected research top	ic.			
Learning outcomes: Students will obtain and from their coope	informations about scientifi rating foreign institutions, st	c results of various research groups from Košice imulate their presentation skills.			
Brief outline of the c Contents is determine	ourse: ed by the lectures and varies	every year.			
Recommended literature: Selected scientific journals.					
Course language:					
Notes:					
Course assessment Total number of asse	Course assessment Total number of assessed students: 81				
	abs n				
100.0 0.0					
Provides: prof. Ing. Martin Orendáč, CSc., Dr.h.c. prof. RNDr. Alexander Feher, DrSc.					
Date of last modification: 28.03.2020					
Approved: prof. Ing. Martin Orendáč, CSc.					

University: P I Šafá	rik University in Košice				
Faculty: Faculty of Science					
Course ID: UFV/ SFKL3a/04	Course name: Seminar in Solid State Physics				
Course type, scope a Course type: Lectur Recommended cour Per week: 1 / 1 Per Course method: pre	Course type, scope and the method: Course type: Lecture / Practice Recommended course-load (hours): Per week: 1 / 1 Per study period: 14 / 14 Course method: present				
Number of ECTS cr	edits: 3				
Recommended seme	ster/trimester of the cours	e: 5.			
Course level: III.					
Prerequisities:					
Conditions for cours Active participation a	e completion: at seminars.				
Learning outcomes: Students will obtain and from their cooper	informations about scientifi rating foreign institutions.	c results of various research groups from Košice			
Brief outline of the c Contents is determine	ourse: ed by the lectures and varies	every year.			
Recommended litera Selected scientific jou	iture: urnals.				
Course language: Slovak, English					
Notes:					
Course assessment Total number of asses	Course assessment Total number of assessed students: 75				
	abs	n			
	100.0 0.0				
Provides: doc. RNDr. Alžbeta Orendáčová, DrSc., Dr.h.c. prof. RNDr. Alexander Feher, DrSc., prof. Ing. Martin Orendáč, CSc.					
Date of last modification: 03.05.2015					
Approved: prof. Ing. Martin Orendáč, CSc.					

University: P. J. Šafá	rik University in Košice				
Faculty: Faculty of S	cience				
Course ID: ÚFV/ SFKL3b/04	rse ID: ÚFV/ Course name: Seminar in Solid State Physics L3b/04				
Course type, scope a Course type: Lectur Recommended cour Per week: 1 / 1 Per Course method: pre	Course type, scope and the method: Course type: Lecture / Practice Recommended course-load (hours): Per week: 1 / 1 Per study period: 14 / 14 Course method: present				
Number of ECTS cr	edits: 3				
Recommended seme	ster/trimester of the cours	e: 6.			
Course level: III.					
Prerequisities:					
Conditions for cours Making a presentatio	e completion: n for selected research topic				
Learning outcomes: Offering a survey of presentation skills.	research topics addressed in	n research laboratories in Košice, stimulate their			
Brief outline of the c Contents is determine	ourse: ed by the lectures and varies	every year.			
Recommended litera Selected scientific jou	iture: urnals.				
Course language: Slovak, English					
Notes:					
Course assessment Total number of asses	ssed students: 74				
	abs	n			
100.0 0.0					
Provides: Dr.h.c. prof. RNDr. Alexander Feher, DrSc., prof. Ing. Martin Orendáč, CSc.					
Date of last modifica	tion: 28.03.2020				
Approved: prof. Ing.	Martin Orendáč, CSc.				

University P I Šafárik University in Košice				
Faculty: Faculty of Science				
Course ID: UFV/ Course name: Seminar in SFKL4a/04	Course name: Seminar in Solid State Physics			
Course type, scope and the method: Course type: Lecture / Practice Recommended course-load (hours): Per week: 1 / 1 Per study period: 14 / 14 Course method: present				
Number of ECTS credits: 3				
Recommended semester/trimester of the cour	se: 7.			
Course level: III.				
Prerequisities:				
Conditions for course completion: Active participation at seminars.				
Learning outcomes: Students will obtain informations about scientificand from their cooperating foreign institutions.	ic results of various research groups from Košice			
Brief outline of the course: Contents is determined by the lectures and varies	es every year.			
Recommended literature: Selected scientific journals.				
Course language: Slovak, English				
Notes:				
Course assessment Total number of assessed students: 65				
abs	n			
100.0 0.0				
Provides: doc. RNDr. Alžbeta Orendáčová, DrSc., Dr.h.c. prof. RNDr. Alexander Feher, DrSc., prof. Ing. Martin Orendáč, CSc.				
Date of last modification: 03.05.2015				
Approved: prof. Ing. Martin Orendáč, CSc.				

Universitare D. I. Čofinile Universite in W-Xing					
University: P. J. Safárik University in Košice					
Faculty: Faculty of Science					
Course ID: ÚFV/ SFKL4b/04Course name: Seminar in Solid	Irse ID: ÚFV/ Course name: Seminar in Solid State Physics KL4b/04 Course name: Seminar in Solid State Physics				
Course type, scope and the method: Course type: Lecture / Practice Recommended course-load (hours): Per week: 1 / 1 Per study period: 14 / 14 Course method: present					
Number of ECTS credits: 3					
Recommended semester/trimester of the course: 8.					
Course level: III.					
Prerequisities:					
Conditions for course completion: Making a presentation for a selected research topic.					
Learning outcomes: Students will obtain informations about scientific resu and from their cooperating foreign institutions, stimula	Ilts of various research groups from Košice ate their presentation skills.				
Brief outline of the course: Contents is determined by the lectures and varies every	y year.				
Recommended literature: Selected scientific jourmals.					
Course language: Slovak, English					
Notes:					
Course assessment Total number of assessed students: 55					
abs n					
100.0 0.0					
Provides: Dr.h.c. prof. RNDr. Alexander Feher, DrSc., prof. Ing. Martin Orendáč, CSc.					
Date of last modification: 28.03.2020					
Approved: prof. Ing. Martin Orendáč, CSc.					

University:	P. J. Šafár	ik University i	n Košice				
Faculty: Fa	culty of So	cience					
Course ID: SAA/18	Course ID: ÚFV/ Course name: Sensors and actuators based on selected physical phenomena AA/18					phenomena	
Course type, scope and the method: Course type: Lecture Recommended course-load (hours): Per week: 1 Per study period: 14 Course method: present							
Number of	ECTS cre	edits: 2	6.41				
Recommen	ded semes	ster/trimester	of the cours	e: 2., 4.			
Course leve	el: II., III.						
Prerequisit	ies:						
Conditions	for cours	e completion:					
Learning o	utcomes:						
Brief outlin	e of the c	ourse:					
Recommen	ded litera	ture:					
Course lang	guage:						
Notes:							
Course asso Total numb	essment er of asses	sed students: 2	2				
А	В	C	D	Е	FX	Ν	Р
50.0	0.0	0.0	0.0	0.0	0.0	0.0	50.0
Provides: prof. RNDr. Rastislav Varga, DrSc., RNDr. Ladislav Galdun, PhD.							
Date of last modification: 09.03.2018							
Approved:	prof. Ing.	Martin Orendá	č, CSc.				

University, D. I. Čeféril, University in Večice			
University: P. J. Safarik University in Kosice			
Faculty: Faculty of Science			
Course ID: Dek. PF UPJŠ/JSD/14	ourse ID: Dek. PF Course name: Spring School for PhD Students PJŠ/JSD/14 Course name: Spring School for PhD Students		
Course type, scope and the method: Course type: Lecture Recommended course-load (hours): Per week: Per study period: 4d Course method: present			
Number of ECTS cr	edits: 2		
Recommended seme	ster/trimester of the cours	e:	
Course level: III.			
Prerequisities:			
Conditions for cours	Conditions for course completion:		
Learning outcomes:			
Brief outline of the c	ourse:		
Recommended litera	Recommended literature:		
Course language:	Course language:		
Notes:			
Course assessment Total number of assessed students: 154			
abs n			
	100.0 0.0		
Provides: prof. RNDr. Katarína Cechlárová, DrSc.			
Date of last modification: 03.05.2015			
Approved: prof. Ing. Martin Orendáč, CSc.			

University: P. J. Šafárik University in Košice			
Faculty: Faculty of Science			
Course ID: ÚFV/ SVM/07	Course name: Structural properties of materials		
Course type, scope and the method: Course type: Lecture Recommended course-load (hours): Per week: 2 Per study period: 28 Course method: present			
Number of ECTS cr	edits: 5		
Recommended seme	ster/trimester of the cours	e:	
Course level: III.			
Prerequisities:			
Conditions for cours successful passing fir	e completion: nal exam		
Learning outcomes: Obtaining knowledge transformation in sele	Learning outcomes: Obtaining knowledge on preparation, structure, influence of defects, phase equilibrium and phase transformation in selected types of unconventional materials.		
Brief outline of the course: Crystal structure of metals, alloys, intermetalics, ceramics and glasses. Crystal defects and their influence on properties of materials. Phase diagrams and phase transformations, solidification, crystal growth. Preparation and properties of progressive single-crystalline, polycrystalline, nano-crystalline and glassy materials.			
Recommended literature: J. M. Ziman, The Physics of Metals, Cambridge University press, Cambridge, 2011. J. Blackman, Handbook of Metal Physics: Metalic Nanoparticles, Elsevier Science, 2009.			
Course language: Slovak, English			
Notes:			
Course assessment Total number of assessed students: 1			
N P			
	0.0 100.0		
Provides: Ing. Pavel Diko, DrSc.			
Date of last modification: 03.05.2015			
Approved: prof. Ing.	Approved: prof. Ing. Martin Orendáč, CSc.		

University: P. J. Šafárik University in Košice			
Faculty: Faculty of Science			
Course ID: ÚFV/ ZSP/04	Course name: Study Stay Abroad		
Course type, scope and the method: Course type: Recommended course-load (hours): Per week: Per study period: Course method: present			
Number of EC18 cr			
Recommended seme	ster/trimester of the cours	e:	
Course level: 111.			
Prerequisities:			
Conditions for cours	Conditions for course completion:		
Learning outcomes:	Learning outcomes:		
Brief outline of the c	ourse:		
Recommended litera	iture:		
Course language:			
Notes:			
Course assessment Total number of assessed students: 258			
abs n			
100.0 0.0			
Provides:			
Date of last modification:			
Approved: prof. Ing. Martin Orendáč, CSc.			

University: P. J. Šafárik University in Košice			
Faculty: Faculty of Science			
Course ID: ÚFV/ VPSV/04	Course name: Supervision of Student's Scientific Activity		
Course type, scope and the method: Course type: Recommended course-load (hours): Per week: Per study period: Course method: present			
Number of ECTS cr	edits: 6		
Recommended seme	ster/trimester of the cours	e:	
Course level: III.			
Prerequisities:			
Conditions for cours	e completion:		
Learning outcomes:	Learning outcomes:		
Brief outline of the c	ourse:		
Recommended litera	iture:		
Course language:			
Notes:			
Course assessment Total number of assessed students: 16			
abs n			
100.0 0.0			
Provides:			
Date of last modification:			
Approved: prof. Ing. Martin Orendáč, CSc.			

University: P. J. Šafárik University in Košice			
Faculty: Faculty of Science			
Course ID: ÚFV/ VBP/04	Course name: Supervisor/consultant of bacelor thesis		
Course type, scope and the method: Course type: Recommended course-load (hours): Per week: Per study period: Course method: present			
Number of ECTS cr	edits: 6		
Recommended seme	ster/trimester of the cours	e:	
Course level: III.			
Prerequisities:			
Conditions for cours	e completion:		
Learning outcomes:			
Brief outline of the course:			
Recommended literature:			
Course language:			
Notes:			
Course assessment Total number of assessed students: 38			
abs n			
100.0 0.0			
Provides:			
Date of last modification:			
Approved: prof. Ing. Martin Orendáč, CSc.			

University: P. J. Šafárik University in Košice			
Faculty: Faculty of Science			
Course ID: ÚFV/ PPC/04	ourse ID: ÚFV/ Course name: Teaching activities PC/04		
Course type, scope and the method: Course type: Recommended course-load (hours): Per week: Per study period: Course method: present			
Number of EC18 cr			
Recommended seme	ster/trimester of the cours	e:	
Course level: III.			
Prerequisities:			
Conditions for cours	e completion:		
Learning outcomes:	Learning outcomes:		
Brief outline of the c	Brief outline of the course:		
Recommended literature:			
Course language:			
Notes:			
Course assessment Total number of assessed students: 238			
abs n			
100.0 0.0			
Provides:			
Date of last modification:			
Approved: prof. Ing. Martin Orendáč, CSc.			

University: P. J. Šafárik University in Košice			
Faculty: Faculty of S	cience		
Course ID: ÚFV/ TS/12	Course name: Termodynamika supravodičov		
Course type, scope and the method: Course type: Lecture Recommended course-load (hours): Per week: 2 Per study period: 28 Course method: present			
Number of ECTS cr	Number of ECTS credits: 3		
Recommended semester/trimester of the course:			
Course level: III.			
Prerequisities:			
Conditions for course completion: Succesful passing final exam			
Learning outcomes: Introduction of basis superconductors with	c theoretical and experimental aspects of thermodynamic properties of a focus on the modulated calorimetry.		
Brief outline of the course:			

Brief outline of the course:

Thermodynamic properties of superconductors (entropy, heat capacity in normal and superconducting state). Methods of heat capacity measurements (adiabatic, relaxation, pulsed, modulated). Modulated calorimetry – historical overview. Modulated calorimetry – theoretical basis. Modulated calorimetry – experiment (experimental setup, measurement of temperature and temperature oscillations). Heat capacity of superconductors in zero magnetic field – alpha model. Heat capacity of superconductors in zero and non-zero magnetic field – temperature dependence and its relation to the properties of an s-wave superconductor (determination of the upper critical field, thermodynamic critical field, superconducting energy gap, type of coupling). Heat capacity of superconductors in non-zero magnetic field – field dependence and its relation to the the properties of a superconductor. Heat capacity in special cases – two-gap superconductor, d-wave superconductor.

Recommended literature:

M. Tinkham, Introduction to superconductivity, McGraw-Hill, Inc., New York, 1996. Yaakov Kraftmakher, Modulation Calorimetry: Theory And Applications, Springer-Verlag, 2004. Specific heat of solids, Edited by C. Y. Ho, Hemisphere publishing corporation, 1988.

Course language:

Slovak, English

Notes:

Course assessment Total number of assessed students: 6		
N P		
0.0 100.0		
Provides: RNDr. Jozef Kačmarčík, PhD., RNDr. Zuzana Vargaeštoková, PhD.		
Date of last modification: 03.05.2015		
Approved: prof. Ing. Martin Orendáč, CSc.		

University: P. J. Šafárik University in Košice			
Faculty: Faculty of Science			
Course ID: ÚFV/ TSK/12Course name: Teória silne korelovaných elektrónových systémov			
Course type, scope and the method: Course type: Lecture Recommended course-load (hours): Per week: 2 Per study period: 28 Course method: present			
Number of ECTS credits: 5			
Recommended semester/trimester of the course:			
Course level: III.			
Prerequisities:			
Conditions for course completion: Succesful passing test and final exam			
Learning outcomes: To provide students with models, methods and physical applications in the area of strongly correlated electron systems.			
Brief outline of the course: Occupation number representation. Second quantization. Models of strongly correlated electron systems. Hubbard model. Periodic Anderson model. Falicov-Kimball model. t-J model. Analytical and numerical methods in the theory of strongly correlated electron systems. Method of canonical transformations. Green's function method. Perturbation theory. Gutzwiller variation method. Lanczos method. Quantum Monte Carlo method. Collective Phenomena. Valence transitions. Metal-insulator transitions. Formation of charge and spin ordering. Electronic ferroelectricity. Itinerant magnetism. Superconductivity. BCS theory. Ginzburg-Landau theory.			
Recommended literature: [1] P. Farkašovský., H. Čenčariková, Cooperative phenomena in Strongly Correlated Systems, LAP Saarbucken 2011, ISBN: 978-3-8465-0611-0			
Course language: Slovak, English			
Notes:			
Course assessment Total number of assessed students: 6			
N P			
0.0 100.0			
Provides: RNDr. Pavol Farkašovský, DrSc.			
Date of last modification: 03.05.2015			
Approved: prof. Ing. Martin Orendáč, CSc.			

University: P. J. Šafárik University in Košice			
Faculty: Faculty of Science			
Course ID: ÚFV/ POVK/04	Course name: Work in Organizing Committee of Conference		
Course type, scope and the method: Course type: Recommended course-load (hours): Per week: Per study period: Course method: present			
Number of ECTS cr	edits: 2		
Recommended seme	ster/trimester of the cours	e:	
Course level: III.			
Prerequisities:			
Conditions for cours	e completion:		
Learning outcomes:			
Brief outline of the c	Brief outline of the course:		
Recommended litera	iture:		
Course language:	Course language:		
Notes:			
Course assessment Total number of assessed students: 94			
abs n			
100.0 0.0			
Provides:			
Date of last modification:			
Approved: prof. Ing. Martin Orendáč, CSc.			

University: P. J. Šafárik University in Košice			
Faculty: Faculty of Science			
Course ID: ÚFV/ PDS/18	Course name: Writing Dissertation Work		
Course type, scope and the method: Course type: Recommended course-load (hours): Per week: Per study period: Course method: present			
Number of ECTS cr	edits: 0		
Recommended seme	ster/trimester of the cours	e:	
Course level: III.			
Prerequisities:			
Conditions for cours	e completion:		
Learning outcomes:	Learning outcomes:		
Brief outline of the c	ourse:		
Recommended litera	Recommended literature:		
Course language:			
Notes:			
Course assessment Total number of assessed students: 22			
N P			
0.0 100.0			
Provides:			
Date of last modification:			
Approved: prof. Ing. Martin Orendáč, CSc.			