Name of the program         Science           COURSE:         Course file         Numerical methods for solving linear and nonlinear eigenvalues problems           Coarse code         Semester         Course status         ECTS         Contact hours (L+AE+L)           AMAT 625         I         Elective course         10         50           Lacturer         Prof. dr Aleksandra Konić         Each mechanical system has a vibrating property. The analog phonomon also encounters elective systems in the form of oscillating electric ercuits. Vibration conditions are mathematically described in form of differential equation systems or differential equations. This leads to problems of eigenvalues, which is currently very actual.           Course Goals         Each mechanical system of eigenvalues have been arise of a improtunt place in numeric and applied mathema The goal is to adopt the attenders of eigenvalues, which is currently very actual.           COURSE CONTENT         •         Method of Kolov, Method of Danilevski           •         Method of rateropolation, Method of Le Verierra.         •           •         Method of rateropolation, Method of Danilevski         •           •         Jacobi method         •         •           •         Method of rateropolation, Method of them. As an example, we take Toeplitz matrix and suitable methods.         •           •         Method of rateropolation problems of eigenvalues.         •         •      <	Program		Level			Third cycle			
Course fulle         Numerical methods for solving linear and nonlinear eigenvalues problems           Course code         Semester         Course status         IZCTS         Contact hours (L+AE+L)           AMAT 625         I         Flective course         10         30           Lecturer         Prof. dr Aleksandra Kostić         Semester         30           Course Goals         Each mechanical system has a vibrating property. The analog phenomenon also encounters elect systems in the form of oscillating electric erreuits. Vibration conditions are mathermatically desembed in form of differential equations. This leads to problems of eigenvalues. The goal is to adopt the attenders of a important place in numeric and applied mathema The goal is to adopt the attenders of eigenvalues, which is currently very actual.           COURSE CONTENT         ************************************			Name of the program			SEE Doctoral Studies in Mathematica Science			
Course code         Semester         Course status         FCTS         Contract hours (L+ATE+L)           AMAT 625         1         Elective course         10         30           Lecturer         Prof. dr Aleksandra Kostić         30         30           Lecturer         Prof. dr Aleksandra Kostić         30         30           Course Goals         Each mechanical system has a vibrating property. The analog phenomenon also encounters elect systems in the form of oscillating electric circuits. Vibration conditions are mathematically described in from of differential equations. This leads to problems of eigenvalues. The goal is to adopt the attenders or exposition of methods and to operate scientific-research we especially in the nonlinear problems of eigenvalues, which is currently very actual.           COURSE CONTENT         •           •         Method of Kalos, Method of Danilevski           •         Gives method         •           •         Method of factory Neutrod         •           •         Method of scilar product         •           •         Method for nonlinear problems of eigenvalues.         •           •         Examples from physics and technices         <	COU	RSE							
MAXT 625         I         Flective course         10         50           Lecturer         Prof. dt Alcksandra Kostić	Cours	se title	Nume	rical methods for solving li	near and r	onlinear eiger	walues probl	ems	
Lecturer         Prof. dt Aleksandra Kostić           Course Goals         Fach mechanical system has a vibrating property. The analog phenomenon also encounters electives vibration conditions are mathematically described in form of differential equations systems or differential equations. This leads to problems of eigenvalues. I to the problem of eigenvalues have been arise of a important place in numeric and applied mathematically described in the problem of eigenvalues of exposition of methods and to operate scientific research w especially in the nonlinear problems of eigenvalues, which is currently very actual.           COURSE CONTENT         Method of Danilevski           Gives method of foration         Gives method           Horbod of interpolation, Method of Le Verierra         Gives method           Horbod of fration         Gives method           Jacobi method         Gives method           Horbod of scalar product         Method of arbitrary vector           Method of resting         Gieneralized problem of eigenvalues           Structured matrices and methods for them. As an example, we take Toeplitz matrix and suitable methods.           Examples from physics and technics         Linearization           Wirinax characterization         Generalized problem of eigenvalues:           Linearization         Linearization           Wirings of silvester low of inertia         Especially quadratic and rational problems of eigenvalues.           Examples from physics and technics         Especially qua	Course code		Semester	Course status H	ECTS		Contact hou	urs (L+AE+LE)	
Each mechanical system has a vibrating property. The analog phenomenon also encounters electry systems in the form of oscillating electric circuits. Vibration conditions are mathematically described in form of differential equations or differential equations. This leads to problems of eigenvalues. It the problem of eigenvalues have been arise of a important place in numeric and applied mathema The goal is to adopt the attenders of exposition of methods and to operate scientific-research we especially in the nonlinear problems of eigenvalues, which is currently very actual.         COURSE CONTENT         Methods for linear problem of eigenvalues:         Method of Krilov, Method of La Verierra         Method of Arilov, Method of Danilevski         Gives method         Houscholdker method         I.R method         Wethod of scalar product         Method of scalar product         Method of eshausting         Generalized problem of eigenvalues:         Examples from physics and technics         Method of eshausting         Generalized problem of eigenvalues:         Linearization         Minimax characterization         Winnimax characterization         Wisser from physics and technics         Linearization         Minimum 2003.         21       Desanka P. Radunović , Numeričke metode, akademska misao, Beograd 2003.         22       Projects       50	AMAT 625		Ι	Elective course 1	10		30		
Systems in the form of oscillating electric circuits. Vibration conditions are mathematically described in to form of differential equations. This leads to problems of eigenvalues. It be problem of eigenvalues have been arise of a important place in numeric and applied mathema The goal is to adopt the attenders of exposition of methods and to operate scientific-research we especially in the nonlinear problems of eigenvalues, which is currently very actual.         COURSE CONTENT         • Methods for linear problem of eigenvalues:         • Method of interpolation, Method of Le Verierra         • Method of Krikov, Method of Danilevski         • Gives method         • Jacobi method         • Jacobi method         • Houscholder method         • Houscholder method         • Rethod of arbitrary vector         • Method of trace         • Method of trace         • Method of trace         • Method for trace         • Method for trace         • Method of scalar product         • Method for trace         • Method for nonlinear problems of eigenvalues:         • Lizenzization         • Minimax characterization         • Usage of Silvester low of inertia         • Examples from physics and technics         • Examples from physics and technics         • Lizenzization         • Minimax characterization         • Usage	Lecturer		Prof. dr Aleksandra	Kostić					
<ul> <li>Methods for linear problem of eigenvalues:         <ul> <li>Method of interpolation, Method of Le Verierra</li> <li>Method of Krilov, Method of Danilevski</li> <li>Gives method of rotation</li> <li>Jacobi method</li> <li>Householder method</li> <li>Rouseholder method</li> <li>QR method</li> <li>QR method</li> <li>Method of arbitrary vector</li> <li>Method of scalar product</li> <li>Method of scalar product</li> <li>Method of scalar product</li> <li>Method of scalar product</li> <li>Method of exhausting</li> <li>Generalized problem of eigenvalues</li> <li>Structured matrices and methods for them. As an example, we take Toeplitz matrix and suitable methods.</li> <li>Examples from physics and technics</li> <li>Methods for nonlinear problems of eigenvalues:</li> <li>Linearization</li> <li>Usage of Silvester low of inertia</li> <li>Especially quadratic and rational problems of eigenvalues.</li> <li>Examples from physics and technics</li> </ul> </li> <li>In Desanka P. Radunović, Numeričke metode, akademska misao, Beograd 2003.</li> <li>A. Kostić, Applied linear algebra in action, Books on Demand. (2016) 57; 83.</li> <li>F. Tisseur and K. Meerbergen, The quadratic eigenvalue problem, SIAM Review. 43 (2001) 235 - 286.</li> <li>Homework 10 5</li> <li>Projects 50 30</li> <li>Final exam 40 20</li> <li>Sinumax characterizes have finear algebra Appl. 16 (2009) 82 - 93.</li> <li>A. Kostić and H. Voss, On Sylvester's law of inertia for nonlinear eigenvalue problems, Electr. Trans. Numer. Anal. 40 (2013) 82 - 95.</li> <li>Kostić Wetfahren zur Bestimmung einiger extremaler Eigenwerte einer</li> <li>Total 100 55</li> </ul> </td <td>Cours</td> <td>se Goals</td> <td colspan="6">Each mechanical system has a vibrating property. The analog phenomenon also encounters electrical systems in the form of oscillating electric circuits. Vibration conditions are mathematically described in the form of differential equation systems or differential equations. This leads to problems of eigenvalues. Due to the problem of eigenvalues have been arise of a important place in numeric and applied mathematics. The goal is to adopt the attenders of exposition of methods and to operate scientific-research work especially in the nonlinear problems of eigenvalues, which is currently very actual.</td>	Cours	se Goals	Each mechanical system has a vibrating property. The analog phenomenon also encounters electrical systems in the form of oscillating electric circuits. Vibration conditions are mathematically described in the form of differential equation systems or differential equations. This leads to problems of eigenvalues. Due to the problem of eigenvalues have been arise of a important place in numeric and applied mathematics. The goal is to adopt the attenders of exposition of methods and to operate scientific-research work especially in the nonlinear problems of eigenvalues, which is currently very actual.						
<ul> <li>Method of interpolation, Method of Le Verierra</li> <li>Method of Kiclov, Method of Danilevski</li> <li>Gives method of rotation</li> <li>Jacobi method</li> <li>Householder method</li> <li>Renthod</li> <li>QR method</li> <li>QR method</li> <li>Method of arbitrary vector</li> <li>Method of scalar product</li> <li>Method of scalar product</li> <li>Method of race</li> <li>Method of race</li> <li>Method of race</li> <li>Method of race</li> <li>Structured matrices and methods for them. As an example, we take Toeplitz matrix and suitable methods.</li> <li>Examples from physics and technics</li> <li>Methods for nonlinear problems of eigenvalues:</li> <li>Linearization</li> <li>Usage of Silvester low of inertia</li> <li>Especially quadratic and rational problems of eigenvalues.</li> <li>Examples from physics and technics</li> <li>Examples from physics and technics</li> <li>Ketwey 43 (2001) 235 - 286.</li> <li>H. Voss, A minmax principle for nonlinear eigenproblems depending continuously on the eigenparameter, Numer. Linear Algebra Appl. 16 (2009) 899-913.</li> <li>A. Kostić and H. Voss, On Sylvester's law of inertia for nonlinear eigenvaluear problems depending continuously on the eigenparameter, Numer. Linear Algebra Appl. 16 (2009) 55</li> <li>K. Kostić, Arefler zu Bestimmung einiger extremaler Eigenverte einer</li> </ul>	COU	RSE CONTEN	Т						
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	[6] A	. Kostić, Verfah	nren zur Bestimmung	einiger extremaler Eigenwert		Total	100	55	

Wiegandt, Radical Theory of Rings, Pure and Applied Mathematics 261, Marcel Dekker, 2004. The 2 homeworks are planed each 5 points. Two projects from the nonlinear problems eigenvalues. Every project is 25 points.