

DEPARTMENT OF MECHANICS

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Head of Department

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I. STAFF

Professors	Prof. Ing. Justín Murín, DrSc.
Associate Professors	Doc. Ing. Ján Veselovský, PhD.
Assistant Professors	Ing. Vladimír Kutiš, PhD., Ing. Róbert Fric, PhD., Ing. Andrej Kalaš, PhD., Ing. Michal Masný, Ing. Tibor Sedlár
Research Worker	Ing. Vladimír Goga
Part-time Workers	Doc. Ing. Miroslav Vereš, PhD., Ing. Peter Kmotrík
Technical Staff	Katarína Beringerová (secretary), František Erdödy
PhD. Students	Ing. Vladimír Ďuriš, Ing. Miloš Remiš, Ing. Branislav Böhmer, Ing. Michal Masný, Ing. Vladimír Goga, Ing. Viktor Kráľovič, Ing. Marcel Virág, Dipl. Ing. Rolf Seemann, Dipl. Ing. Stepha Kugler

II. EQUIPMENT

II.1 Teaching and Research Laboratories

- Laboratory of Thermopower Machines and Devices
- Laboratory of Mechanics of Strength and Deformable Bodies
- Centre of Designing and Computational Mechanics

II.2 Special Measuring Instruments, Software and Computers

- Insert Press Monitoring System DMF-P V3
- Boiler Gas Analyser Industrial Combustion Optimiser Neotronics
- Experimental Impulse Turbine F800 - Hilton, Ltd. England
- Hewlett-Packard PC Workstations Kayak
- Advantech PC-LabCard PCI 1710 with equipment
- Mathematica 6
- Matlab R14
- Catia V5
- SolidEdge V20
- NX5
- ANSYS
- MSC.Adams
- AutoCAD

III. TEACHING**III.1 Undergraduate Study (Bc.)**

Subject, semester, hours per week for lectures and for seminars or practical exercises, name of lecturer

Basis of Engineering and Technical Documentation (1st sem., 2-2h)		J. Veselovský M. Vereš R. Fric A. Kalaš
CAD in Technical Documentation	(opt.sem., 1-3h)	J. Veselovský
Mechanics (for Electrotechnics)	(5th sem., 3-2h)	J. Murín
Mechanics (for Automotive Electronics)	(6th sem., 2-2h)	J. Murín
Introduction to Modelling and Simulation	(5th sem., 3-2h)	V. Kutiš
Structural Elements and Systems	(5th sem., 2-2h)	M. Vereš
Continuum Mechanics	(5th sem., 2-2h)	J. Murín

Distance study

Basis of Engineering and Technical Documentation (1st sem.)		J. Veselovský
Mechanics and Thermomechanics	(5th sem.)	J. Murín
Introduction to Modelling and Simulation	(5th sem.)	V. Kutiš
Power Plant I	(6th sem.)	V. Kutiš

III.2 Graduate Study (Ing.)

Nuclear Power Facilities	(1st sem., 2-2h)	V. Kutiš
CAE of Mechatronic Systems	(1st sem., 3-2h)	V. Kutiš
Applied Mechanics	(1st sem., 2-2h)	J. Murín
Designing of Luminaires	(2nd sem., 3-2h)	J. Veselovský
Designing by Higher CAD Systems	(2nd sem., 1-3h)	R. Fric
Numerical Solution of Field Theory Problems	(2nd sem., 3-2h)	J. Murín

Distance study

CAE of Mechatronic Systems	(1st sem.)	V. Kutiš
Applied Mechanics	(1st sem.)	J. Murín

IV. RESEARCH PROJECTS

- Bar Finite Element with Varying Parameters for Multiphysical Computations. G 1/1100/04, J. Murín
- Stress and Deformation Analyses in Thin Micro- and Nano-Systems and Devices Containing Piezoelectric Elements, Inverse Piezoelectric Problem. G 1/0149/03, principal investigator: B. Hučko – Sjf STU, co-workers: V. Goga – KMECH
- Research of Psychologic and Physiologic Glare. G 3114/06, principal investigator: A. Smola – KEE, co-workers: J. Murín, J. Veselovský – KMECH

- Theoretical Fundamentals of the Power System Stability in the Interconnected European System. G 1/3092/06, principal investigator: F. Janíček – KEE, co-workers: J. Murín – KMECH

V. COOPERATION

V.1 Cooperation in Slovakia

- VÚJE jsc, Trnava
- Sova jsc, Bratislava
- JE Jaslovské Bohunice
- JE Mochovce
- Sjf ŽU Žilina
- Škoda Auto Slovakia, Bratislava
- Institute of Construction and Architecture, Slovak Academy of Sciences
- IPT Pezinok
- OMS Senica
- EGU Bratislava
- ZSE jsc
- SEZ Dolný Kubín

V.2 International Cooperation

- Energovýzkum Ltd., Brno, CzR
- Technical University Vienna, Austria
- Technical University Ilmenau, Germany
- University College of Swansea, United Kingdom
- FSB University Zagreb, Croatia
- TU Rijeka, Croatia
- TU Novi Sad, Serbia
- TU Niš, Serbia

V.3 Membership in Slovak Organizations and Societies

- Co-chairman in Slovak Society for Mechanics (J. Murín)
- Slovak Society for Mechanics (V. Kutiš)
- Technical Committees of SUTN Fasteners, Technical drawings (J. Veselovský)

V.4 Membership in International Organizations and Societies

- J. Murín: Central European Association for Computational Mechanics
- V. Kutiš: Central European Association for Computational Mechanics
- J. Murín: Institute of Structural Mechanics, TU Vienna, Austria
- J. Veselovský: ISO Technical Committee 1, ISO Technical Committee 2

V.5 Contracts

- J. Murín, V. Kutiš: Stress and strain analysis of plastic part of electric device

VI. THESES

VI.1 Master Theses

Master theses supervised at the Department of Mechanics. The names of supervisors are in brackets.

- [1] P. Gebura: Multiphysical Analysis of Screwless-type Terminal (J. Murín)
- [2] R. Belák: Multiphysical Analysis of Defect in Magnetic Circuit of Inductive Machine (M. Masný, V. Kutíš)
- [3] J. Pátoprstý: Web Interface of Computer Aided Field Analysis Course (J. Murín)
- [4] P. Akšteiner: Stress analysis and design of cart (V. Goga)

VI.2 Doctoral Theses

- [1] M. Masný: Solution of Coupled Electro-Thermo-Structural Problems with 1D FGM Material using FEM (J. Murín).

VII. OTHER ACTIVITIES

- Membership in the editorial board of journal: Mechanical Engineering (J. Murín)
- Membership in the Scientific Editorial Advisory Board of journal: Engineering Review, Croatia (M. Vereš)
- Expert in Mechanical Engineering (T. Sedlár)

VIII. PUBLICATIONS

VIII.1 Journals

- [1] ĎURIŠ, R., MURÍN, J.: A Nonlinear Truss Finite Element with Varying Stiffness. In: Applied and Computational Mechanics. - ISSN 1802-680X. - Vol. 1, No. 2 (2007). - Plzeň: University of West Bohemia, 2007, p. 417-426. (in English)
- [2] MASNÝ, M., MUCHA, M.: Determination of Electrical Parameters of Overhead Lines Using MKP. In: EE časopis pre elektrotechniku a energetiku. - ISSN 1335-2547. - Vol. 13, Special Issue (2007), p. 88-92. (in Slovak)
- [3] MURÍN, J., KUTIŠ, V.: Composite Beam Finite Element with Variation of Young Modulus in Two Directions. In: AT&P Journal Plus. - ISSN 1336-5010. - No. 1 (2007), p. 13-17. (in Slovak)

VIII.2 Conference Proceedings

- [1] BELÁK, R., MASNÝ, M.: Multiphysical FEM Analysis of Eddy Current in the Magnetic Nonlinear Conductive Ring. In: ŠVOČ 2007. Bratislava, Slovak Republic, 25.4.2007. - Bratislava: STU, 2007. - ISBN 978-80-227-2650-4. - CD-Rom.
- [2] BOŤANSKÝ, P., MURÍN, J., MASNÝ, M.: Modeling and Simulation of the Single Power Line by FEM. In: ŠVOČ 2007. Bratislava, Slovak Republic, 25.4.2007. - Bratislava: STU, 2007. - ISBN 978-80-227-2650-4. - CD-Rom. (in Slovak)
- [3] DUČ-ANCI, M., MASNÝ, M., BELÁK, R.: Methods to Solve Thermal Field of Electric Contact. In: ELITECH '07. The 9th Conference for PhD Students Electrical Engineering and Information Technology: Bratislava, Slovak Republic, 16.5.2007. - Bratislava: STU, 2007. - ISBN 978-80-227-2655-9. - CD-Rom. (in English)
- [4] ĎURIŠ, R., MURÍN, J.: Sandwich Composite Bar Element for Geometric Nonlinear Analysis. In: Engineering Mechanics 2007: Conference Proceedings. Svratka, Czech Republic, 14.-17.5.2007. - Prague: Institute of Theoretical and Applied Mechanics Academy of Sciences of the Czech Republic, 2007. - ISBN 978-80-87012-06-2. - CD-Rom. (in English)

- [5] GEBURA, P., MASNÝ, M., GOGA, V., MURÍN, J.: Mechanical Stiffness Optimalization of the Plastic Screw Joint. In: ŠVOČ 2007. Bratislava, Slovak Republic, 25.4.2007. - Bratislava: STU, 2007. - ISBN 978-80-227-2650-4. - CD-Rom. (in Slovak)
- [6] GOGA, V., MASNÝ, M.: Stress Analysis of the Plastic Screw Joint. In: 48th International Conference of Machine Elements and Mechanisms Departments 2007. Smolenice, Slovak Republic, 12.-14.9.2007. - Bratislava: STU, 2007. - ISBN 978-80-227-2708-2. - p. 366-371. (in English)
- [7] KALAŠ, A., KUTIŠ, V.: Intelligent Position Sensor. In: 48th International Conference of Machine Elements and Mechanisms Departments 2007. Smolenice, Slovak Republic, 12.-14.9.2007 (2007). - Bratislava: STU, 2007. - ISBN 978-80-227-2708-2. - p. 120-122. (in English)
- [8] MASNÝ, M., DUČ-ANCI, M., BELÁK, R.: Thermal Transients Analysis of a Contact in Current Path. In: XVIIth Symposium on Physics of Switching Arc: Vol. 1 Contributed Papers: Brno, Czech Republic, 10.-13.9.2007. - Brno: University of Technology, 2007. - ISBN 978-80-214-3370-0. - p. 157-160. (in English)
- [9] MURÍN, J., KUTIŠ, V., MASNÝ, M.: Compopsite (FGM'S) Beam Finite Elements with Stiffness Variation. In: CMNS 2007. Computational Modeling and Experiments of the Composite Materials with Micro- and Nano-Structure: 1st International Conference. Liptovský Mikuláš, Slovak Republic, 28.-31.5.2007. - Liptovský Mikuláš: Vojenská akadémia, 2007. - ISBN 978-80-8040-321-8. - CD-Rom. (in English)
- [10] MURÍN, J., AMINBAGHAI, M., KUTIŠ, V.: Finite Element for Torsion with Warping with the Secondary Torsion Moment Deformation Effect. In: New Trends in Statics and Dynamics of Buildings: 6th International Conference. Bratislava, Slovak Republic, 18.-19.10.2007. - Bratislava: STU, 2007. - ISBN 978-80-227-2732-7. - CD-Rom. (in English)
- [11] MURÍN, J., ĎURIŠ, R.: Geometric Nonlinear Sandwich Composite Link Finite Element. In: CMNS 2007. Computational Modeling and Experiments of the Composite Materials with Micro- and Nano-Structure: 1st International Conference. Liptovský Mikuláš, Slovak Republic, 28.-31.5.2007. - Liptovský Mikuláš: Vojenská akadémia, 2007. - ISBN 978-80-8040-321-8. - CD-Rom. (in English)
- [12] MURÍN, J., KUTIŠ, V.: Improved Mixture Rules for the Composite (FGM'S) Sandwich Beam Finite Element. In: Computational Plasticity IX. Fundamentals and Applications. Part 2.: 9th International Conference. Barcelona, Spain, 5.-7.9.2007. - Barcelona: International Center for Numerical Methods in Engineering, 2007. - p. 647-650. (in English)
- [13] MURÍN, J., KUTIŠ, V.: Composite Beam Finite Element with Variation of Young Moduls in Two Directions. In: Modeling of Mechanical and Mechatronics Structures MMaMS'2007: International Conference. Herľany, Slovak Republic, 17.-19.10.2007. - Košice: Technická univerzita v Košiciach, 2007. - ISBN 978-80-8073-874-7. - p. 17-21. (in Slovak)
- [14] PÄTOPRSTÝ, J., MURÍN, J.: Preparation of Electronic Education in the Subject of Computer Solving of Field. In: ŠVOČ 2007. Bratislava, Slovak Republic, 25.4.2007. - Bratislava: STU, 2007. - ISBN 978-80-227-2650-4. - CD-Rom. (in Slovak)
- [15] STANČÍK, S., MURÍN, J., MASNÝ, M.: Modeling and Simulation of the Three Bundle Power Line by FEM. In: ŠVOČ 2007. Bratislava, Slovak Republic, 25.4.2007. - Bratislava: STU, 2007. - ISBN 978-80-227-2650-4. - CD-Rom. (in Slovak)

VIII.3 Book

- [1] LEINVEBER, J., ŠVERCL, J., VESELOVSKÝ, J.: Technical Drafting. - Bratislava: Alfa-press, 2007. - 151 p. - ISBN 978-80-89223-20-6. (in Slovak)

VIII.4 Patents

- [1] FRIC, R.: The Screwless – typ joint. - Bratislava: FEI STU - KMECH, 2007. - 4 p. – Patent No.: SK 4955 U – mediation date: 20.11.2007. (in Slovak)
- [2] KALAŠ, A.: Contact Sensor for Time Varying Record of Physical Grantity. - Bratislava: FEI STU - KMECH, 2007. - 4 p. – Patent No.: SK 4828 U - mediation date: 25.06.2007. (in Slovak)
- [3] KALAŠ, A.: Intelligent Position Sensor. - Bratislava: FEI STU - KMECH, 2007. - 4 p. - Patent No. SK 4758 U - mediation date: 3.4.2007. (in Slovak)
- [4] KALAŠ, A.: Intelligent Level Sensor Using Multiple Scales. - Bratislava: FEI STU - KMECH, 2007. - 4 p. - Patent No. SK 4761 U - mediation date: 3.4.2007. (in Slovak)
- [5] VESELOVSKÝ, J.: Appliance for Measuring Force Distribution Removing Transformer Core. - Bratislava: FEI STU - KMECH, 2007. - 4 p. – Patent No.: SK 4827 U – mediation date: 25.6.2007. (in Slovak)
- [6] VESELOVSKÝ, J.: Tw-Positional Catcher for Street Light Column. - Bratislava: FEI STU - KMECH, 2007. - 5 p. - Patent No.: SK 4859 U - mediation date: 10.9.2007. (in Slovak)
- [7] VESELOVSKÝ, J.: Device Measuring Deviations of Reflectors. - Bratislava: FEI STU - KMECH, 2007. - 4 p. - Patent No.: SK 4776 U - mediation date: 23.11.2007. (in Slovak)
- [8] VESELOVSKÝ, J.: Device for Showing of the Elementary of Light Source. - Bratislava: FEI STU - KMECH, 2007. - 3 p. - Patent No.: SK 4852 U - mediation date: 7.9.2007. (in Slovak)