

DEPARTMENT OF MECHANICS
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Head of Department

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I. STAFF

Professors	Prof. Ing. Justín Murín, DrSc.
Assistant Professors	Ing. Vladimír Kutíš, PhD., Ing. Róbert Fric, PhD., Ing. Andrej Kalaš, PhD., Ing. Vladimír Goga, Ing. Tibor Sedlár
Research Worker	Ing. Juraj Matej
Part-time Workers	Prof. Ing. Miroslav Vereš, PhD., Prof. Ing. Viktor Ferencey, CSc.
Technical Staff	Katarína Beringerová (secretary), František Erdödy
PhD. Students	Ing. Vladimír Duriš, Ing. Rastislav Belák, Ing. Viktor Královič, Ing. Marcel Virág, Dipl. Ing. Rolf Seemann, Dipl. Ing. Stepha Kugler, Ing. Tibor Sedlár

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
- Digital Oscilloscope RIGOL DS1052E
- Waveform generator RIGOL DG1012
- IR Thermometer FLUKE 572
- 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 the lecturer:

Basis of Engineering and Technical Documentation (1st sem., 2-2h)		M. Vereš R. Fric A. Kalaš
CAD in Technical Documentation	(opt.sem., 1-3h)	R. Fric A. Kalaš
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, A.

Belán

Structural Elements and Systems	(5th sem., 2-2h)	M. Vereš
Design of Vehicles	(6 th sem., 2-2h)	V. Ferencey
Continuum Mechanics	(5th sem., 2-2h)	J. Murín

Distance study

Basis of Engineering and Technical Documentation (1st sem.)		T. Sedlár
Mechanics	(5th sem.)	J. Murín
Introduction to Modelling and Simulation	(5th sem.)	V. Kutiš, A.

Belán

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)	R. Fric
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
Numerical Solution of Field Theory Problems	(2nd sem.)	J. Murín
Applied Mechanics	(1st sem.)	J. Murín

IV. RESEARCH PROJECTS

- Development of the new multiphysical beam finite elements with composite or functionally graded materials. VEGA 1/4122/07, J. Murín
- Research of Psychologic and Physiologic Glare. G 3114/06, principal investigator: A. Smola

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KEE, co-workers: J. Murín, – 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
- ŠjF 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
- Ministry of Interior of the Slovak Republic
- Defense and Strategy Studies Institute jsc

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)

V.4 Membership in International Organizations and Societies

- J. Murín: Chair of Slovak branch of Central European Association for Computational Mechanics
- V. Kutiš: Central European Association for Computational Mechanics
- J. Murín: Institute for Mechanics of Materials and Structures, TU Vienna, Austria

V.5 Contracts

- J. Murín, T. Sedlár, M. Klůčik: Dog training apparatus.

VI. THESES

VI.1 Master Theses

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

- [1] L. Znášik: Temperature rise simulation of the power line conductor by the finite element method (J. Murín)
- [2] P. Kara: Design and analysis of the contact of current path (J. Murín)
- [3] R. Bošanský: Discharge diagnostics of the accumulator battery (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 Sandwich Bar Element for Geometric Nonlinear Thermo-Elastic Analysis. In: Applied and Computational Mechanics. – ISSN 1802-680X. – Vol. 2, No. 1 (2008), p. 25-36. (in English)
- [2] GEBURA, P., KARA, P., MURÍN, J.: Modeling and Simulation of the Screwless-Type Contacts. In: EE časopis pre elektrotechniku a energetiku. - ISSN 1335-2547. - Vol. 14, Special Issue (2008), p. 35-39. (in Slovak)
- [3] MURÍN, J., KUTIŠ, V.: An Effective Finite Element for Torsion of Constant Cross-Sections Including Warping with Secondary Torsion Moment Deformation Effect. In: Engineering Structures. - ISSN 0141-0296. - Vol. 30 (2008), p. 2716-2723. (in English)
- [4] MURÍN, J., KUTIŠ, V., MASNÝ, M.: An Effective Solution of Electro-Thermo-Structural Problem of Uni-Axially Graded Material. In: Structural Engineering and Mechanics. - ISSN 1225-4568. - Vol. 28, No. 6 (2008), p. 695-713. (in English)
- [5] MURÍN, J., KUTIŠ, V.: An Effective Solution of the Composite (FGM'S) Beam Structures. In: Engineering Mechanics. - ISSN 1802-1484. - Vol. 15, No. 2 (2008) p. 115-132. (in English)
- [6] MURÍN, J., KUTIŠ, V.: Electro-Thermo-Structural Analysis of the Multilayered Sandwich Bars. In: Acta Mechanica Slovaca. - ISSN 1335-2393. - Vol. 12, No. 3-B (2008), p. 587-600. (in English)

VIII.2 Conference Proceedings

- [1] AMINBAGHAI, M., MURÍN, J.: Exact Solution of the Bending Vibration Problem of FGM Beams with Longitudinal Variation of Material Properties. In: 70 Years of the Faculty of Civil Engineering Slovak University of Technology. International Scientific Conference. Bratislava, Slovak Republic, 4.-5.12.2008. - Bratislava: STU, 2008. - ISBN 978-80-227-2979-6. - CD-Rom. (in English)
- [2] BELÁK, R.: Eddy Currents in Finite Elements Method. In: ELITECH '08: PhD Students Conference. Bratislava, Slovak Republic, 20.5.2008. – Bratislava: STU, 2008. - ISBN 978-80-227-2878-2. - CD-Rom. (in English)
- [3] ĎURIŠ, R., GOGA, V.: A Geometric Nonlinear Sandwich Composite Bar Finite Element with Transversal and Longitudinal Variation of Material Properties. In: Proceedings of 9th International Conference on Computational Structures Technology: Athens, Greece. 2.-5.9.2008. - Stirling: Civil-Comp-Press, 2008. - ISBN 978-1-905088-23-2. - CD-Rom. (in English)
- [4] ĎURIŠ, R., MURÍN, J.: A Sandwich Bar Element for Geometric Nonlinear Thermo-Elastic Analysis. In: Computational Mechanics 2008: 24th Conference with International Participation. Castle Nečtiny, Czech Republic, 3.-5.11.2008. - Pilsen: University of West Bohemia, 2008. - ISBN 978-80-7043-712-4. (in English)
- [5] GOGA, V.: Characterization of Polyurethane Foam with Respect to Its Energy Absorption. In: ELITECH '08: PhD Students Conference. Bratislava, Slovak Republic, 20.5.2008. - Bratislava: STU, 2008. - ISBN 978-80-227-2878-2. - CD-Rom. (in English)
- [6] GOGA, V., HUČKO, B.: Compression Stress-Strain Curve Modelling of Cellular Solids. In: Mechanical Engineering 2008: 12th International Scientific Conference. Bratislava, Slovak Republic, 13.-14.11. 2008. - Bratislava: STU, 2008. - ISBN 978-80-227-2987-1. -

ISBN 978-80-227-2982-6. - CD-Rom. (in English)

- [7] GOGA, V.: Energy Absorption of Cellular Materials. In: ELITECH '08: PhD Students Conference. Bratislava, Slovak Republic, 20.5.2008. - Bratislava: STU, 2008. - ISBN 978-80-227-2878-2. - CD-Rom. (in English)
- [8] KALAŠ, A., SEDLÁR, T., BELÁK, R.: Device for Micro-Deflections Measurement. In: 49th International Conference of Machine Elements and Mechanisms Departments: Srní, Czech Republic, 8.-10.9.2008. - Pilsen: University of West Bohemia, 2008. - ISBN 978-80-7043-718-6. - p. 115-118. (in English)
- [9] KUTIŠ, V., MURÍN, J.: Stability of a Composite Beam-Column with Transversal and Longitudinal Variation of Material Properties. In: Proceedings of 9th International Conference on Computational Structures Technology: Athens, Greece. 2.-5.9.2008. - Stirling: Civil-Comp-Press, 2008. - ISBN 978-1-905088-23-2. - CD-Rom. (in English)
- [10] MURÍN, J., KUTIŠ, V., MASNÝ, M.: An Effective Multiphysical Functionally Graded Material Beam-Link Finite Element with Transversal Symmetric and Longitudinal Continuous Variation of Material Properties. In: Proceedings of the Ninth International Conference on Computational Structures Technology: Athens, Greece. 2.-5.9.2008. - Stirling: Civil-Comp-Press, 2008. - ISBN 978-1-905088-23-2. - CD-Rom. (in English)
- [11] MURÍN, J., KUTIŠ, V.: Thermo-Elastic Stress Calculation in Multilayered FGM Sandwich Beams. In: 70 Years of the Faculty of Civil Engineering Slovak University of Technology. International Scientific Conference. Bratislava, Slovak Republic, 4.-5.12.2008. - Bratislava: STU, 2008. - ISBN 978-80-227-2979-6. - CD-Rom. (in English)
- [12] STRODL, T., PAVLOVIČ, M., SEEMANN, R., MURÍN, J.: Advanced Concepts for Particle-Therapy Accelerators. In: Proceedings of EPAC 2008: 11th European Particle Accelerator Conference. Genoa, Italy, 23.-27.6.2008. - p. 1821-1823. (in English)

VIII.3 Parts of Books

- [1] KALAŠ, A., KRÁLOVIČ, V.: Protection of Intellectual Property. In: New Trends in Design and Technical Documentation Creation. - Nitra: Slovak University of Agriculture in Nitra, 2008. - ISBN 978-80-552-0052-1. - p. 146-148. (in English)
- [2] MURÍN, J., KUTIŠ, V., MASNÝ, M., ĎURIŠ, R.: Composite (FGM'S) Beam Finite Elements. In: Composites with Micro- and Nano-Structure: Computational Modeling and Experiments. - New York: Springer Science+Business Media B.V., 2008. - ISBN 978-1-4020-6974-1. - p. 209-237. (in English)

VIII.4 Patent and Standard

- [1] KALAŠ, A.: Threepoint Micro-Bending Meter. - Bratislava: FEI STU - KMECH, 2008. - 4 p. - Patent No: SK 5068 – mediation date: 28.11.2008. (in Slovak)