

**Листа вредније опреме која се користи у наставном процесу на
Машинском факултету**

Naziv	Naziv opreme
Application of Novel Measurement and Computational Techniques on Investigation of Air Flow in Ventilation Systems of Energy Extremely Efficient (Passive) Buildings	STEREO HIGH FRAME RATE (TIME-RESOLVED) PIV SYSTEM
DEVELOPMENT OF CHP DEMO FACILITY WITH BIOMASS GASIFICATION	Gas engine with generator (CHP unit)## Cummins QSK 19 G
RESEARCH AND DEVELOPMENT OF EQUIPMENT AND SYSTEMS FOR INDUSTRIAL PRODUCTION, STORAGE AND PROCESSING VEGETABLES AND FRUITS	MOBIL LABORATORY FOR BIOSYSTEM ENGINEERING
Development of methods and techniques for early diagnostic of cervical, colon, oral cavity cancer and melanoma based on a digital image and excitation-emission spectrum in visible and infrared domain	FTIR 6200 Spectrometer integrated with IRT-5000 Infrared Microscope
Pollution Reduction from Thermal Power Plants of the Public Enterprise Electric Power Industry of Serbia	STA 409 PC/4/H Luxx Simultaneous TG-DTA/DSC-Apparatus
RESEARCH AND DEVELOPMENT OF ALTERNATIVE FUEL AND DRIVE SYSTEMS FOR URBAN BUSES AND REFUSE VEHICLES WITH REGARD TO THE IMPROVEMENTS OF ENERGY EFFICIENCY AND ENVIRONMENTAL CHARACTERISTICS	HIL Simulator (Software & Hardware components)
Fluidized bed combustion facility improvements as a step forward in developing energy efficient and environmentally sound waste combustion technology in fluidized bed combustors	NETZSCH GHP 456 Titan - Guarded Hot Plate System
THE DEVELOPMENT OF A NEW GENERATION OF DOMESTIC MACHINING SYSTEMS	5-axis machining robot with integrated motor spindle, Staubli RX170HSM
Research and Development of Advanced Design Approaches for High Performance Composite Rotor Blades	Technology demonstrator main rotor blades set## (Autoclave / Cutting system for composites)##
Pollution Reduction from Thermal Power Plants of the Public Enterprise Electric Power Industry of Serbia	DX4000 FTIR gas analyzer with heated probe, heated hose, sampling system and software
Application of Novel Measurement and Computational Techniques on Investigation of Air Flow in Ventilation Systems of Energy Extremely Efficient (Passive) Buildings	Upgrade of the existing PIV system
Application of Novel Measurement and Computational Techniques on Investigation of Air Flow in Ventilation Systems of Energy Extremely Efficient (Passive) Buildings	Hydraulic and Gas Deadweight Calibrators
Research of opportunities to improve welding technology for micro-alloyed steels	Pendelum impact tester
System for Optimization of Thermal Power Plant Blocks Operation over 300 MW capacity	Sistem za kalibrisanje davaca temperature (System for temperature calibration)

THE DEVELOPMENT OF A NEW GENERATION OF DOMESTIC MACHINING SYSTEMS	Stand for performing micro cutting and for the system analysis of various material machinability
RESEARCH AND DEVELOPMENT OF ALTERNATIVE FUEL AND DRIVE SYSTEMS FOR URBAN BUSES AND REFUSE VEHICLES WITH REGARD TO THE IMPROVEMENTS OF ENERGY EFFICIENCY AND ENVIRONMENTAL CHARACTERISTICS	Hydraulic Hybrid Power train hydraulic components
Sustainability and improvement of mechanical systems in energetic, material handling and conveying by using forensic engineering, environmental and robust design	NetdB12-PRO multichannel real time sound and vibration analyzer with supporting computer, equipment, accessories and software
Application of Novel Measurement and Computational Techniques on Investigation of Air Flow in Ventilation Systems of Energy Extremely Efficient (Passive) Buildings	HOT-WIRE ANEMOMETRY SYSTEM
Sustainability and improvement of mechanical systems in energetic, material handling and conveying by using forensic engineering, environmental and robust design	MGC plus/QuantumX840A
SCIENTIFIC-TECHNOLOGICAL SUPPORT TO ENHANCING THE SAFETY OF SPECIAL ROAD AND RAIL VEHICLES	Sistem za akviziciju podataka QuantumX
Development and improvement of technologies for energy efficient and environmentally sound use of several types of agricultural and forest biomass and possible utilization for cogeneration	Acquisition system for heat flow and thermal transmittance (U) measurement
Smart Robotic Systems for Customized Manufacturing	2D/3D PROFILE SENSOR scanCONTROL 2800 Sensor LLT 2800+controller LLT2800
The research and development of renewable subgeothermal groundwater resources in the concept of enhancing energy efficiency in building management	Infrared camera, Flir B425
SCIENTIFIC-TECHNOLOGICAL SUPPORT TO ENHANCING THE SAFETY OF SPECIAL ROAD AND RAIL VEHICLES	Ure đaj za merenje profila toèka i šine i za određivanje dinamièkih parametara kompleksnog dodira toèak/šina Calipri Wheel CW40
Sustainability and improvement of mechanical systems in energetic, material handling and conveying by using forensic engineering, environmental and robust design	Hydraulic Components for universal mobile test rig
SCIENTIFIC-TECHNOLOGICAL SUPPORT TO ENHANCING THE SAFETY OF SPECIAL ROAD AND RAIL VEHICLES	NEO dijagnostièki sistem
LITHIUM-ION BATTERIES AND FUEL CELLS - RESEARCH AND DEVELOPMENT	Fluke Ti32 Ti 32 Industrial Commercial Thermal Imager Infrared Camera
Sustainability and improvement of mechanical systems in energetic, material handling and conveying by using forensic engineering, environmental and robust design	High performance workstation for complex numerical analysis simulation

Development of Methodology for Improvement of Operational Performance, Reliability and Energy Efficiency of Machine Systems used in the Resource Industry	NEC Thermo Tracer H2640, thermocamera
DEVELOPMENT OF CHP DEMO FACILITY WITH BIOMASS GASIFICATION	Compact type gas analyzer for continuous gas composition measurement, Type ZSVF
Smart Robotic Systems for Customized Manufacturing	WELDING ROBOT KUKA KR 16 arc HW
Developed new methods for diagnosis and examination mechanical structures	Trajni monitoring fizièkim mernih velièina na konstrukcijama i opremi
Smart Robotic Systems for Customized Manufacturing	ASSEMBLY ROBOT IRB 140/IRB 140T
Development of the model for managing the vehicle technical condition in order to increase its energy efficiency and reduce exhaust emissions	DS-Minitaur-100-C2D (stari nazi: Dewe-101-BT , firma je u medjuvremenu promenila naziv opreme)
DEVELOPMENT and APPLICATION of METHODES and LABORATORY EQUIPMENT INTENDED for CONFORMITY ASSESSMENT of TECHNICAL PRODUCTS	Compressor unit
DEVELOPMENT and APPLICATION of METHODES and LABORATORY EQUIPMENT INTENDED for CONFORMITY ASSESSMENT of TECHNICAL PRODUCTS	Flow meters for gasses and liquids with processing data
Geochemical investigations of sedimentary rocks - fossil fuels and environmental pollutants	AUTOMATIC ISOKINETIC SAMPLER ISOPLUS ZAMBELLI IT
Development of Methodology for Improvement of Operational Performance, Reliability and Energy Efficiency of Machine Systems used in the Resource Industry	MVP-2C - Monitoring device for Vibration and temperature, acquisition and proces of recorded data
Smart Robotic Systems for Customized Manufacturing	VISION SYSTEM In-Sight 5605 ##
THE DEVELOPMENT OF A NEW GENERATION OF DOMESTIC MACHINING SYSTEMS	Software system STEP-NC Machine. This package includes up to twelve seats of the STEP-NC Machine and ST-Developer software, media, documentation, and updates for up to three years.
Fluidized bed combustion facility improvements as a step forward in developing energy efficient and environmentally sound waste combustion technology in fluidized bed combustors	Portable ultrasonic camp-on flowmeter, Optisonic 6400
Sustainability and improvement of mechanical systems in energetic, material handling and conveying by using forensic engineering, environmental and robust design	Electronic dynamometer with wireless computer connection
Developed new methods for diagnosis and examination mechanical structures	Hidraulicne stezni pribor epruveta.
An innovative ecologically based approach to implementation of intelligent manufacturing systems for production of sheet metal parts	I-TRIZ software for solving the challenging technological problems.

Increase of energy efficiency in selected industrial sector through implementation of energy management system in small and medium-sized enterprises	Clamp-on ultrasonic flow meter КROHNE UFM 610 P
Intelligent Control Systems of the Air-conditioning for the Purpose of Achieving Energy Efficient Exploitation Regimes in the Complex Operating Conditions	Sensors and actuators
An innovative ecologically based approach to implementation of intelligent manufacturing systems for production of sheet metal parts	The Articulated Configuration-Robot Manipulator
DEVELOPMENT OF NEW GENERATION OF SAFE, EFFICIENT, ECOLOGICAL (SE-ECO) SHIPS	1. Ship Power Absorbtion Measurements
Advanced analytical, numerical and analysis methods of applied fluid mechanics and complex systems	VR1-MIROEX1-1024MM
Development, design and implementation of modern strategies of integrated management of operations and vehicle and mechanization maintenance in auto transport, mining and energy	Univerzalni sistem za akviziciju podataka QuantumX
Application of Novel Measurement and Computational Techniques on Investigation of Air Flow in Ventilation Systems of Energy Extremely Efficient (Passive) Buildings	Calibrator
Sustainability and improvement of mechanical systems in energetic, material handling and conveying by using forensic engineering, environmental and robust design	Velocimeters with appropriate cables
RESEARCH AND DEVELOPMENT OF ALTERNATIVE FUEL AND DRIVE SYSTEMS FOR URBAN BUSES AND REFUSE VEHICLES WITH REGARD TO THE IMPROVEMENTS OF ENERGY EFFICIENCY AND ENVIRONMENTAL CHARACTERISTICS	Charge amplifyer
Research and Development of Advanced Design Approaches for High Performance Composite Rotor Blades	Thermal Imager with IR-Fusion - IR camera
An innovative ecologically based approach to implementation of intelligent manufacturing systems for production of sheet metal parts	Sensor Film
Development of Methodology for Improvement of Operational Performance, Reliability and Energy Efficiency of Machine Systems used in the Resource Industry	HBM MX840A PAKEASY 8-chanel univeral measuring system
DEVELOPMENT and APPLICATION of METHODES and LABORATORY EQUIPMENT INTENDED for CONFORMITY ASSESSMENT of TECHNICAL PRODUCTS	water pump

Development, design and implementation of modern strategies of integrated management of operations and vehicle and mechanization maintenance in auto transport, mining and energy	6 Gas Analyzer ULTIMATE Part # 310-0114
Intelligent Control Systems of the Air-conditioning for the Purpose of Achieving Energy Efficient Exploitation Regimes in the Complex Operating Conditions	Control computer for air-handling unit
Intelligent Control Systems of the Air-conditioning for the Purpose of Achieving Energy Efficient Exploitation Regimes in the Complex Operating Conditions	Ducts and auxiliaries
DEVELOPMENT OF NEW GENERATION OF SAFE, EFFICIENT, ECOLOGICAL (SE-ECO) SHIPS	3. Computers and Computer Peripherals
THE DEVELOPMENT OF A NEW GENERATION OF DOMESTIC MACHINING SYSTEMS	Laboratory prototype of reconfigurable five-axis machine tool
Development of Methodology for Improvement of Operational Performance, Reliability and Energy Efficiency of Machine Systems used in the Resource Industry	HBM MX410 PAKEASY 4-channel universal measuring system
SCIENTIFIC-TECHNOLOGICAL SUPPORT TO ENHANCING THE SAFETY OF SPECIAL ROAD AND RAIL VEHICLES	DIJAGNOSTIÈKI KABLOVI
SCIENTIFIC-TECHNOLOGICAL SUPPORT TO ENHANCING THE SAFETY OF SPECIAL ROAD AND RAIL VEHICLES	U10M-Univerzalni davaè sile za dinamièka i statièka merenja (U10M-Universal fatigue rated force transducer for dynamic and static applications)## ## 2 davaèa nominalne sile 25 kN, 2 davaèa nominalne sile 50 kN i 2 davaèa nominalne sile 125 kN
DEVELOPMENT OF NEW GENERATION OF SAFE, EFFICIENT, ECOLOGICAL (SE-ECO) SHIPS	4. Professional software
DEVELOPMENT OF CHP DEMO FACILITY WITH BIOMASS GASIFICATION	Portable Gas conditioning and sampling system PSS 5/3 electronically controlled Peltier cooler ECP 1000, diaphragm sample pump N 3KPE, Condensat removed with peristaltic pump SR 25.1, gas flow: 150 l/h, ambient temperature: +5 to +45 oC, sample inlet temp
Research and Development of Advanced Design Approaches for High Performance Composite Rotor Blades	Accelerometer-sensors of movement, 4374##
Development, design and implementation of modern strategies of integrated management of operations and vehicle and mechanization maintenance in auto transport, mining and energy	CAN-Bus Tester3
Development of the model for managing the vehicle technical condition in order to increase its energy efficiency and reduce exhaust emissions	Bosch/VDO / Vetronix - CDR/UDS (stari naziv: CDR - Crash Data Retrieval / UDS Unfall Data Schreiber)

Development, design and implementation of modern strategies of integrated management of operations and vehicle and mechanization maintenance in auto transport, mining and energy	Hardware
Research on use of solar energy by vacuum collectors with heat pipes and construction of a demonstration facility	three axis ultrasonic anemometer
Development of Methodology for Improvement of Operational Performance, Reliability and Energy Efficiency of Machine Systems used in the Resource Industry	HBM CATMAN-AP softver HBM catman easy + EasyMath, EasyScript. EasyLog
Development, design and implementation of modern strategies of integrated management of operations and vehicle and mechanization maintenance in auto transport, mining and energy	Davac sile na pedali kocnice d-010-e-rev002 i Davac ugaone brzine tocka EE-SPZ301/401.
RESEARCH AND DEVELOPMENT OF ALTERNATIVE FUEL AND DRIVE SYSTEMS FOR URBAN BUSES AND REFUSE VEHICLES WITH REGARD TO THE IMPROVEMENTS OF ENERGY EFFICIENCY AND ENVIRONMENTAL CHARACTERISTICS	Partial flow smokemeter (opacity meter) Opax2000
Development of Methodology for Improvement of Operational Performance, Reliability and Energy Efficiency of Machine Systems used in the Resource Industry	NI LabVIEW Full Development System for Windows
RESEARCH AND DEVELOPMENT OF ALTERNATIVE FUEL AND DRIVE SYSTEMS FOR URBAN BUSES AND REFUSE VEHICLES WITH REGARD TO THE IMPROVEMENTS OF ENERGY EFFICIENCY AND ENVIRONMENTAL CHARACTERISTICS	High pressure quartz sensor with cable
Application of Novel Measurement and Computational Techniques on Investigation of Air Flow in Ventilation Systems of Energy Extremely Efficient (Passive) Buildings	Digital oscilloscope
RESEARCH AND DEVELOPMENT OF ALTERNATIVE FUEL AND DRIVE SYSTEMS FOR URBAN BUSES AND REFUSE VEHICLES WITH REGARD TO THE IMPROVEMENTS OF ENERGY EFFICIENCY AND ENVIRONMENTAL CHARACTERISTICS	Piezoresistive high pressure sensor
Developed new methods for diagnosis and examination mechanical structures	Univerzalni davac sile za dinamicke i staticke primene HBM U10M, Davac sile HBM U6
RESEARCH AND DEVELOPMENT OF ALTERNATIVE FUEL AND DRIVE SYSTEMS FOR URBAN BUSES AND REFUSE VEHICLES WITH REGARD TO THE IMPROVEMENTS OF ENERGY EFFICIENCY AND ENVIRONMENTAL CHARACTERISTICS	Piezoquartz presure sensor
An innovative ecologically based approach to implementation of intelligent manufacturing systems for production of sheet metal parts	K2D-360 Video Camera

Sustainability and improvement of mechanical systems in energetic, material handling and conveying by using forensic engineering, environmental and robust design	Accelerometers with appropriate cables
DEVELOPMENT OF NEW GENERATION OF SAFE, EFFICIENT, ECOLOGICAL (SE-ECO) SHIPS	2. Ship speed, Waterway and Wind Measurements
Advanced analytical, numerical and analysis methods of applied fluid mechanics and complex systems	MIRO ACCESSORIES KIT VRI-2MK0003
Approximation of integral and differential operators and applications	Notebook
Research on use of solar energy by vacuum collectors with heat pipes and construction of a demonstration facility	Calorimeter
Research on use of solar energy by vacuum collectors with heat pipes and construction of a demonstration facility	Pyranometer
Methods of Numerical and Nonlinear Analysis with Applications	lap.Tosh.Sat.L650-13P
Advanced analytical, numerical and analysis methods of applied fluid mechanics and complex systems	Personal Computer
An innovative ecologically based approach to implementation of intelligent manufacturing systems for production of sheet metal parts	Mobile Robot
RESEARCH AND DEVELOPMENT OF ALTERNATIVE FUEL AND DRIVE SYSTEMS FOR URBAN BUSES AND REFUSE VEHICLES WITH REGARD TO THE IMPROVEMENTS OF ENERGY EFFICIENCY AND ENVIRONMENTAL CHARACTERISTICS	Wireless Diesel Smoke Meter with matching sensor
Developed new methods for diagnosis and examination mechanical structures	WA L - Induktivni standardni davac pomeranja, Nominalna pomeranja [mm] 50,100,501
Increase in energy and ecology efficiency of processes in pulverized coal-fired furnace and optimization of utility steam boiler air preheater by using in-house developed software tools	Computing unit
Development of Methodology for Improvement of Operational Performance, Reliability and Energy Efficiency of Machine Systems used in the Resource Industry	CXL-GP, acceleration emitter (sensor)
Research on use of solar energy by vacuum collectors with heat pipes and construction of a demonstration facility	Data logger
Micromechanical criteria of damage and fracture	PC - workstation
Development of Methodology for Improvement of Operational Performance, Reliability and Energy Efficiency of Machine Systems used in the Resource Industry	HBM K-LY41-6/120 and HBM K-LY41-50/120 , strain gauges, LS-5, terminals, HBM X60, 2 component glue for tenzometric strain gauge, HBM Z70, glue for tenzometric strain gauge, HBM AK22 moisture protection, HBM ABM75 moisture protection mixture with Al foil 2

DEVELOPMENT OF CHP DEMO FACILITY WITH BIOMASS GASIFICATION	Heated gas sample probe
Research and Development of Advanced Design Approaches for High Performance Composite Rotor Blades	Bridge and Strain Measurement Module
SCIENTIFIC-TECHNOLOGICAL SUPPORT TO ENHANCING THE SAFETY OF SPECIAL ROAD AND RAIL VEHICLES	WA T - Induktivni standardni davaè pomeranja 500 mm## (WA T - Inductive standard displacement transducers (probe) 500 mm)##
Development of Methodology for Improvement of Operational Performance, Reliability and Energy Efficiency of Machine Systems used in the Resource Industry	HBM DAK1 i 2, tools for strain gauge appliance
Methods of Numerical and Nonlinear Analysis with Applications	Comp. AMD GAME(2)
Development of Methodology for Improvement of Operational Performance, Reliability and Energy Efficiency of Machine Systems used in the Resource Industry	HBM WA100MM-L and HBM WA300MM-L, displacement transducers
Methods of Numerical and Nonlinear Analysis with Applications	Personal Computer - 2 pcs.
Methods of Numerical and Nonlinear Analysis with Applications	HP ProL.DL120G5Spec.
Increase in energy and ecology efficiency of processes in pulverized coal-fired furnace and optimization of utility steam boiler air preheater by using in-house developed software tools	2 computing units
Developed new methods for diagnosis and examination mechanical structures	Wabco dijagnosticki kablovi
Intelligent Control Systems of the Air-conditioning for the Purpose of Achieving Energy Efficient Exploitation Regimes in the Complex Operating Conditions	WAGO PROFINET StarterKit
Intelligent Control Systems of the Air-conditioning for the Purpose of Achieving Energy Efficient Exploitation Regimes in the Complex Operating Conditions	WAGO KNX IP StarterKit

RS-Belgrade: IPA — supply of laboratory and IT equipment, furniture and other equipment to lecturing buildings, laboratories and classrooms at the faculties of the university of the Republic of Serbia

Lot 4 - Technical, Physics & Mechanical laboratory & Industrial Equipment

PUBLICATION REFERENCE: EuropeAid/131876/C/SUP/RS NAME OF TENDERER: Echo Research & Development spa

<u>Item number</u>	<u>Quantity</u>	<u>specifications offered (incl brand/model)</u>
4.1	1	CNC lathe with a fixed cycle
		Brand:ECHO
		Model: TCN-410-1250
4.2	1	Electromagnetic flowmeter for inner pipe diameter 0.25m
		Brand: SIEMENS
		Model: 7ME6310-4VE11-1JB1-Z C14
4.3	1	Ultrasonic flowmeter
		Brand:GE
		Model: PT-SYS-1-2-H-E-TG/E/C48/IO/NIST1
4.4	1	Portable Low Pressure Controller (range: 0-1000Pa)
		Brand:WIKA
		Model: CPC2000-MA6OG-D-Z
4.5	1	Portable pressure calibration set
		Brand:WIKA
		Model: CPH6000-A1ZSLN-Z
4.6	1	5-Axis Vertical Machining Centre for turbomachines
		Brand: HOFFMANN
		Model: FLEX-U 620
4.7	1	CNC machine for 3D machining of various materials (aluminium, brass, copper, plastic, wood...)
		Brand : HOFFMANN
		Model: VN DELTA 6
4.8	1	Dead weight calibrator of pressure measuring devices (from -1 bar up to 70 bar)
		Brand: EUROPASCAL
		Model: 2465 A
4.9	1	Electromagnetic flowmeter for inner pipe diameter 0.4m
		Brand: SIEMENS
		Model: 7ME6310-5RE11-1JB1-Z C14
4.10	1	3-D PARTICLE IMAGE VELOCIMETRY SYSTEM
		Brand: TSI
		Model: YAG200-15-LIT
4.11	1	SHEAROGRAPHY SYSTEM
		Brand: DANTEC DYNAMICS
		Model: Q-800

4.12	1	HIGH-SPEED 3D DIGITAL IMAGE CORRELATION SYSTEM
		Brand:GOM
		Model: ARAMIS
4.13	1	Three-Phase Squirrel-Cage-Motor with Frequency Inverter
		Brand: ELECTRO ADDA
		Model: 4P C1A315M-c B3
4.14	1	Precision bio-systems engineering system
		Brand: TRIMBLE
		Model: GPS components
4.15	1	Hydraulic system for fatigue testing of large elements, with stroke up to 150 mm, under force rating up to 250 kN.
		Brand: METROCOM
		Model: 980A4030
4.16	1	Software for thermal-hydraulic calculations
		Brand: ANSYS
		Model: Academic Research
4.17	1	Water Hardness Analyzer
		Brand: MKJ
		Model: 206305
4.18	1	Water Electrical Conductivity Analyzer
		Brand: METTLER
		Model: FEP30+Conductivity
4.19	1	Portable Total Hydrocarbon Analyzer
		Brand: RATFISCH
		Model: RS53-T.
4.20	1	Automatic isokinetic sampler
		Brand: ZAMBELLI
		Model:Isospeed
4.21	1	Portable ultrasonic flow meter for gases and vapors
		Brand:GE
		Model: PT878GC-02-1
4.22	1	Portable ultrasonic flow meter for liquids
		Brand: OMEGA
		Model: FD 7000
4.23	1	Ultrasonic Doppler Flow Meters
		Brand: DYNASONICS
		Model: DDFXD2-B1NA-NN
4.24	2	Acquisition system (2 sets) - Data Logger - 10 channels, Hi Res
		Brand: ASITA
		Model: 8401/20LR
4.25	1	Electric Current Sensors
		Brand: ECHORD
		Model: HE500T01
4.26	4	High Accuracy Pressure Transmitter (4 sensors)
		Brand: SELEMARK

		Model: IDP10-T22D21E-M1
4.27	1	Infrared camera
		Brand: FLIR
		Model: E 50
4.28	1	Two-Color Digital Pyrometer
		Brand: MEGATECH
		Model: MQ 22
4.29	1	Dissolved Oxygen Analyzer
		Brand: ECHORD
		Model: DO32A-1-1
4.30	1	3-D Laser Doppler Velocimetry - System
		Brand: TSI
		Model: LA70-5E
4.31	1	Calibrated Hot Box Apparatus for Determination of Thermal Performance of Windows and Doors (according to ISO12567-1)
		Brand: CIRIAF
		Model: HOT BOX ISO 12567-1
4.32	1	Calibrator for Temperature Measuring Devices
		Brand: FLUKE
		Model: 724
4.33	1	Multifunction Device for Measuring Voltage, Amperage and Temperature
		Brand: AHLBORN
		Model: MA95909
4.34	1	Experimental Table Multimeter with Sensors
		Brand: FLUKE
		Model: 8846A
4.35	1	Experimental unit for free and forced convection
		Brand: GUNT
		Model: WL 352
4.36	1	Four component net radiation sensor
		Brand: CAMPBELL
		Model: 010504
4.37	1	Experimental unit for examining heat conduction in solids
		Brand: GUNT
		Model: WL 374
4.38	1	Experimental unit for air humidity measurement
		Brand: GUNT
		Model: WL 201
4.39	1	Experimental Module for Solar Measurements
		Brand: GUNT
		Model: ET 250
4.40	1	Advanced Temperature Measurement Trainer
		Brand: GUNT
		Model: WL 920
4.41	1	Experimental unit for investigating thermal and visible radiation

		Brand: GUNT
		Model: WL 362
4.42	1	Device for determining air quality by measuring the concentration of CO2
		Brand: TSI
		Model: 7515
4.43	1	Infrared temperature gauge
		Brand: RAYTECH
		Model: RAY TXS LT SF
4.44	2	Portable data acquisition system with six external ports and twenty four digital and analog channels
		Brand: OMEGA
		Model: LTC2494
4.45	1	Thermal conductivity meter
		Brand: TESTO
		Model: TESTO 240
4.46	1	Portable system for collecting data on temperature with 4 channels and the cursor
		Brand: TESTO
		Model: 176 T4
4.47	1	Device for determining the tightness of doors and windows on buildings
		Brand: RETROTEC
		Model: DM-2
4.48	1	Precision Calibrator for noncontact infrared temperature gauge
		Brand: FLUKE
		Model: 4181
4.49	1	Two-channel thermometer
		Brand: DE COSTA
		Model: 3120.10
4.50	1	Mikromanometar
		Brand: TESTO
		Model: 0560 0510
4.51	1	Without contact optical tachometer
		Brand: TESTO
		Model: 0563 0465
4.52	1	Anemometer with termohigrometrom
		Brand: TESTO
		Model: 0560 4102
4.53	1	Portable device with a flexible cable for visuel inspection
		Brand: TESTO
		Model: 0563 3191
4.54	1	CFD software for Academic Use
		Brand: ANSYS
		Model: Academic research CFD
4.55	1	Computer simulation program for building performance analysis

		Brand: PICO
		Model: Mastersuite 2013
4.56	1	Functional architectural 3D model software
		Brand: Bentley
		Model: Bentley Architecture
4.57	1	Blower-Door for infiltration measurement
		Brand: RETROTEC
		Model: DM-2
4.58	1	Ultrasonic flow meter
		Brand: GE
		Model: PT-SYS-1-2-H-G-TG/E/C48/IO/NIST1
4.59	1	Thermal Imaging camera
		Brand: FLIR
		Model: P-620
4.60	1	Flue gas analyzer
		Brand:EUROTRON
		Model:Greenline 4000
4.61	1	Humidity meter
		Brand:TESTO
		Model:0563 6352
4.62	1	Infrared Thermometer
		Brand: TESTO
		Model:845
4.63	1	Anemometer
		Brand:TESTO
		Model:0560 4101
4.64	1	Power Analyser
		Brand: FLUKE
		Model: 435 II
4.65	2	"Data Logger" for continuous monitoring of meteorological conditions
		Brand:TESTO
		Model: 0572 1751-175H1
4.66	8	"Data Logger" for continuous monitoring of indoor conditions
		Brand:TESTO
		Model: 0572 1751-175H1
4.67	7	4 x 3/2-way valve
		Brand: FESTO
		Model: Electro-Pneumatic Kit
4.68	7	3/2-way valve
		Brand: FESTO
		Model: Electro-Pneumatic Kit
4.69	7	5/2-way valve
		Brand: FESTO
		Model: Electro-Pneumatic Kit

4.70	7	3/2-way valve
		Brand: FESTO
		Model: Electro-Pneumatic Kit
4.71	7	2 x 3/2-way valve
		Brand: FESTO
		Model: Electro-Pneumatic Kit
4.72	7	2 x Proximity switch
		Brand: FESTO
		Model: Electro-Pneumatic Kit
4.73	7	Pneumatic Time-delay Valve
		Brand: FESTO
		Model: Electro-Pneumatic Kit
4.74	7	Pressure sequence valve
		Brand: FESTO
		Model: Electro-Pneumatic Kit
4.75	7	5 x Pneumatic Valve
		Brand: FESTO
		Model: Electro-Pneumatic Kit
4.76	7	5/2-way valve
		Brand: FESTO
		Model: Electro-Pneumatic Kit
4.77	7	5 x 5/2-way double pilot valve
		Brand: FESTO
		Model: Electro-Pneumatic Kit
4.78	7	2 x Shuttle Valve
		Brand: FESTO
		Model: Electro-Pneumatic Kit
4.79	7	2 x Dual-pressure Valve
		Brand: FESTO
		Model: Electro-Pneumatic Kit
4.80	7	Quick-exhaust Valve
		Brand: FESTO
		Model: Electro-Pneumatic Kit
4.81	7	8 x Flow Control Valve
		Brand: FESTO
		Model: Electro-Pneumatic Kit
4.82	7	2 x Pneumatic cylinder
		Brand: FESTO
		Model: Electro-Pneumatic Kit
4.83	7	5 x Pneumatic cylinder
		Brand: FESTO
		Model: Electro-Pneumatic Kit
4.84	7	2 x Start-up valve
		Brand: FESTO

		Model: Electro-Pneumatic Kit
4.85	7	Pressure Regulator Valve
		Brand: FESTO
		Model: Electro-Pneumatic Kit
4.86	7	2 x Pressure gauge
		Brand: FESTO
		Model: Electro-Pneumatic Kit
4.87	7	2 x Manifold
		Brand: FESTO
		Model: Electro-Pneumatic Kit
4.88	7	5 x Plastic tubing
		Brand: FESTO
		Model: Electro-Pneumatic Kit
4.89	7	Time-delay Valve
		Brand: FESTO
		Model: Electro-Pneumatic Kit
4.90	7	Predetermining counter
		Brand: FESTO
		Model: Electro-Pneumatic Kit
4.91	7	Stepper modules
		Brand: FESTO
		Model: Electro-Pneumatic Kit
4.92	7	4 x Non-return valve
		Brand: FESTO
		Model: Electro-Pneumatic Kit
4.93	7	3/2-way valve
		Brand: FESTO
		Model: Electro-Pneumatic Kit
4.94	7	3/2-way valve
		Brand: FESTO
		Model: Electro-Pneumatic Kit
4.95	7	Back pressure valve
		Brand: FESTO
		Model: Electro-Pneumatic Kit
4.96	7	Shuttle valve
		Brand: FESTO
		Model: Electro-Pneumatic Kit
4.97	7	Dual pressure valve
		Brand: FESTO
		Model: Electro-Pneumatic Kit
4.98	7	2 x Electrical input signal device
		Brand: FESTO
		Model: Electro-Pneumatic Kit
4.99	7	Pressure Sensor

		Brand: FESTO
		Model: Electro-Pneumatic Kit
4.100	7	4 x Relays
		Brand: FESTO
		Model: Electro-Pneumatic Kit
4.101	7	Limit switch
		Brand: FESTO
		Model: Electro-Pneumatic Kit
4.102	7	Limit switch
		Brand: FESTO
		Model: Electro-Pneumatic Kit
4.103	7	Proximity sensor
		Brand: FESTO
		Model: Electro-Pneumatic Kit
4.104	7	2 x Proximity Switch,
		Brand: FESTO
		Model: Electro-Pneumatic Kit
4.105	7	2 x 3/2-Way Solenoid Valve Block
		Brand: FESTO
		Model: Electro-Pneumatic Kit
4.106	7	5/2- Way Solenoid Valve
		Brand: FESTO
		Model: Electro-Pneumatic Kit
4.107	7	2 x 5/2-Way Double Solenoid Valve
		Brand: FESTO
		Model: Electro-Pneumatic Kit
4.108	7	Dual time relay
		Brand: FESTO
		Model: Electro-Pneumatic Kit
4.109	7	Incrementing counter
		Brand: FESTO
		Model: Electro-Pneumatic Kit
4.110	7	Emergency OFF pushbutton
		Brand: FESTO
		Model: Electro-Pneumatic Kit
4.111	7	Proximity switch
		Brand: FESTO
		Model: Electro-Pneumatic Kit
4.112	7	Proximity switch
		Brand: FESTO
		Model: Electro-Pneumatic Kit
4.113	7	Valve terminal
		Brand: FESTO
		Model: Electro-Pneumatic Kit

4.114	5	Aluminium profile plate
		Brand: FESTO
		Model: Electro-Pneumatic Kit
4.115	7	Power supply unit
		Brand: FESTO
		Model: Electro-Pneumatic Kit
4.116	7	Cable set.
		Brand: FESTO
		Model: Electro-Pneumatic Kit
4.117	1	Programable Logic Controller Education Set Consisting
		Brand: FESTO
		Model: Electro-Pneumatic Kit
4.118	1	I/O data cable
		Brand: FESTO
		Model: Electro-Pneumatic Kit
4.119	1	Universal connection unit
		Brand: FESTO
		Model: Electro-Pneumatic Kit
4.120	1	Connection unit
		Brand: FESTO
		Model: Electro-Pneumatic Kit
4.121	1	I/O data cable
		Brand: FESTO
		Model: Electro-Pneumatic Kit
4.122	1	USB Measuring Device Connecting Software
		Brand: FESTO
		Model: Electro-Pneumatic Kit
4.123	1	Flowrate sensor
		Brand: FESTO
		Model: Electro-Pneumatic Kit
4.124	1	Proportional-pressure regulator
		Brand: FESTO
		Model: Electro-Pneumatic Kit
4.125	1	Flow control valve
		Brand: FESTO
		Model: Electro-Pneumatic Kit
4.126	1	Measuring Software
		Brand: FESTO
		Model: Electro-Pneumatic Kit
4.127	1	Automated dual speed spinner magnetometer
		Brand: AGICO
		Model: JR-6A
4.128	1	Electro hydraulic servo system
		Brand: INTERFLUID

		Model: DLHZO-TES-PS-040-L7
4.129	1	Computer control system
		Brand: FESTO
		Model: RACK W/PLC
4.130	1	Thermal imager
		Brand: FLIR
		Model: T-620
4.131	5	Capacitive displacement sensors
		Brand: MICRO-EPSILON
		Model: NCDT 6100
4.132	1	Eddy current sensors system
		Brand: MICRO-EPSILON
		Model: NCDT 3300
4.133	1	Laser sensors for displacement and position
		Brand: MICRO-EPSILON
		Model: NCDT 2220
4.134	1	Laser distance sensors for extra long ranges
		Brand: MICRO-EPSILON
		Model: ILR 1150-10
4.135	1	Hydraulic clamping load equipment for material testing
		Brand: METROCOM
		Model: 3910030
4.136	1	Software for professional measurement data analysis with many mathematical functions
		Brand: METROCOM
		Model: 14120000
4.137	4	Load cell
		Brand: METROCOM
		Model:41101001
4.138	2	Load cell
		Brand: METROCOM
		Model:41101010
4.139	1	System for fiber-optic sensors
		Brand: HBM
		Model: SI 101
4.140	1	Laser vibration meter without contact
		Brand: POLYTEC
		Model: PDV-UNI
4.141	1	Mobile Instrument (Scanning System) for Non-Destructive Inspection of Steel-Cord Conveyor Belts
		Brand: INTRON
		Model:12-152E
4.142	10	Software for Life Cycle Assessment (LCA)
		Brand: TO BE
		Model: PHD VERSION

4.143	1	The Mobile Instrument Set for Non-destructive Magnetic Testing of Wire Ropes (Defectograph)
		Brand: ZAWADA
		Model: MD 120B
4.144	1	Ultrasonic wall thickness gauge
		Brand: KARL DEUTSCH
		Model: 1076
4.145	1	System for calibration of pressure measuring devices
		Brand: FLUKE
		Model: SYSTEM PG7202-CE
4.146	1	System for measurement and analysis of vibrations in thermal turbomachinery
		Brand: BRUEL & KJAER
		Model: 3053-B-120
4.147	1	Ultrasonic Liquid Flowmeter
		Brand: GE
		Model: PT-SYS
4.148	1	IC Engine Asynchron Dynamometer
		Brand: ROTRONICS
		Model:DIVERS2556
4.149	1	Filter Pad - Additional air filter intended to remove airborne particles inside the test cell consisting of Air Filter and Air Filter Support
		Brand: ROTRONICS
		Model:FP
4.150	1	Power cable for Load Unit (AC machine)
		Brand: ROTRONICS
		Model:PLU
4.151	1	Measuring and control cables: Converter - Load Unit (AC machine)
		Brand: ROTRONICS
		Model:MCC
4.152	1	Control cables: Converter - Measuring cabinet
		Brand: ROTRONICS
		Model:CCM
4.153	1	Dynamometer mounting accessories necessary for IC Engine Asynchron Dynamometer installation on test stand
		Brand: ROTRONICS
		Model:DEAD
4.154	1	Intermediate frame for heightening the Dynamometer to a center height of 700mm
		Brand: ROTRONICS
		Model:FHD
4.155	1	Calibration set consisting of Calibration unit and Set of Calibration weights
		Brand: ROTRONICS
		Model:CSCW

4.156	1	Shaft Guard Unit
		Brand: ROTRONICS
		Model:SGU
4.157	1	Flexible drive shaft for connecting IC Engine crank shaft with the Dynamometer rotor shaft
		Brand: ROTRONICS
		Model:FDS
4.158	1	D drive shaft with "U-joint" for connecting IC Engine crank shaft with the Dynamometer rotor shaft
		Brand: ROTRONICS
		Model:DDSU
4.159	1	IC Engine Throttle Position Control System with linear and rotating positioning motion for testing with highly dynamic characteristics and high positioning forces. Consisting of Throttle Lever Actuator with Control Unit and Cable set for connection of Throttle Lever Actuator and Throttle Actuator Control Unit
		Brand: ROTRONICS
		Model:ICTPC
4.160	1	Controller Set to control IC Engine Test stand equipped with an Asynchrone Dynamometer Load unit and the accordant cables. Set contains: Digital Test stand Controller, Central safety module, Incoming supply module, Measuring and control cables.
		Brand: ROTRONICS
		Model: CSCT
4.161	1	Non-contact optical sensor system for direct, slip-free measurement of longitudinal and transversal vehicle dynamics with CAN-Bus
		Brand: CORRSYS DATRON
		Model: CL 350A
4.162	1	Rate gyro system
		Brand: CORRSYS DATRON
		Model: KCD 16922
4.163	1	Pitch & roll system for non-contact distance measurement for vehicle dynamics testing consisting of 3 laser height sensors and processor unit for pitch & roll calculation
		Brand: CORRSYS DATRON
		Model: HF-500C
4.164	2	Inverted Metallographic microscope with polarizer and analyzer
		Brand: echoLAB
		Model: IM.2153PLM
4.165	2	Micro Hardness Tester
		Brand: echoLAB
		Model: HTV-100

Листа вредније опреме која се користи у научноистраживачком раду у високошколској установи

Назив опреме, тип	Намена
Аквизициони систем са софтвером	32 канални аквизициони систем - MilCommerce Ltd. Првих 16 канала предвиђено је за термопарове а преосталих 16 канала могу бити напонски или струјни, максимални sampling rate за све канале је 1sample/5 sec. Софтверски је контролисана и подаци се прикупљају табеларно, тако да се могу анализирати у било ком spread-sheet програму.
Лабораторијска опрема за испитивање машинских материјала	Универзална механичка кидалица – 10t, AVK, Budapest, Мађарска Универзална кидалица са хидрауличким погоном + Пулзатор – 20МПа Уређај за мерење тврдоће, VEB WPM, Leipzig, Источна Немачка - DDR Уређај за мерење тврдоће – Briviskop, VEB WPM, Leipzig, Источна Немачка - DDR Шарпијево клатно, VEB WPM, Leipzig, Источна Немачка - DDR
Рачунарска опрема	Рачунари
Додатна рачунарска опрема	Штампачи, скенери преносни рачунари, различите врсте надоградње, дигиталне камере
Лабораторијска опрема за испитивања у процесној техници	Узоркивач TIMER ZB1 , Zambelli srl, Italia, Опсер протока: high flow - 5-32 Дигитални аутоматски уређај за прећење и калкулацију термодинамичких параметара димних гасова, 5006 D , Zambelli srl, Italia, Сензор за статички притисак -1000 до 1000 mmH2O, сензор за барометарски притисак 0 - 750 mmHg, сензор за диференцијални притисак 0 - 100 mmH2O, сензор за температуру 0 - 1020 C l/min; low flow - 0,2-6 l/min, Сонда за изокинетичко узорковање гасова и прашине, сонда типа Darcy за термодинамичка мерења, са сетом млазница, чаурама за узорковање и филтерима , Zambelli srl, Italia, Ø17×1800 mm, сонда дужине 200 mm, продужна цев за термодинамичка мерења дужине 1300 mm са прикључцима за сонду типа Darcy,

	<p>Грејано црево HORIBA MGL 183/04, HORIBA, Јапан, Дужина црева 5 метара</p> <p>Аналитичка вага, KERN & Sohn GmbH, Germany, Тип ваге ABJ 220-4М, max. 220g, d=0,0001 g</p> <p>Уређај за млевење по HARDGROVU, за одређивање хардгрове индекса мељивости, ЕКО-LAB, Poland, Уређај је у складу са захтевима стандарда ISO 5074, челична посуда са осам челичних кугли пречника 25,4 mm, тег за оптерећење од 29 kg</p> <p>Опрема за припрему узорка за одређивање индекса мељивости према СРПС ISO 5074, ЕКО-LAB, Poland, Лабораторијска сејалица ЕКО-LAB, амплитуде 1 - 3mm; сет лабораторијских сита 0, 0.075, 0.6, 1.18, 4.5 mm ЕКО LAB PN-86/m- 94001, млин за припрему узорака, дробилица за угаљ, разделивач узорака</p> <p>Инсталација за испитивање ефикасности и струјних карактеристика филтрационих преграда (материјала); Колона за дестилацију полуиндустријског типа за испитивање ефикасности различитих врсти подова; Инсталација за испитивање кинетике процеса сушења у непокретном слоју; Лабораторијско уситњавање и одређивање гранулометријског састава; Инсталација за испитивање флуидодинамичких параметара подова за процесне апарате колонског типа; Ротациона пећ, коморна пећ, издавач чврсти и гасовитих загађ.компонената...</p>
<p>Обрадни центар НМС-500/40</p>	<p>Хоризонтална бушилица-глодалица са уздужно померљивим столом (оса X), попречно померљивим стубом (оса Z) и вертикално померљивим вретеништем (оса Y) по стубу.</p>
<p>Лабораторијска опрема за испитивање и хомологацију моторних возила</p>	<p>Хидраулички динамички уређај ХДУ 1 и ХДУ 2 ; Систем за аквизицију; Испитни уређај за проверу предње и задње заштите, браве управљача и светлосно-сигналне опреме); Испитни уређај за динамичка испитивања конструкција аутобуса; Опрема за мерење максималне брзине; Испитни уређај за статичка испитивања</p>

	<p>заштитних структура пољопривредних трактора; Испитни уређај за динамичка испитивања конструкција; Уређај за испитивање статичког електрицитета возила на ТНГ; Опрема за АТП испитивања.</p>
Анализатор гасова	<p>Уређај мери садржај 5 компонената у сувом димном гасу. Метода мерења појединих компонената, парамагнетна метода за мерење и chemiluminescence.</p>
Лабораторијска опрема за испитивање хидрауличних машина и енергетских система	<p>Инсталација за испитивање енергетских и кавитацијских карактеристика модела турбина, малих хидроелектрана и хидромашинске опреме, инсталација за испитивање Пелтонових турбина, инсталација за испитивање енергетских и кавитацијских карактеристика модела пумпи, постројење за изучавање кавитацијских појава у пумпама и на хидропрофилима са могућношћу визуализације кавитацијских појава, инсталација за испитивање енергетских карактеристика аксијалних вентилатора и вихорног струјања у дифузорима, радијалних вентилатора, испитивање ваздухом турбина, пумпи и вентил.и остале опреме и испитивање компресора.</p>
Лабораторијска опрема за испитивање физичко-хемијских карактеристика чврстих (техничка анализа) и течних горива (густина, тачка паљења, филтрабилност, напон пара, ...). емисије гасовитих, штетних и опасних материја и ефикасности сагоревања	<p>Преносна и лабораторијска опрема са системом за аквизицију података за мерење температуре, притиска, разлике притисака, брзине струјања, протока и релативне влажности. Апарат за полуатоматско одређивање температуре паљења течних горива у затвореној посуди методом Pensky-Martens</p>
Давачи	<p>За испитивање убрзања, притиска, температуре, силе U5/200 KN, U3/50KN, U5/100 KN, U5/200 KN, U5/100 KN, ... (B002, B001, B005, B010, диференције притиска, диференције M200)</p>
Опрема за испитивање железничких возила	<p>Мерно-аквизициони уређај за испитивање динамичких карактеристика шинских возила</p>
Опрема за испитивање мотора	<p>Испитивање брзинских карактеристика; Испитивање карактеристика оптерећења; Испитивање издувне емисије.</p>
Лабораторијска опрема за анализу процеса сагоревања	<p>Гасни анализатор састава продуката сагоревања, опрема за мерење протока гасовитог горива и ваздуха,</p>

	опрема за мерење температуре, опрема за регулацију протока гасовитог горива и ваздуха.
Додатна рачунарска опрема	Штампачи, скенери преносни рачунари, различите врсте надоградње, дигиталне камере).
Модул - Дизајн у машинству	SMART Board 2000i (with software) (Smart technologies Canada) Табла за презентацију, писање, цртање и меморисање исписаног текста и цртежа. Ради у спрези са другим видео пројектором и компјутером. Погодна за приказивање филмова, on-line и интернет презентације. Управља се додиром на екран. 3D PRINTER, Z-printer Z-310 Content, 3D Printer омогућује материјализацију моделираних објеката. Ради са прахом који се лепљењем претвара у моделирани објекат. Максималне димензије објекта су 8x9x10 инча. Штампач је монохроматски.
Лабораторијска опрема Центра за механику флуида	Уређај за истраживање ламинарног и турбулентног струјања у цевима Плинт&Партнерс, В. Британија; Калибратор протока, Биос Инт. Цо., САД; Инсталација за истраживање локалних отпора у цевоводима; Ваздушни тунел отвореног типа; Уређај за испитивање хидрауличких разводника; Инсталација за истраживање система за хидраулички транспорт.
Опрема Завода за машине алатке	CNC револвер струг, Potisje PH42-CNC 16 kW Хоризонтални обрадни центар, Lola HMC 500, 15 kW
JEOL scanning probe microscope	Вишенаменски инструмент који се користи и као атомска сила микроскопа и за испитивање тунела микроскопа. Мерења нано и микро величина.
Хидраулични уређај за динамичка испитивања машинских елемената и система	Уређај служи за динамичка испитивања механичких карактеристика узорака, готових делова и елемената различите геометрије, врста материјала, технологије израде.
PIV (Particle Image Velocimetry)	(Particle Image Velocimetry System) Уређај је вишекомпонентни: Ласер Nd:YAG (30mJ/pulse, 15Hz), Синхронизатор (LaserPulse Comp. Controlled Synch.), Дигитална CCD камера (1.6K x 1.2K, 12bit output, 32 frame/sec, 64 bit камера линк)

	<p>Софтвер за обраду резултата мерења INSIGHT 3G</p> <p>Изузетно прецизно мерење просторног поља брзина, што је од виталног значаја за дефинисање ваљаног модела струјања флуида у процесним системима, отвореним и затвореним просторима и атмосфери.</p>
<p>Серво-хидраулична машина за динамичко испитивање материјала ZWICK/Roell HB 250</p>	<p>максимално оптерећење 250 кN, максималне димензије радног простора 670 x 1070 mm</p>
<p>Environmental Scanning Probe Microscopy JSPM-5200</p>	<p>Мултифункционални микроскоп</p>
<p>ПОНТОС/ТРИТОП</p>	<p>Оптички систем за 3Д анализу померања вибрација и формирање поља, напона и деформација са ХЛ надоградњом фотограметријског модула.</p>
	<p>Аеротунел подзвучни</p> <p>Аеротунел надзвучни</p> <p>Испитни сто-инсталација за испитивање сегмената композитних лопатица на статичка и динамичка оптерећења, мерна скела за испитивање витких композитних конструкција на замор, мерна скела за статичко и динамичко испитивање композитних лопатица.</p>