EXPERTISE PACKAGE

OFFERED BY

FACULTY OF MATHEMATICAL ENGINEERING AND PHYSICAL ENGINEERING

DME

DCE

DPE

FMEPE

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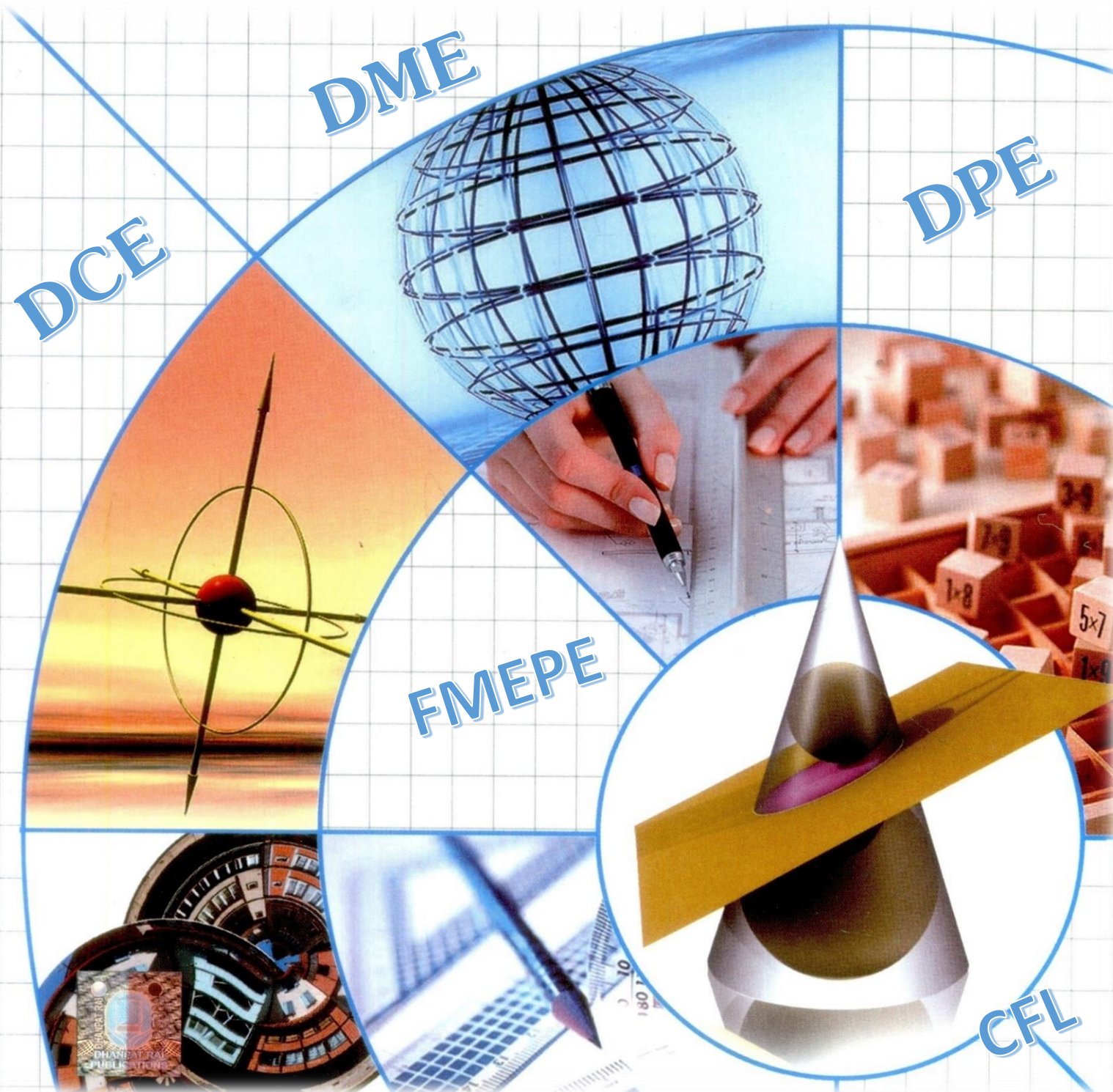
In accordance with Law 80/2015 "*On Higher Education and Scientific Research in Higher Education Institutions in the Republic of Albania*," Article 95, point 5, the Faculty of Mathematical Engineering and Physical Engineering at the Polytechnic University of Tirana has developed a package of Expertise and Services for third parties, which it offers to all interested institutions, organizations, or businesses.

DEPARTMENT OF MATHEMATICAL ENGINEERING

The Department of Mathematical Engineering, within the scope of scientific research and services for third parties, offers consulting services and broad expertise in various fields that can assist in solving complex challenges, especially in statistical analysis, data science, and the development of data management systems. Specifically, the department offers expertise in the following areas:

1. Expertise in Statistics and Operational Research:

Expertise is offered in statistical analysis and predictive modelling for various applications. This includes the use of statistical methods such as multivariate models, regression, and data analysis for different sectors, including public health and urban transport.

2. Data Science and Data Analysis:

The use of programming languages such as R and Python for advanced data analysis and visualization. Expertise in building interactive dashboards to enhance data visualization and enable strategic, data-driven decision-making. Solutions for complex statistical analyses using Shiny, applied to fields such as insurance and social housing.

3. Consultancy and International Projects:

Experience in consulting for international organizations such as UNICEF, UNDP, IOM, and others on projects involving data collection and analysis, the creation of dashboards for data management, and the development of methodologies to improve statistical indicators. Collaborations with governmental and non-governmental institutions to develop policies based on statistical data.

4. Leadership and Project Management:

Extensive experience in managing and leading major scientific and research projects. Leadership of EU-funded projects, including the development of innovative STEM teaching practices and the digitalization of higher education in Albania.

5. Statistical data modelling, quantitative analysis of non-bank financial sector, risk management and assessment in the bank and non-banking financial sector, assessment of technical and mathematical reserves in the insurance market.

6. Implementation of modern mathematical-numerical methodologies, algorithms, and computing technologies to solve economic, scientific, engineering, and business problems."

7. Studies and statistical evaluations in issues related to textile engineering, mechanical engineering, electrical engineering, and chemical engineering (in

collaboration with textile and fashion engineers, mechanical engineers, electrical engineers, and faculty members from the Department of Chemical Engineering).

8. Classification methods for pattern recognition and applications in computer systems

9. Calculation of forecast reserves for oil, gas, useful minerals, and water using mathematical methods and computer simulation. (In collaboration with geological engineers and petroleum and gas engineers).

10. Studies and assessments of the safety of hydroelectric dams; Risk analysis of flooding from water sources during the design of hydraulic structures. (In collaboration with hydro engineers and environmental engineers).

11. Study of oscillations (vibrations, oscillations, galloping oscillations) in high-voltage transmission lines, using damper systems (vibration dampers) for their protection.

12. Application of contemporary mathematical methodologies in image analysis for medicine, telecommunications, electronics, insurance companies, banks, and other sectors where data processing and interpretation are necessary.

13. Evaluation of natural phenomena such as earthquakes, floods, resonances, oscillations, etc., modelled using partial differential equations.

14. Geometric modelling (two- and three-dimensional) of various objects. Interpolation, evaluation, and 2D/3D visualization. Construction of numerical terrain models (DTM).

15. Design, implementation, and application of geographic information systems (GIS), including building web-based applications (WEB GIS) using open-source or commercial technologies.

16. Mathematical transformations of geodetic measurements and maps in different systems: Alb86, WGS-84 (UTM-34), etc.

17. Experience in developing modules and projects using MATHCAD, MATLAB, MATHEMATICA, MAPLE, SPSS, STATA, GeoGebra, R Language, etc.

18. Training in the application of mathematical knowledge in different sectors, both public and private companies.

19. Training in the use of software such as MATHCAD, MATLAB, MATHEMATICA, MAPLE, SPSS, STATA, GeoGebra, R Language, etc.

20. Training in acquiring mathematical knowledge for the pre-university, university, and post-university systems.

21. Training of teachers in vocational high schools.

CONCRETE EXPERIENCES

- "*Updating and Publishing the Vulnerability Map of Groundwater in Albania*", funded by the National Agency of Technology and Innovation (AKTI) and the Polytechnic Uni versity of Tirana 2023 (**E. Raço,** A. Beqiraj, H. Beshku, E. Dindi, D. Zeqiraj, H. Çadraku, Sh. Nazaj, Dh. Ndreko, F. Gjoka, M. Cenameri, A. Jahja, R. Mumajesi, E. Ndreca).

- Member of the international research group in the study: "*Predictive Modelling: Migration Impact on the Albanian Workforce and Skills Development Needs from a Gender Perspective in Albania*" supported by IOM (01/2022–12/2022) (**E. Raço**)

- Author of "*Social Housing in Albania: Situation Assessment*" supported by UNDP. (**E. Raço**)

- "Developing Differential Mathematical Models for the Spread of Epidemic Diseases - Focus on the Covid-19 Pandemic. Real-Time Design and Evaluation of Control Measure Effectiveness." 2024. (**L. Hanelli, A. Fundo, F. Osmani, S. Tola, A. Daci**)

- Doctorate in Mathematical Engineering: "Building Differential Mathematical Models for the Spread of Epidemic Diseases - Focus on the Covid-19 Pandemic. Real-Time Design and Evaluation of Control Measure Effectiveness." 2023 – Ongoing (**L. Hanelli**, Project Leader)

- Participation and collaboration in the project: "Concrete Recommendations for Energy Resources through Geological-Geophysical Studies. Redefinition of Oil and Gas Reserves in Accordance with EU Standards, Including Unconventional Oil" – Contracting Institution: National Agency of Natural Resources, Tirana 2011-2014. **(L. Hanelli)**

- Participation in Research and Development Project No. 8, part of the National Research and Development Program: "*Reassessment with Contemporary Methods of Discovered Oil and Gas Reserves for Carbonate Fields; Their Status and Possible Extraction.*" Engagement: Collaboration for Solving Special Tasks with Mathematical Content, as Specified in the Program and Work Plan of the Project. Supported by the National Committee for Science and Technology, Contracting Institution: Faculty of Geology and Mining, Tirana, November 2003 - December 2005. **(L. Hanelli)**

- Participation in the project: "*Assessment of Abnormal Layer Pressures and Restoration of Thicknesses in the Ardenicë Divjakë-Kryevidh Structures.*" Supported by the National Committee for Science and Technology, Tirana 1996. **(L. Hanelli)**

- "*Mathematical Modeling of Phonemes in Albanian Texts and Applications in Computer Systems.*" Developed within the framework of the projects "For Fundamental Research and Excellence" in Public Higher Education Institutions, as part of the National Program for Research and Development (NPRD) in Information Systems and Technologies, 2010-2012 "DMI, FMEPE, PUT September 2011 - September 2012. **(L. Prifti)**

- "*Spatial Data Analysis Based on Statistical Theory, Case Study: CENSUS 2011, INSTAT.*" Developed within the framework of the projects "For Fundamental Research and Excellence" in Public Higher Education Institutions, as part of the National Program for Research and Development (NPRD) in Information Systems and Technologies, 2010-2012 "DME, FMEPE, PUT September 2011 - September 2012. (**L. Prifti, D. Salillari**)

- The project*: "Innovative STEM teaching practices in Albania towards European Integration"* with reference number 101085776 — ISTA-EU in the framework of the grant: ERASMUS-JMO-2022-MODULE — Jean Monnet Actions in the field of Higher Education: Modules, 2022-2025. (**E. Raço, J. Jani(coordinator), K. Hila**)

- The project: "*Digital education in Albanian universities to provide high-quality life-long learning opportunities: an European approach*" with reference number 101127005 — ISTA-EU in the framework of the grant: ERASMUS-JMO-2023-MODULE — Jean Monnet Actions in the field of Higher Education: Modules. 2023-2026. (**E. Raço(coordinator), J. Jani**, **K. Hila**).

- Collaborations on Specific Projects in the Above-Mentioned Fields UNECA, UNDP, USAID, UNICEF, UN Women, OSCE, IOM, SCB, Swiss Embassy, INSTAT, ASK, Moldova Bureau of Statistics, ICON-INSTITUTE Public Sector GmbH etj.

- Published Scientific Papers and Completed Doctorates in the Above-Mentioned Fields.

DEPARTMENT OF PHYSICAL ENGINEERING

The Department of Physical Engineering, within the framework of scientific research and services to third parties, offers consultancy services, studies, and extensive expertise in the following areas:

Fields of Expertise

1. Protection from ionizing and non-ionizing radiation.

2. Quality assurance, accreditation, and management of higher education.

3. Virtual medical imaging, QA and QC mechanisms.

4. Renewable energies.

5. Measurement of temperatures and heat fluxes related to thermal transitions in materials.

6. Synthesis and characterization (structure and morphology) of nanocrystalline materials, in the form of powders or thin films.

7. Analysis of the thermophysical properties of pure liquids and their mixtures.

8. Modelling and simulation of numerical methods used to study the mechanical properties of fibres with different compositions used in textile weaving.

9. Experimental studies of diffusion processes.

10. Chemical-physical analysis of concrete and cement pastes.

Services for Third Parties

Some of the services are carried out in the laboratories available at the Department of Physical Engineering, FMEPE, which are:

1. Research-Scientific Laboratory of the Department of Physical Engineering:

Research Techniques and Analytical Instruments:

- **Thermal Analysis:** Discovery DSC 250 with Discovery Refrigerated Cooling System - RCS90 (230VAC/50Hz)

- **Infrared Spectroscopy:** FTIR SPECTROMETER INFRALUM FT-08

- **Raman Spectroscopy:** Avantes Avaraman Spectrometer

- **Microhardness Measurements:** SHIMADZU HMV-2 micro hardness tester

- **Electromagnetic Field Frequency Measurements (Frequency range 1 Hz – 400 kHz):** EHP-50F Compact Field Analyzer

- **Electromagnetic Field Frequency Measurements (Frequency range 9 kHz – 6 GHz):** SRM-3006 Selective Measurement of High-Frequency Electromagnetic Fields

- **Personal Radiation Monitoring for Protection Against Electric and Magnetic Fields:** RadMan 2XT / RadMan 2LT Radiation Monitor

- **Structural Analysis:** SMART X2S BRUKER Diffractometer

- **Analytical Balance:** Radwag AS62.R2 PLUS Analytical Balance

2. Biophysics and Medical Imaging Laboratory

3. Special Laboratory of the Department of Physical Engineering

The remaining services are carried out in collaboration with partner institutions of the Department of Physical Engineering (DPE).

The list of services is as follows:

1. Assessment of Electromagnetic Pollution from Non-Ionizing Radiation:
   - *Low Frequencies (1Hz-400Hz): (e.g., in outdoor environments, near high-voltage power lines, near transformers, etc.; and in indoor environments, near electronic devices in offices or homes, etc.)*
   - *High Frequencies (9kHz – 6GHz): (e.g., in outdoor environments, near telecommunication base stations/radio stations; and in indoor environments, near wireless communication devices such as Wi-Fi equipment).*

2. License from KMR for Expertise in Non-Ionizing Radiation:

3. Assessment of Pollution from Artificial Lighting on National Roads and Residential Areas.

4. Assessment of Acoustic Pollution in Residential Areas.

5. Measurement of Radioactive Gas Concentration (Radon) and Assessment of the Dose Received from Exposure to this Gas.

6. Assessment of the Mechanical Properties of Polymer Materials.

7. Use of Differential Scanning Calorimetry (DSC) for Research, Selection, Comparison, and Evaluation of the Performance of Materials for Final Use, Quality Control, and Applications in Production. Properties measured by DSC techniques

include glass transitions, "cold" crystallization, phase changes, melting, crystallization, product stability, cure/cure kinetics, and oxidative stability.

8. Assessment of the Dose for the Public and Professionally Exposed Workers (Personal Dosimetry Laboratory).

9. Involvement in the Training of Frontline Officers (OLP) for Detecting and Combating the Illegal Trafficking of Radioactive Materials.

10. Involvement in the Training of Radiological Emergency Workers in Albania.

11. Use of the JRODOS Decision Support System for Managing Radiological Emergencies in the Country and Region.

12. Analysis of Thermophysical Properties of Liquids in General. These analyses are carried out in collaboration with the Department of Physics, University of Prishtina, Kosovo.

   Equipment Used:

   - *Polarimeter WXG-4*
   - *Analytical Balance ABS 220-4N (max 220g, d = 0.1 mg)*
   - *Ultrasonic Cleaner VMR*
   - *Density and Sound Velocity Meter DSA5000M*
   - *Digital Refractometer KRUSS DR6200-TF (d = 0.00001)*
   - *ABBE Refractometer (d = 0.0002)*
   - *Schmidt+Haensch AR12 Refractometer (d = 0.0002)*
   - *MITTAL SE-02 2MHz Ultrasonic Interferometer*
   - *Calibrated Cannon-Fenske Viscometers (#25 to #600)*
   - *Reference Liquids for Viscosity and Density (for Calibration Purposes)*
   - *Vacuum Pump*
   - *Exsiccator for Sample Storage*
   - *Fractional Distillation Equipment*
   - *Reflux Condenser*
   - *Magnetic Stirrer*
   - *Centrifuge*

13. Analysis of Thermophysical Properties of Oil and Petroleum Derivatives.

14. Analysis of Thermophysical Properties of Carbonated and Non-Carbonated Liquids (Beverages).

15. Analysis of Thermophysical Properties of Edible Oils.

16. Characterization of Materials (X-ray diffraction techniques, electron microscopy, microhardness assessment). Structural and surface topology analyses of materials

are carried out in collaboration with the University of Tetova, the University of Skopje, and the University of Stip in North Macedonia. Microhardness analysis is conducted in cooperation with the Faculty of Mechanical Engineering, PUT.

17. Comparison Between Physical Measurements of Real Materials Made from Fibers with Different Compositions Used in Textile Weaving and Theoretical Results from Tests Assuming Ideal Working Conditions of the Material and Its Structure.

18. Installation, Commissioning, and Services for Medical Equipment for Medical Image Processing.

19. Use and Development of Dedicated Software and Statistical Processing in Higher Education, Higher Education Management, Quality Assurance, Accreditation, Ranking, Student Survey Analysis, Market Studies, etc.

20. Tests to Determine the Type and Grade of Concrete, including: Flowability, Specific Gravity Control, Bending Durability (Three-Point Test), and Compressive Strength.

21. Evaluation of Plastic Materials and Others Regarding Their Mechanical Properties Through Thermal Treatment: The DSC (Differential Scanning Calorimeter) device, recently equipped with essential sample preparation and characterization equipment, through a project funded by the Academy of Sciences of Albania (20,000 Euro fund). Services for third parties in this field include: recycling industries, textiles, solar panels, pharmaceuticals, etc.

22. Development and Optimization of Biosensor Technologies for the Detection of Biological and Chemical Analytes.

23. Renewable Energies

   - *Assessment of Wind and Solar Energy Potential for electricity and thermal energy production. Evaluation of regional characteristics and practical feasibility for utilizing these resources.*

   - *Implementation of Certified Training Programs for renewable energy for specific professional staff.*

   - *Teaching in Energy Auditing and Certification Programs for specialists in the following fields:*

      a. Expertise in organizing university-level and postgraduate courses for preparing specialists in renewable energy resource assessment and modern programs for the preparation and evaluation of feasibility projects for renewable energy utilization.
      b. Expertise in organizing postgraduate courses for preparing specialists in energy efficiency in buildings and processes.

- *Analysis of Sensitivities and Risks associated with the use of renewable energy sources, including methods for forecasting and mitigating these risks.*

- *Technical Opposition and Due Diligence (Project Design, Yield Analysis) of electricity generation projects from photovoltaic plants.*

- *General Consultancy in Renewable Energies, with detailed consultancy in solar energy across Albania. Feasibility calculations for companies investing in renewable energy, covering solar collectors and photovoltaic systems.*

- *Detailed Consultancy on Solar Energy Pricing, including economic parameters calculated to evaluate projects from an economic perspective in this field.*

- *Consultancy on Legislation and Government Policies regarding energy and climate, including organizing meetings requested by other institutions.*

- *Detailed Computer Simulations and Data Modelling for the energy performance of photovoltaic systems under different climatic conditions.*

CONCRETE EXPERIENCES

- *"Study of Regional Potentials of Solar and Wind Energy, Sensitivity of Their Utilization Efficiency, and Physical and Technological Parameters Using Multifactorial Analysis Methods"* National Program for Research and Development (NPRD), 2011 – 2013. **(Coordinator: P. Berberi, U. Buzra (member), V. Lame-Muda (member)).**

- *"Complementarity of Renewable Energy Sources, Solar and Wind, in Albania; Statistical Modeling, Metrics, and Their Applications."* FMEPE, PUT, Tirana – 2023-2026 **(Coordinator: V. Lame-Muda, D. Mitrushi (member), U. Buzra (member)).**

- L. Malaj (Project leader); Members: **P. Malkaj**, E. Bushi, B. Myftari, G. Mataj, S. Këlliçi, E. Troja; *""Use of a Polymeric System in Optimizing Drug Bioavailability. Industrial Development of a Quality and Cost-Effective Drug for the Albanian Population"; Funded by AKKSHI; 2023-2024"*; Project funded by National Agency for Scientific Research and Innovation (AKKSHI) under the innovation and technology projects as part of University-Business/Industry Collaboration; UMT- Profarma; 2023-2024

- **P. Malkaj** (Project Leader), Members: A. Hasimi, I. Kazani; A. Halili, A. Reka: "*Preparation, and characterization of PVA pure electrofiber nanofibers and PVA /MMT matrix to encapsulate an essential oil of Albanian medicinal plant for biomedical applications*"; A project funded by the Academy of Sciences of Albania, approved by Decision No. 31, dated 27.05.2022; **(**period 2022-2024).

- A. Halili (Project Leader), Members: I. Kazani, E. Beqiraj, **P. Malkaj**, A. Reka; "*Production of zeolite-incorporated nanofibrous membranes for water filter application*"; A project funded by the Academy of Sciences of Albania, approved by Decision No. 49; dated 14.07.2020; (period 2020-2022);

- A. Berisha (Project Leader), Members: F. Podvorica; S. Avdiaj; **P. Malkaj; A. Gjevori**; A. Reka; A. Ndreu Halili; A. ORAL; S. Ulusoy: "*Starch-Based Bio-Plastics/chemically modified Graphene oxide composites designed as food packaging films with antibacterial properties*"; A project funded by the Academy of Sciences of Albania, approved by Decision No. 49; dated 14.07.2020; (period 2020-2022)

- A. KORPA (Project Leader), Members: **P. Malkaj**, S. Drushku, I. Boci, A. Reka; "*Nanocoating of cement-based surface with antiviral properties*"; A project funded by the Academy of Sciences of Albania, approved by Decision No 49; dated 14.07.2020; (period 2020-2022).

- Project: '*Assessment of Electromagnetic Pollution in Urban Areas for Frequencies 900 MHz - 1800 MHz,*' *funded by the Ministry of Education and Science, 2011-2013*" (*Project Leader:* **P. Malkaj,** *Member:* **Dh. Kuqi, Sh. Kuka, T. Myftiu, L. Nikolla, T. Mulaj**).

- "*Project for 'Fundamental Research and Excellence' (under the 2011 budget) in Public Higher Education Institutions, as part of the National Program for Research and Development, titled: 'Measurement of Radon Gas Concentration in the Air of Different Areas of Tirana and Creation of a Thematic Mapping System as an Integral Part for Visualizing the Project Results' September 2011.*" (*Coordinator:* **M. Kuqali**, *Member*: **A. Hoxha, D. Mitrushi, Sh. Kuka, T. Myftiu, E. Duka**).

- Published Scientific Papers and Completed Doctorates in the Above-Mentioned Fields.

DEPARTMENT OF CHEMICAL ENGINEERING

The Department of Chemical Engineering, within the framework of scientific research and services for third parties, offers consultancy services, studies, and extensive expertise in the following areas:

Fields of Expertise

a) Environmental Quality

  i. Water Quality: analysis of physicochemical parameters in surface waters and drinking water
  ii. Air Quality: identification of main pollutants in urban air
  iii. Study of clays and their use for the rehabilitation of polluted environments

b) Chemical Analysis of Cement

c) Assessment, Monitoring, and Control of Chemical Pollutants in the Environment

d) Environmental Impact Assessment

e) Assessment of Efficiency and Optimization of Industrial Processes in Chemical Production

f) Synthesis and Characterization of Nanomaterials with Concrete Applications in Practice

g) Drafting and Management of the Implementation of Strategic Documents for Education, Environment, Consumer/Food Safety, Competition, and State Aid

h) Assessment of Educational Programs

i) Preparation of National and International Projects

Services for Third Parties

- ✓ Analysis of physicochemical parameters in water: pH, temperature, conductivity, suspended solids, alkalinity, hardness, nutrients (NO_2^-, NO_3^-, P_{total}), BOD, COD, chlorides;
- ✓ Determination of metals using Flame Atomic Absorption Spectroscopy (FAAS) (in water, in airborne particulate matter, in soil);
- ✓ Determination of heavy metals using potentiometric methods;
- ✓ Chemical analysis of cement: loss on calcination, SO_3, SiO_2, CaO, MgO, Fe_2O_3, Al_2O_3
- ✓ Determination of PM10 and PM2.5 in the air.

Air quality monitoring has shown that pollution from PM10 and PM2.5 is one of the biggest issues for urban air quality in our cities, as their levels significantly exceed EU standards and WHO Guidelines. The determination of PM10 and PM2.5 in the air can be done using two methods:

1. *Gravimetric Method: Samples of PM10 and PM2.5 are collected using the Tecora ECHO PM10/PM2.5 Sampler. Their concentration is determined as the ratio of the difference in the filter's weight before and after air exposure to the volume of air sampled. This method is typically used to determine the daily (24-hour) concentration of these pollutants. The filters with the collected particulate matter can later be used to determine the content of heavy metals using Flame Atomic Absorption Spectroscopy (FAAS).*

2. *Real-time Measurement of PM10 and PM2.5 Concentration: This is done using the portable air quality monitor Aeroqual Series 500, equipped with sensors for measuring PM10 and PM2.5 concentrations. This device is suitable for: air quality monitoring over large areas, controlling pollution in different hotspots, and assessing exposure in workplace environments.*

✓ Measurement of O_3, SO_2, NOx, VOC and CO_2 in air;

It is carried out using the portable monitor Aeroqual Series 500, equipped with sensors to measure concentrations of O3, SO2, NOx, VOCs, and CO. This device allows real-time measurement of these pollutants' concentrations in various areas, near hotspots, as well as in workplace environments.

- *Collaboration opportunities with the Department of Mathematical Engineering and the Department of Physical Engineering:*

- *Statistical analysis of data to identify trends, seasonal changes, and sources of pollution.*

- *Application of statistical methods such as linear regression or Principal Component Analysis (PCA) to identify factors influencing pollution.*

- *Development of mathematical models used to describe the dispersion of pollutants in the atmosphere, considering sources, weather conditions, and other factors.*

- *Study of the impact of physical processes such as diffusion, turbulence, and convection on the dispersion of pollutants in the atmosphere.*

CONCRETE EXPERIENCES

- **Project:** *Investigating the Impact of Open Burn Pits on Air Pollution in Albania.* Funded by AADF, within the framework of the READ Program, implementation period: 2024-2025. (**E. Baraj (Leader/Coordinator), R. Lilo (member), E. Tako (member)**).

- *Project: Innovative Nanomaterials Based on Fluorohydroxyapatites for Dental Applications*, AKKSHI, 2023-2025. **(B. Dida, D. Karaj, member**).

- *Project: Synthesis and Characterization of New Nanomaterials for Use in the Restoration and Maintenance of Facades of Buildings Classified as Cultural Monuments*, AKKSHI, 2018-2020. **(B. Dida (Leader), D. Karaj (Member)).**

- **The Project:** "*Assessment of the Water Quality of Erzeni River in Albania and the Impact of Economic Developments Therein*." Implemented by DCI/FMEPE/PUT, within the framework

of the Bilateral Technical and Scientific Cooperation Program with Austria, funded by AKTI and CEI-KEP Austria. Collaboration with the Institute of Sanitary Engineering and Water Pollution Control, BOKU, Vienna, 2013-2014. *Project Member*, as part of DCI/FMEPE. **(R. Lilo (Coordinator for the Albanian Side), E. Baraj, E. Noçka, E. Tako, V. Hoxha, I. Gjikaj, D. Karaj (Member))**

- **The project**: *"A Scientific Approach to Identifying the Potential of Optimization in Water Pollution Control in Albania,"* implemented in collaboration with BOKU University of Vienna, funded by AKTI, 2015-2017. (**R. Lilo** (**Coordinator for the Albanian Side**)**, E. Baraj (member)).**

- **The Project:** *NanoAlb Ignite Projects 2022-2023 Preparation and characterization of PVA pure electrofiber nanofibers and PVA / MMT matrix to encapsulate an essential oil of Albanian medicinal plant for biomedical applications*. Funded by AKKSHI 2022-2023. (**E. Tako**)

- Published Scientific Papers in the Above-Mentioned Fields.

CENTER FOR FOREIGN LANGUAGES

The key areas of specialization covered by the academic staff at the Centre for Foreign Languages include the following:

- Applied linguistics

- Comparative linguistics and methodology in foreign languages

- Terminology and the characteristics of term equivalence

- Communication and translation in foreign languages

- Interpretation and linguistic communication

- Standards, development, and the European Framework for Foreign Languages

- Assessment/preparation of tests and levels for international exams

Fields of Expertise

- Speaking Examiner, Certification of English Language Oral Exam – Cambridge University Press and Assessment (**M. Plaku, V. Karapici**).

- Speaking Oral Examiner, Certification of English Language Defense Exam – Cambridge University Press and Assessment (**V. Kanini**).

- Team Leader for Speaking Examiners – Cambridge University Press and Assessment (**V. Kanini**).

- External Accreditation Expert – ASCAL (**E. Stojani**).

- External Expert and Trainer for Accreditation Programs (**S. Vishkurti**).

- Speaking Examiner, Certification of English Language Oral Exam for Levels B1, B2, C1 – Cambridge University Press and Assessment (**A. Brahja, I. Shehu**).

- Tester in International English Language Exams – Cambridge (**I. Shehu**).

- Administrator of International English Language Testing TOEFL–(**L. Beshaj**).

- Licensed Legal Translator for the English Language – (**L. Beshaj**).

- Project Director, Project Writer, and Implementer – (**L. Beshaj**).