**Microplate spectrophotometer**

**Equipment:** Microplate spectrophotometer SPectraMax 190

**No. of Equipment: UJEP19**

**Responsible coordinator:** prof. Ing. Pavel Janoš, CSc.

**Name of Institution:** Jan Evangelista Purkyně University in Ústí nad Labem, Faculty of Environment

**Address of Institution:** Králova Výšina 3132/7, 400 96, Ústí nad Labem, Czech Republic

**E-mail:** [pavel.janos@ujep.cz](mailto:pavel.janos@ujep.cz)

**Telephone:** +420 475 284 148

**Homepage:** http://fzp.ujep.cz

**Contact person:** doc. Ing. Josef Trögl, Ph.D.

**E-mail:** [josef.trogl@ujep.cz](mailto:josef.trogl@ujep.cz)

**Telephone:** +420 475 284 153

**Equipment Description**

**Description of equipment:**

Universal 96-well microplate UV-VIS spectrophotometer with PathCheck technology for correction of sample volume variations.

Specifications and technical features:

Wavelength Range: 190-850 nm

Wavelength Selection: Monochromator, tunable 1/0 nm increments

Wavelength Bandwidth: ≤ 2.0 nm

Wavelength Accuracy: ± 1.0 nm

Wavelength Repeatability: ± 0.2 nm

Photometric Range: 0.0 to 4.0 OD

Photometric Resolution: 0.001 OD

Photometric Accuracy: < ± 0.006 OD ± 1.0%, 0.0 - 2.0 OD

Photometric Precision: < ± 0.003 OD ± 1.0%, 0.0 - 2.0 OD

Stray Light: < 0.05% @ 230 nm

Light Source: Xenon flash lamp

Microplate Read Time – Endpoint: 9 seconds

Microplate Read Time – Kinetic: 9 second minimum interval

Temperature Range: Ambient + 4 °C up to 45 °C

Temperature Uniformity: ± 0.5 °C @ 37 °C

**Specification of expertise relevant to NanoEnviCz workpackages:**

**WP4**c, **WP6**a, **WP7**a-e,g-i, **WP8**a-c, **WP9**a-f

**Detailed description of expertise**

**Please, specify the main research topics connected with equipment**:

**Toxicity and risks of nanomaterials**

Microbial inhibition tests

Enzyme inhibition assays

Antimicrobial characteristics of textiles according to AATCC standards

Enzyme mimetic properties of materials

**Please, specify the secondary research topics connected with equipment**:

**Catalytic processes**

Characterization of sorption properties of materials

Degradation of hazardous chemicals and materials (warfare agents, pesticides...)

Degradation of chemical warfare agents

**Keywords describing research area:**

Toxicity of nanomaterials, Antimicrobial properties of nanotextiles, Reactive sorbents

**Competence**

**Relevance for applied and industrial research:**

Complex characterization of toxicity of nanomaterials.

Characterization of antimicrobial properties of textiles.

**Relevance for fundamental studies:**

Determination of toxicity of nanomaterials.

Determination of kinetic of degradation processes.

Determination of enzyme activities.

Determination of enzyme-mimetic properties of materials.