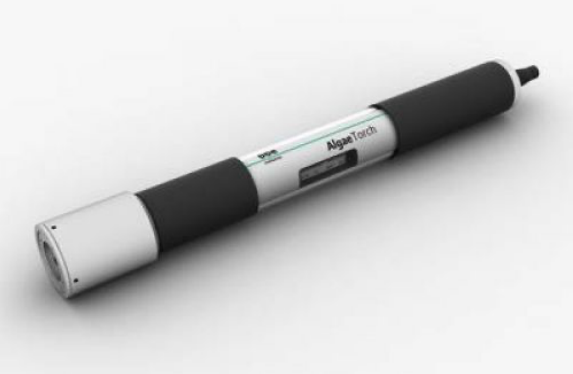
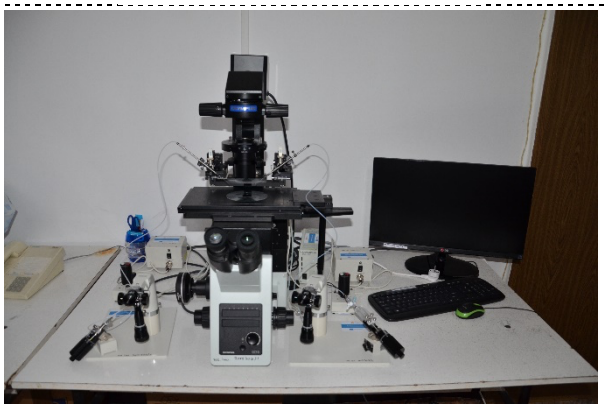
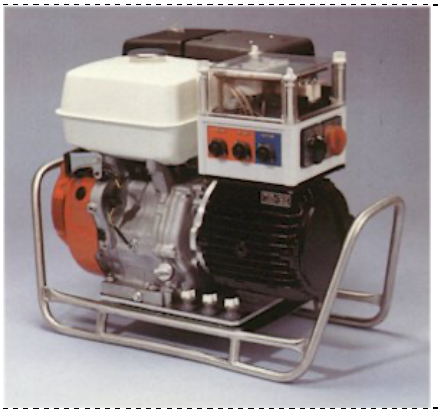
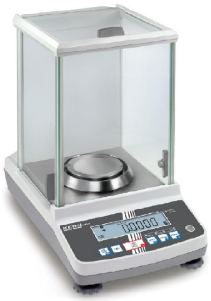
ANEXA 8.1

Dotarea aferenta laboratoarelor de cercetare-dezvoltare

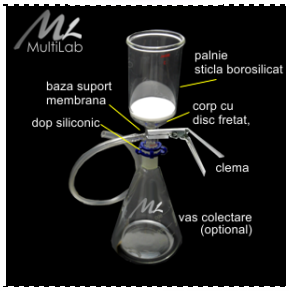
A. Echipamente	
A1. Denumire: sistem de determinare BOD A2. Caracteristici, performante: Sistem de masurare prevazut cu agitare ce permite analiza simultana BOD pentru 12x510 ml A3. Aplicatii ce pot fi efectuate: măsurare consum biochimic de oxigen A4. Sursa de finantare: HURO A5. Valoare estimata: 4.795,08 ero A6. Anul achizitiei:2014	
A1. Denumire: multiparametru HI9829 A2. Caracteristici, performante: Sistemul sa permita masuratori de pH si potential de oxido-reducere, conductivitate si salinitate, concentratie de oxigen dizolvat, temperatura, calibrare si masurare conform GLP A3. Aplicatii ce pot fi efectuate: măsurare pH, conductivitate, temperatură, oxigen dizolvat din ape A4. Sursa de finantare: HURO A5. Valoare estimata**:**3.644,36 euro A6. Anul achizitiei: 2014	
A1. Denumire:Algae Torch; BBE A2. Caracteristici, performante: determinare in timp real continutul de clorofila a cyanobacteriilor si clorofila totala din microalge in rauri si lacuri A3. Aplicatii ce pot fi efectuate: determinarea clorofilei acvatice A4. Sursa de finantare: HuRo A5. Valoare estimata**:** 12.577,32 euro A6. Anul achizitiei: 2014	

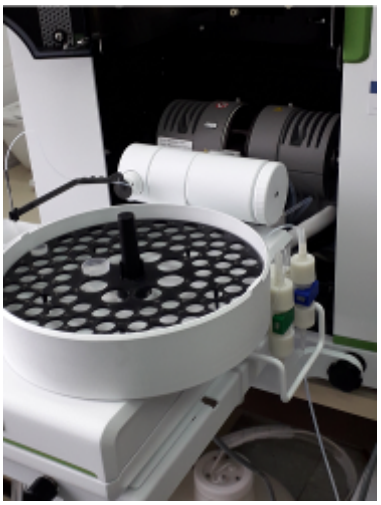
A1. Denumire: Bentho Torch BBE A2. Caracteristici, performante: determine simultan, in timp real, continutul de cianobacterii, alge verzi si diatomee A3. Aplicatii ce pot fi efectuate: pt. determinarea algelor fitobentonice; A4. Sursa de finantare: HuRo A5. Valoare estimata**:**15.790,16 euro A6. Anul achizitiei: 2014	
A1. Denumire: Microscop de cercetare A2. Caracteristici, performante: Microscop upright cu functionare in lumina transmisa prin metoda “camp luminos A3. Aplicatii ce pot fi efectuate: investigare preparate fixe în câmp luminos A4. Sursa de finantare: HuRo A5. Valoare estimata**:** 39.331,56 euro A6. Anul achizitiei: 2014	
A1. Denumire: Stereomicroscop A2. Caracteristici, performante: domeniul de marire aproximativ 7x – 110x A3. Aplicatii ce pot fi efectuate: investigare preparate opace A4. Sursa de finantare: HuRo A5. Valoare estimata**:**12.938,16 euro A6. Anul achizitiei: 2014	
A1. Denumire: microscop inversat A2. Caracteristici, performante: Microscop inversat pentru investigatii in lumina transmisa prin camp luminos si contrast de faza, cu dirijarea informatiei luminoase catre portul lateral / oculare dupa cum urmeaza - 0:100%, port lateral:oculare% si 100:0%. A3. Aplicatii ce pot fi efectuate: investigații în câmp luminos, câmp întunecat, UV A4. Sursa de finantare: HuRo A5. Valoare estimata**:** 30.459,36 euro A6. Anul achizitiei:2014	

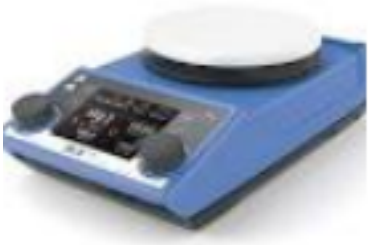
A1. Denumire: Aparat electric electronarcoza - 250W, 300-600V, 15-25 A + agregat electronic electonarcoza (cu acumulatori) A2. Caracteristici, performante: Tensiuni la iesire: reglabil in domeniile 150-300V si 300-600V DC A3. Aplicatii ce pot fi efectuate: pescuit științific A4. Sursa de finantare: HuRo A5. Valoare estimata**:** 8.742,00 euro A6. Anul achizitiei: 2014	
A1. Denumire: sistem de micromanipulare pentru microscop A2. Caracteristici, performante: Injector pneumatic cu seringa de capacitate minim 4 ml, volum injectat minim 450 ml/rotatie. Micromanipulator hidraulic cu joystick (pozitionare inversa, tip “drop handle”), pentru comanda deplasarii pe trei directii, reglabil, cu gradatii, design simetric pentru amplasare pe ambele laterale ale microscopului. Cursa maxima pe fiecare directie pentru deplasarea fina minim 10 mm, rezolutie mai buna sau egala cu 2.5 µm/gradatie. A3. Aplicatii ce pot fi efectuate: intervenții la nivel celular, introducere de lichide, particule solide, medicamente, etc. A4. Sursa de finantare: HuRo A5. Valoare estimata**:** 33.435,36 Euro A6. Anul achizitiei: 2014	Vezi foto microscop inversat
A1. Denumire: Distilator / bidistilator (pt. apă) A2. Caracteristici, performante: Debit distilat 4 l/h – bi – distilata pH 5,6 - 6,0 Pirogenitati Fara Conductivitate < 1 µS/cm Putere de incalzire 6kW Presiunea la alimentare (min-max) 70 – 560 kPa Debit minim al apei brute 2 l/min Dimensiuni (mm) 750 x 490 x 380 Greutate, kg 29 A3. Aplicatii ce pot fi efectuate: orice are nevoie de apa distilata / bidistilata (NU ultrapura!) A4. Sursa de finantare: Interreg V-A Romania-Hungary A5. Valoare estimata**:** 6435 euro fara TVA	

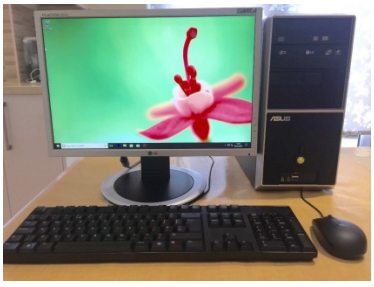
A6. Anul achizitiei:2018	
A1. Denumire: Balanta analitica A2. Caracteristici, performante: Capacitate cantarire maxima: 320 g Citire: 0,1 mg A3. Aplicatii ce pot fi efectuate: orice are nevoie de cântărire de precizie A4. Sursa de finantare: Interreg V-A Romania-Hungary A5. Valoare estimata**:** 1800 euro fara TVA A6. Anul achizitiei:2018	
A1. Denumire: Multiparametru portabil A2. Caracteristici, performante: pH, conductivitate, oxigenometru Capacitate memorie: 500 inregistrari Citire: cu senzori separate pentru fiecare parametru A3. Aplicatii ce pot fi efectuate: determinare cu precizie a pH, conductivitatii si oxigenului din medii apoase A4. Sursa de finantare: Interreg V-A Romania-Hungary A5. Valoare estimata**:** 3715 euro fara TVA A6. Anul achizitiei:2018	
A1. Denumire: Spectrofotometru UV-VIS A2. Caracteristici, performante: Domeniul spectral: 190 – 1100 nm Viteza de scanare: selectabila Moduri de măsurare – absorbanŃă si transmitanŃă, analiză cantitativă (concentratie), A3. Aplicatii ce pot fi efectuate: determinare cu precizie absorbantei, extinctiei, concentratiei mediilor lichide apose A4. Sursa de finantare: Interreg V-A Romania-Hungary A5. Valoare estimata**:** 6736 euro fara TVA A6. Anul achizitiei:2018	
A1. Denumire: Traductor de intensitate luminoasa A2. Caracteristici, performante: Tipul de radiatie luminoasa masurata: Radiatia activa fotosintetic (Ia lungimi de unda cuprinse intre 400 si 700 nm) exprimata in Hmol ·m-2·s-1. Sensibilitatea sernnalului: Intre 5HA si 10 HA per Hmol·m-2·s-1 Linearitatea semnalului: Deviatie de maxim 1% pana Ia 10000 Hmol·m-2·s-1	

A3. Aplicatii ce pot fi efectuate: determinare intensitatii luminii fotosintetic active (PAR) A4. Sursa de finantare: Interreg V-A Romania-Hungary A5. Valoare estimata**:** 2775 euro fara TVA A6. Anul achizitiei:2018	
A1. Denumire: Agitator magnetic cu incalzire A2. Caracteristici, performante: Numar pozitii de agitare: 1 Capacitate mx. de agitare (H2O) [l]: 20 Iesire motor [W]: 9 Directia de agitare: Dreapta A3. Aplicatii ce pot fi efectuate: omogenizarea / obtinerea soluțiilor A4. Sursa de finantare: Interreg V-A Romania-Hungary A5. Valoare estimata**:** 1450 euro fara TVA A6. Anul achizitiei:2018	
A1. Denumire: Baie ultrasonică A2. Caracteristici, performante: Voltaj / Frecventa: 100-120/220-240V / 50/60 Hz Frecventa ultrasonare: 37 kHz Consum S300: 300 W Consum S300H: 1500 W Putere incalzire (pentru unitatile cu incalzire): 1200 W A3. Aplicatii ce pot fi efectuate: pastrarea la cald a solutiilor; spalarea diverselor obiecte de laborator, care nu se pot spăla clasic (ex.: pipete); extractii vegetale; etc. A4. Sursa de finantare: Interreg V-A Romania-Hungary A5. Valoare estimata**:** 2466 euro fara TVA A6. Anul achizitiei:2018	
A1. Denumire: Hota verticala cu flux laminar V, cu robinet de gaz, scaun, suport, echipamente de protectie (ochelari, masti, manusi), filtru HEPA de rezerva, prefiltru, lampa UV, substante si batiste dezinfectante; A2. Caracteristici, performante: Asigura flux vertical de aer steril; A3. Aplicatii ce pot fi efectuate: Inoculari de celule si tesuturi vegetale; A4. Sursa de finantare: POSDRU 77082; A5. Valoare estimata**:** 11 000 lei; A6. Anul achizitiei: 2011.	

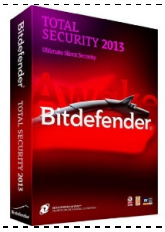
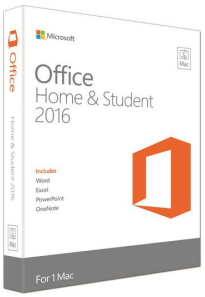
A1. Denumire: Lampă bactericida 30 W, pe suport mobil; A2. Caracteristici, performante: Mobilitate; A3. Aplicatii ce pot fi efectuate: Sterilizare aer camera inoculare; A4. Sursa de finantare: POSDRU 77082; A5. Valoare estimata**:** 800 lei; A6. Anul achizitiei: 2011.	
A1. Denumire: Pompa de vid, filtre Milipore A2. Caracteristici, performante: Filtrare performanta A3. Aplicatii ce pot fi efectuate: Sterilizarea prin filtrare a mediilor de cultura; A4. Sursa de finantare: POSDRU 77082 A5. Valoare estimata**:** 1 800 lei; A6. Anul achizitiei: 2011.	
A1. Denumire: Balanta tehnica A2. Caracteristici, performante: Standard A3. Aplicatii ce pot fi efectuate: Cantariri; A4. Sursa de finantare: POSDRU 77089; A5. Valoare estimata**:** 1 000 lei; A6. Anul achizitiei: 2011.	
A1. Denumire: Baie de ultrasunete, stand de filtrare, cos de inox A2. Caracteristici, performante: Ultrasonicare A3. Aplicatii ce pot fi efectuate: Sterilizarea prin US A4. Sursa de finantare: POSDRU 77082; A5. Valoare estimata**:** 3 800 lei A6. Anul achizitiei: 2011.	
A1. Denumire: Suport prelucrare stocare imagini; adaptator camera foto; obiective macro, micro; card, blitz A2. Caracteristici, performante: Efectuare poze macro, micro; A3. Aplicatii ce pot fi efectuate: Baza de date; A4. Sursa de finantare: POSDRU 77082 A5. Valoare estimata**:** 7 000 lei A6. Anul achizitiei: 2011	
A1. Denumire: Pompa de vid; A2. Caracteristici, performante: Vidare; A3. Aplicatii ce pot fi efectuate: Sterilizare medii de cultura; A4. Sursa de finantare: POSDRU 77082 A5. Valoare estimata**:** 1 800 lei A6. Anul achizitiei: 2011.	

A1. Denumire: spectrofotometru cu absorbţie atomică cu flacără şi cuptor de grafit A2. Caracteristici, performante: Model Pinaacle 900T, producător PerkinElmer; este prevăzut cu două atomizoare: flacără şi cuptor cu corecţie de fond pe bază de efect Zeeman cu câmp magnetic longitudinal; sistemul este dotat cu 8 lămpi cu sursă integrată de alimentare pentru lămpi catodice cavitare si lămpi de energie înaltă A3. Aplicatii ce pot fi efectuate: analize rapide şi precise ale cationilor metalici din soluţii, în concentraţii de ordinul ppm şi ppb. A4. Sursa de finantare: proiect ROHU 29 A5. Valoare estimata: 467,551.00 A6. Anul achizitiei: 2018	
A1. Denumire: sistem cromatograf de schimb ionic A2. Caracteristici, performante: Model DIONEX AS-DV, Thermoscientific, USA A3. Aplicatii ce pot fi efectuate: analiza rapidă şi precisă a anionilor prezenţi în concentraţii mici, dar şi în urme A4. Sursa de finantare: proiect ROHU 29 A5. Valoare estimata: 243,656.07 A6. Anul achizitiei: 2018	
A1. Denumire: nişă chimică cu exhaustare şi sistem de stocare substanţe agresive A2. Caracteristici, performante: Model Kottermann, fabricată în Germania A3. Aplicatii ce pot fi efectuate: permite efectuarea analizelor cu compuşi toxici, fără ca persoana care lucrează să fie expusă mediului toxic, sistemul avansat de exhaustare reducând la minimum expunerea în noxe A4. Sursa de finantare: proiect ROHU 29 A5. Valoare estimata: 101,376.10 A6. Anul achizitiei: 2018	
A1. Denumire: baie termostatată RAYPA A2. Caracteristici, performante: Model BAD-2, fabricată în Spania A3. Aplicatii ce pot fi efectuate: încălzirea şi menţinerea temperaturii constante, selectate până la 100 ^{0}C, pe parcursul analizelor A4. Sursa de finantare: proiect ROHU 29 A5. Valoare estimata: 4768.33 A6. Anul achizitiei: 2018	

A1. Denumire: balanţă analitică cu dublă precizie A2. Caracteristici, performante: Model KERN ABT 220-5DNM A3. Aplicatii ce pot fi efectuate: cântărirea probelor cu precizie până la 5 zecimale A4. Sursa de finantare: proiect ROHU 29 A5. Valoare estimata: 21,748.44 A6. Anul achizitiei: 2018	
A1. Denumire: agitator magnetic cu încălzire IKA A2. Caracteristici, performante: Model RET CV S000, fabricat de IKA, Germania A3. Aplicatii ce pot fi efectuate: agitarea probelor lichide cu posibilitatea menţinerii unei anumite temperaturi a probelor A4. Sursa de finantare: proiect ROHU 29 A5. Valoare estimata: 8,337.73 A6. Anul achizitiei: 2018	
A1. Denumire: Titrator potenţiometric + titrator determinare umiditate prin metoda Karl Fischer A2. Caracteristici, performante: TitroLine 7750, fabricat în Germania A3. Aplicatii ce pot fi efectuate: sistem automat de titrare a soluţiilor apoase şi din solvenţi organici A4. Sursa de finantare: proiect ROHU 29 A5. Valoare estimata: 62,286.98 A6. Anul achizitiei: 2018	
A1. Denumire: Sistem de obţinere a apei distilate si bidistilate A2. Caracteristici, performante: Model EVOQUA A3. Aplicatii ce pot fi efectuate: obţinerea apei distilate necesare preparării soluţiilor în laborator; producerea apei ultrapure necesare pentru pregătirea soluţiilor utilizate la AAS şi IC. A4. Sursa de finantare: proiect ROHU 29 A5. Valoare estimata: 35,163.19 A6. Anul achizitiei: 2018	
A1. Denumire: Sistem filtrare vid A2. Caracteristici, performante: Millipore A3. Aplicatii ce pot fi efectuate: filtrare la vid înaintat A4. Sursa de finantare: proiect ROHU 29 A5. Valoare estimata: 9,569.62 A6. Anul achizitiei: 2018	

B. Sisteme de calcul	
B1. Denumire: Notebook Lenovo thinkpad Edge 13 – 6 bucati, plus genti; B2. Caracteristici, performante: Prelucrare date; B3. Aplicatii ce pot fi efectuate: Windows, Office; Adobe; B4. Sursa de finantare: POSDRU 77082 B5. Valoare estimata**:** 8 300 lei B6. Anul achizitiei: 2012	
B1. Denumire: IMPRIMANTA HP OFFICEJET, 2 buc B2. Caracteristici, performante: Multifunctional; B3. Aplicatii ce pot fi efectuate: Listare, scanare, copiere, fax; B4. Sursa de finantare: POSDRU 77082 B5. Valoare estimata**:** 1 800 lei; B6. Anul achizitiei: 2012	
B1. Denumire: Videoproiector BenQ MS 510 cu lampa de rezerva si laser point (6 buc), plus geanta; B2. Caracteristici, performante: B3. Aplicatii ce pot fi efectuate: Prelegeri; B4. Sursa de finantare: POSDRU 77082 B5. Valoare estimata**:** 4 000 lei. B6. Anul achizitiei: 2012.	
B1. Denumire: Miniscaner; B2. Caracteristici, performante: Portabil; B3. Aplicatii ce pot fi efectuate: Scanare rapida; B4. Sursa de finantare: POSDRU 77082; B5. Valoare estimata**:** 280 lei; B6. Anul achizitiei: 2012	
B1. Denumire: SISTEM DESKTOP, cu monitor B2. Caracteristici, performante: Prelucrare date B3. Aplicatii ce pot fi efectuate: Windows, Office; Adobe B4. Sursa de finantare: POSDRU 77082 B5. Valoare estimata**:** 3 700 lei B6. Anul achizitiei: 2012	
B1. Denumire: Memorie externa Corsair (6 buc) 16 GB B2. Caracteristici, performante: CMFUSB2.0-16GBGT Flash VoyagerGT B3. Aplicatii ce pot fi efectuate: Stocare informatie B4. Sursa de finantare: POSDRU 77082	

B5. Valoare estimata**:** 800 lei B6. Anul achizitiei: 2012	
B1. Denumire: Sistem calcul - laptop B2. Caracteristici, performante: Prelucrare date B3. Aplicatii ce pot fi efectuate: Office; Adobe; Matlab; B4. Sursa de finantare: PN-II-ID-PCE-69/2.9.2013 B5. Valoare estimata**:** 12000 lei B6. Anul achizitiei: 2016	
B1. Denumire: Sistem calcul Lenovo- laptop B2. Caracteristici, performante: Prelucrare date B3. Aplicatii ce pot fi efectuate: Windows; Office; Adobe B4. Sursa de finantare: PN-II-ID-PCE-69/2.9.2013 B5. Valoare estimata**:** 3500 lei B6. Anul achizitiei: 2016	
B1. Denumire: Sistem calcul Lenovo Ideapad 500- laptop B2. Caracteristici, performante: Prelucrare date B3. Aplicatii ce pot fi efectuate: Windows; Office; Adobe B4. Sursa de finantare: PN-II-ID-PCE-69/2.9.2013 B5. Valoare estimata**:** 3500 lei B6. Anul achizitiei: 2016	
B1. Denumire: Videoproiector Epson (2 buc), plus geanta; B2. Caracteristici, performante: full HD, 1920x1080 B3. Aplicatii ce pot fi efectuate: Prezentari B4. Sursa de finantare: PN-II-ID-PCE-69/2.9.2013 B5. Valoare estimata**:** 3500 lei. B6. Anul achizitiei: 2016.	
B1. Denumire: Imprimantă HP LJ color CP B2. Caracteristici, performante: Multifunctional; B3. Aplicatii ce pot fi efectuate: Listare, scanare, copiere, fax; B4. Sursa de finantare: PN-II-ID-PCE-69/2.9.2013 B5. Valoare estimata**:** 1 000 lei; B6. Anul achizitiei: 2014	

B1. Denumire: Sistem calcul Asus – laptop (3 buc) B2. Caracteristici, performante: Prelucrare date B3. Aplicatii ce pot fi efectuate: Windows; Office; Adobe; Matlab; C++ B4. Sursa de finantare: PN-II-ID-PCE-69/2.9.2013 B5. Valoare estimata**:** 12600 lei B6. Anul achizitiei: 2013	
C. Softuri	
C1. Denumire: Sistem de operare Microsoft Windows Vista C2. Aplicatii ce pot fi efectuate: Home Basic (7 buc) C3. Numar maxim de utilizatori: 10 C4. Sursa de finantare: POSDRU 77082 C5. Valoare estimata: 2 300 lei C6. Anul achizitiei: 2012	
C1. Denumire: Microsoft Office Home and Student C2. Aplicatii ce pot fi efectuate: 7 buc. C3. Numar maxim de utilizatori: 10 C4. Sursa de finantare: POSDRU 77082; C5. Valoare estimata: 2 300 lei; C6. Anul achizitiei: 2012	
C1. Denumire: Bitdifender, 7 buc.; C2. Aplicatii ce pot fi efectuate: Antivirus C3. Numar maxim de utilizatori: 10 C4. Sursa de finantare: POSDRU 77082 C5. Valoare estimata: 2 300 lei C6. Anul achizitiei: 2012	
C1. Denumire: Office Home and Student for Mac C2. Aplicatii ce pot fi efectuate: Office Word, Excel, Power Point; OneNote. C3. Numar maxim de utilizatori: 1 C4. Sursa de finantare: PN-II-ID-PCE-69/2.9.2013; C5. Valoare estimata: 700 lei; C6. Anul achizitiei: 2016	

Oradea, 29/04/2026

Director centru de cercetare

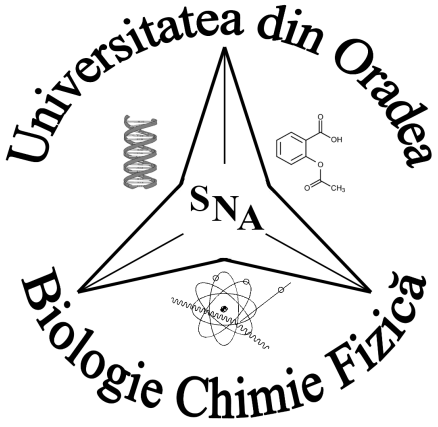
Prof. univ. dr. LOREDANA MARCU

Anexa 8.2

PRESENTATION OF THE CENTER

1. Name of the Center: Center for Research in Applied Natural Sciences (SNA)

2. Center′s logo:



3. Brief presentation of the Center

- SNA includes academics, researchers, postgraduate student (PhD and MSc) as well as undergraduate students from three main science fields: biology, chemistry and physics;
- SNA is legally represented by the University of Oradea, according to the internal regulations of the center;
- SNA is administratively represented by the Director;
- SNA is an independent, non-governmental, apolitical entity with professional, scientific and educational profile;
- The headquarthers of the SNA is located at the University of Oradea, 1 Universitatii street, Building C, Department of Physics, tel: 40259 408161, fax: 40259 408468. The Director's contact details: tel: 40 730669502; email: loredana@marcunet.com
- UNESCO classifications: 22 (physics), 23 (chemistry), 24 (life sciences), 25 (earth & space sciences), 32 (medical sciences), 33 (technological sciences);

- NACE classifications: 58, 72, 85.

4. The mission of the research and development unit, the directions of research, development and innovation:

The mission of SNA research center is the fundamental and applied scientific research in natural sciences (biology, chemistry and physics) and inter-related disciplines.

5. The research directions of the center are:

5.1. Research directions in biology:

- initiation of plant cell cultures and their subcultivation on various environments;
- removing hyperhidrium from vitro culture;
- analyzing plant reactivity in vitro, under varying environmental conditions;
- identification of optimal acclimation substrates for plants;
- establishing the optimal conditions for the rapid in vitro multiplication of willow and poplar species in order to acclimate and obtain vegetal biomass as a source of energy;
- micropropagation, in vitro preservation and acclimatization of endangered plant species;
- the study of the aquatic organisms (benthos, ihtiofauna) and the environmental factors that influence them;
- soil enzyme studies;
- study of the influence of thermal waters on the biology and ecology of amphibians;
- mapping the fauna of amphibians and reptiles in the country;
- research into the trophic spectrum of amphibians, their hybridism and physiology.

5.2. Research directions in chemistry:

- synthesis of inorganic compounds with complex structure;

- synthesis and identification of organic compounds and tracking reaction mechanisms;
- identification and dosing of organic and inorganic chemical compounds with impact on environment and living organisms, as well as the development of methods for their recovery and removal;
- corrosion, corrosion protection, corrosion and passivation behavior of metal / medium systems, corrosion protection with inhibitors and conversion layers;
- monitoring the chemical composition of geothermal waters and waste water resulting from various technological processes;
- identification and separation of biologically active compounds by high performance chromatographic methods;
- application of modern laser interferometry techniques in the field of food chemistry.

5.3. Research directions in physics:

- theoretical studies in radiotherapy by Monte Carlo simulation of tumor growth, modeling of radiotherapy treatments and study of the effects of treatments on tumor behaviour;
- the study of dosimetric aspects in brachytherapy of prostate cancers;
- molecular and medical biophysical studies: addressing the principle of voltage and patch-clamp techniques, measuring the electrical currents through a single ion channel, confocal imaging, excitation-contraction coupling in the striated muscle;
- spectroscopic investigations of complexes of biological interest, by spectroscopic methods: UV-VIS, FTIR, RAMAN, RES;
- medical imaging studies with PET/CT, IRM;
- study of the properties of superconducting materials with high critical temperature (HTS) in polycrystalline or thin film;
- study of the properties of vitreous oxides;

- the theoretical study of magnetic, optical and semiconductor properties, and dilute magnetic semiconductors;
- charge and spin transport phenomena, spintronics and associated phenomena;
- transport phenomena in quantum-dot, quantum-wire and carbon nanotubes, modeled using numerical methods, in particular the method of numerical renormalization;
- theoretical and numerical modeling of the properties of superconducting systems with high critical transition temperature;
- theoretical and numerical modeling of the electronic structure of highly correlated systems;
- the study of the electronic structure of semiconductor and semi-metallic heterostructures;
- dosimetric studies on radon;
- in-situ study of the oxidation process of metallic alloys under different temperature and pressure conditions;
- methodical and didactic studies in teaching and learning physics; physics and modern educational technologies.

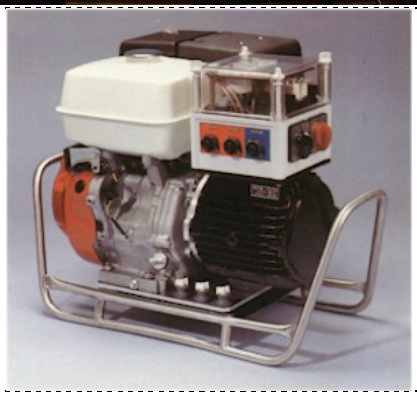
6. Valorisation of research, development, innovation results and their degree of recognition

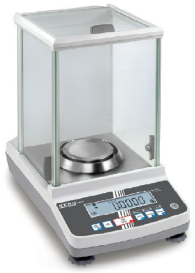
- Participation in national and international research programmes, collaborations through grants and various projects;
- Publication of scientific articles in ISI journals with high international visibility; presentations of research results at various national / international conferences;
- Publication of books and book chapters in top areas of sciences; development of competitive university courses;
- Organisation of seminars for training of young researchers and specialists;
- Participation of undergraduate and postgraduate students in local research programmes and national / international exchange programmes;

- Development of new products, experimental models, computer simulations for interdisciplinary applications;
- Increase of research results visibility on both national and international levels; European integration through participation in Horizon 2020 projects.

7. Equipment / Computing systems / Software

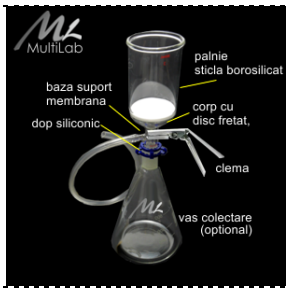
A. Equipment	
A1. Name: BOD determination system A2. Characteristics, performance: Shake measurement system that allows simultaneous BOD analysis for 12x510 ml A3. Applications that can be performed: Biochemical oxygen consumption measurement A4. Source of funding: HURO A5. Estimated value: 4.795,08 euro A6. Purchase year:2014	
A1. Name: multiparameter HI9829 A2. Characteristics, performance: The system allows for pH and potentiometric measurements, conductivity and salinity, dissolved oxygen concentration, temperature, calibration and measurement according to GLP A3. Applications that can be performed: pH measurement, conductivity, temperature, dissolved oxygen in water A4. Source of funding: HURO A5. Estimated value**:**3.644,36 euro A6. Purchase year: 2014	
A1. Name: Algae Torch; BBE A2. Characteristics, performance: real-time determination of chlorophyll content of cyanobacteria and total chlorophyll of microalgae in rivers and lakes A3. Applications that can be performed: determination of aquatic chlorophyll A4. Source of funding: HuRo A5. Estimated value**:** 12.577,32 euro A6. Purchase year: 2014	

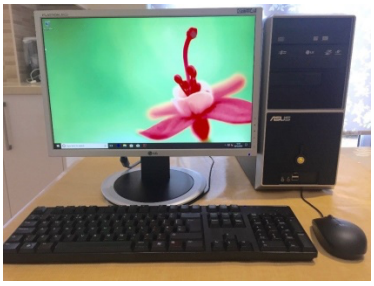
A1. Name: Bentho Torch BBE A2. Characteristics, performance: simultaneously determine, in real time, the content of cyanobacteria, green algae and diatoms A3. Applications that can be performed: determination of phytobentonic algae; A4. Source of funding: HuRo A5. Estimated value**:**15.790,16 euro A6. Purchase year: 2014	
A1. Name: Research microscope A2. Characteristics, performance: Upright microscope working in light transmitted by the "bright field" method A3. Applications that can be performed: investigating fixed samples in the light field A4. Source of funding: HuRo A5. Estimated value**:** 39.331,56 euro A6. Purchase year: 2014	
A1. Name: Stereomicroscope A2. Characteristics, performance: magnification of about 7x – 110x A3. Applications that can be performed: investigating opaque samples A4. Source of funding: HuRo A5. Estimated value**:**12.938,16 euro A6. Purchase year: 2014	
A1. Name: inverted microscope A2. Characteristics, performance: An inverted microscope for field light and phase contrast light studies, directing light information to the lateral / ocular port as follows: 0: 100%, lateral port: ocular% and 100: 0%. A3. Applications that can be performed: light field investigations, dark field, UV A4. Source of funding: HuRo A5. Estimated value**:** 30.459,36 euro A6. Purchase year:2014	
A1. Name: Electronic device - electronarcosis - 250W, 300-600V, 15-25 A + electronic aggregate electronarcosis (with battery) A2. Characteristics, performance: Output voltages: adjustable in the range 150-300V and 300-600V DC A3. Applications that can be performed: scientific fishing A4. Source of funding: HuRo A5. Estimated value**:** 8.742,00 euro A6. Purchase year: 2014	

A1. Name: micromanipulation system for microscope A2. Characteristics, performance: Pneumatic injector with syringe capacity of at least 4 ml, volume injected at least 450 ml / rotation. Joystick Hydraulic Micromanipulator (drop handle), three-way shift control, adjustable, graduated, symmetrical design for both sides of the microscope. Maximum stroke on each direction for fine movement of at least 10 mm, resolution better than or equal to 2.5 µm / gradation. A3. Applications that can be performed: cellular interventions, fluid introduction, solid particles, drugs, etc. A4. Source of funding: HuRo A5. Estimated value**:** 33.435,36 Euro A6. Purchase year: 2014	See Inverted microscope
A1. Name: Distiller / bidistilator (for water) A2. Characteristics, performance: Distilled flow 4 l/h – bi – distilled pH 5,6 - 6,0 Pirogenitis without conductivity < 1 µS/cm; Heating power 6kW; Pressure (min-max) 70 – 560 kPa Minimum flow of raw water 2 l/min Dimensions (mm) 750 x 490 x 380 Weigth: 29 kg A3. Applications that can be performed: Anything needs distilled / bidistilled water A4. Source of funding: Interreg V-A Romania-Hungary A5. Estimated value**:** 6435 euro w/o TVA A6. Purchase year: 2018	
A1. Name: Analytical balance A2. Characteristics, performance: Max. weight capacity: 320 g Reading: 0,1 mg A3. Applications that can be performed: Anything needs precision weighing A4. Source of funding: Interreg V-A Romania-Hungary A5. Estimated value**:** 1800 euro w/o TVA A6. Purchase year: 2018	

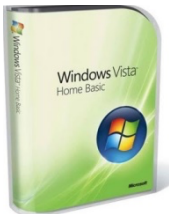
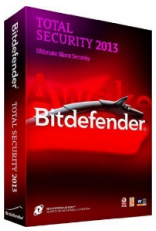
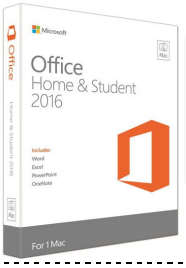
A1. Name: Portable multiparameter A2. Characteristics, performance: pH, conductivity, oxygenmetre Memory capacity: 500 registrations Reading: separate sensor for each parameter A3. Applications that can be performed: Precise determination of pH, conductivity and oxygen in aqueous mediaA4. Source of funding: Interreg V-A Romania-Hungary A5. Estimated value**:** 3715 euro w/o TVA A6. Purchase year: 2018	
A1. Name: Spectrophotometer UV-VIS A2. Characteristics, performance: Spectral range: 190 – 1100 nm Scanning speed: selectable Measuring modes - absorbance and transmittance, quantitative analysis (concentration) A3. Applications that can be performed: precise determination of absorption, extinction, concentration of aqueous liquid media A4. Source of funding: Interreg V-A Romania-Hungary A5. Estimated value**:** 6736 euro w/o TVA A6. Purchase year: 2018	
A1. Name: Light intensity transducer A2. Characteristics, performance: Type of measured light radiation: Photosynthetic active radiation (Wavelengths between 400 and 700 nm) expressed in Hmol · m-2 · s-1. Signal sensitivity: Between 5HA and 10 HA per Hmol · m-2 · s-1 Signal linearity: Deviation of up to 1% to 1a 10000 Hmol·m-2·s-1 A3. Applications that can be performed: Determining the intensity of active photosynthetic light (PAR) A4. Source of funding: Interreg V-A Romania-Hungary A5. Estimated value**:** 2775 euro w/o TVA A6. Purchase year: 2018	

A1. Name: Magnetic stirrer with heating A2. Characteristics, performance: Number of stirring positions: max. stirring capacity (H2O) [l]: 20 [W]: 9 Sirring directions: right A3. Applications that can be performed: homogenizing / obtaining solutions A4. Source of funding: Interreg V-A Romania-Hungary A5. Estimated value**:** 1450 euro w/o TVA A6. Purchase year: 2018	
A1. Name: Ultrasonic bath A2. Characteristics, performance: Voltage / Frequency: 100-120/220-240V / 50/60 Hz. The ultrasonic frequency: 37 kHz S300: 300 W; Heating power: 1200 W A3. Applications that can be performed: hot storage of solutions; washing of various laboratory objects, which can not be washed by classic methods (eg pipettes); plant extracts; etc.. A4. Source of funding: Interreg V-A Romania-Hungary A5. Estimated value**:** 2466 euro w/o TVA A6. Purchase year: 2018	
A1. Name: Vertical laminar hood V with gas valve, seat, holder, protective equipment (glasses, masks, gloves), spare HEPA filter, prefilter, UV lamp, disinfectant substances and handkerchiefs; A2. Characteristics, performance: Provides vertical flow of sterile air A3. Applications that can be performed: Plant cell and tissue inoculations A4. Source of funding: POSDRU 77082 A5. Estimated value**:** 11000 lei A6. Purchase year: 2012	
A1. Name: Bactericidal light 30 W, mobile A2. Characteristics, performance: Mobility A3. Applications that can be performed: Sterilization of air inoculation chamber A4. Source of funding: POSDRU 77082 A5. Estimated value**:** 800 lei A6. Purchase year: 2011	

A1. Name: Vacuum pump, Milipore filters A2. Characteristics, performance: Performance filtering A3. Applications that can be performed: Sterilization by filtration of culture media A4. Source of funding: POSDRU 77082 A5. Estimated value**:** 1,800 lei A6. Purchase year: 2011	
A1. Name: Technical balance A2. Characteristics, performance: Standard A3. Applications that can be performed: weighing A4. Source of funding: POSDRU 77089 A5. Estimated value**:** 1 000 lei A6. Purchase year: 2011	
A1. Name: Ultrasonic bath, filter stand, stainless steel basket; A2. Characteristics, performance: ultrasonication A3. Applications that can be performed: Sterilization through US A4. Source of funding: POSDRU 77082 A5. Estimated value**:** 3 800 lei A6. Purchase year: 2011	
A1. Name: Image processing support; camera adapter; macro, micro objectives; card, flash A2. Characteristics, performance: Making pictures macro, micro A3. Applications that can be performed: Database A4. Source of funding: POSDRU 77082 A5. Estimated value**:** 7,000 lei A6. Purchase year: 2011	
A1. Name: Vacuum pump A2. Characteristics, performance: vacuum A3. Applications that can be performed: Medium culture sterilization A4. Source of funding: POSDRU 77082 A5. Estimated value**:** 1 800 lei A6. Purchase year: 2011	
B. Computing systems	
B1. Name: Lenovo ThinkPad Edge 13 notebook - 6 pieces, plus bags B2. Characteristics, performance: Data processing B3. Applications that can be performed: Windows, Office; Adobe B4. Source of funding: POSDRU 77082 B5. Estimated value**:** 8 300 lei	

B6. Purchase year: 2012	
B1. Name: HP OFFICEJET PRINTER, 2 pcs B2. Characteristics, performance: Multifunctional B3. Applications that can be performed: Printing, scanning, copying, faxing B4. Source of funding: POSDRU 77082 B5. Estimated value**:** 1,800 lei B6. Purchase year: 2012	
B1. Name: BenQ MS 510 Projector with Backlight and Laser Point (6pcs) plus bag; B2. Characteristics, performance; B3. Applications that can be performed: lectures B4. Source of funding: POSDRU 77082 B5. Estimated value**:** 4 000 lei B6. Purchase year: 2012	
B1. Name: Miniscaner B2. Characteristics, performance: Portable B3. Applications that can be performed: Fast scanning B4. Source of funding: POSDRU 77082 B5. Estimated value**:** 280 lei B6. Purchase year: 2012	
B1. Name: DESKTOP SYSTEM with monitor B2. Characteristics, performance: Data processing B3. Applications that can be performed: Windows, Office; Adobe B4. Source of funding: POSDRU 77082 B5. Estimated value**:** 3 700 lei B6. Purchase year: 2012	
B1. Name: Corsair External Memory (6 pcs) 16 GB B2. Characteristics, performance: CMFUSB2.0-16GBGT Flash Voyager GT B3. Applications that can be performed: Information storage B4. Source of funding: POSDRU 77082 B5. Estimated value**:** 800 lei B6. Purchase year: 2012	
B1. Name: Computing system- laptop B2. Characteristics, performance: data acquisition and processing B3. Applications that can be performed: Office; Adobe; Matlab; B4. Source of funding: PN-II-ID-PCE-69/2.9.2013 B5. Estimated value**:** 12000 lei	

B6. Purchase year: 2016	
B1. Name: Lenovo- laptop B2. Characteristics, performance: data acquisition and processing B3. Applications that can be performed: Windows, Office; Adobe; B4. Source of funding: PN-II-ID-PCE-69/2.9.2013 B5. Estimated value**:** 3500 lei B6. Purchase year: 2016	
B1. Name: Lenovo Ideapad 500- laptop B2. Characteristics, performance: data acquisition and processing B3. Applications that can be performed: Windows, Office; Adobe B4. Source of funding: PN-II-ID-PCE-69/2.9.2013 B5. Estimated value**:** 3500 lei B6. Purchase year: 2016	
B1. Name: Videoprojector Epson (2), plus bag; B2. Characteristics, performance: full HD, 1920x1080 B3. Applications that can be performed: presentations; lectures B4. Source of funding: PN-II-ID-PCE-69/2.9.2013 B5. Estimated value**:** 3500 lei. B6. Purchase year: 2016.	
B1. Name: Printer HP LJ color CP B2. Characteristics, performance: Multifunctional; B3. Applications that can be performed: printing, scanning, copying, fax; B4. Source of funding: PN-II-ID-PCE-69/2.9.2013 B5. Estimated value**:** 1 000 lei; B6. Purchase year: 2014	
B1. Name: Asus – laptop (3) B2. Characteristics, performance: data acquisition and processing B3. Applications that can be performed: Windows; Office; Adobe; Matlab; C++ B4. Source of funding: PN-II-ID-PCE-69/2.9.2013 B5. Estimated value**:** 12600 lei B6. Purchase year: 2013	

C. Software	
C1. Name: Microsoft Windows Vista Home Basic (7 pcs) C2. Applications that can be performed: C3. Maximum number of users: 10 C4. Source of funding: POSDRU 77082 C5. Estimated value**:** 2 300 lei C6. Purchase year: 2012	
C1. Name: Microsoft Office Home and Student, 7 pcs C2. Applications that can be performed: C3. Maximum number of users: 10 C4. Source of funding: POSDRU 77082 C5. Estimated value**:** 2 300 lei C6. Purchase year: 2012	
C1. Name: Bitdefender, 7 pcs C2. Applications that can be performed: antivirus; C3. Maximum number of users: 10 C4. Source of funding: POSDRU 77082 C5. Estimated value**:** 2 300 lei C6. Purchase year: 2012	
C1. Name: Office Home and Student for Mac C2. Applications that can be performed: Office Word, Excel, Power Point; OneNote. C3. Maximum number of users: 1 C4. Source of funding: PN-II-ID-PCE-69/2.9.2013; C5. Estimated value**:** 700 lei C6. Purchase year: 2016	

Oradea 29/04/2026

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