

CONTACT PERSON

Servando Herrera Zuazo, MA s.zuazo@pb.edu.pl +48 85 746 90 47 pb.edu.pl/iro/



Internship Offer at Bialystok University of Technology

min. period: 3 months (91 days)



If you are student of Architecture, Computer Science, Engineering Management, Electrical Engineering, Mechanical Engineering, Civil or Environmental Enginneering and looking for an internship in Poland within Erasmus+ Programme please check our offer!

Step by step

Step 1 - check our brochure and find an interesting offer
Step 2 - visit <u>https://pb.edu.pl/iro/internship/</u> fill application form for traineeship, remember about attachments
Step 3 - prepare Learning Agreement for
Traineeships and receive Invitation Letter
Step 4 - complete internship programme and get Certificate of Attendance

Remember!

- You have to be insured for the whole period of internship
- if you wish to stay on our campus please write at dormitory@pb.edu.pl

Requirements

- Vivid interest in science and research
- Min. English level B1
- Official enrolment as student at the home University

Internship Offer at Bialystok University of Technology

min. period: 3 months (91 days)





OFFER 1

Traineeship/ internship title

Application of ICT in the functioning of cities – the citizens perspective

Short description of the traineeship

The internship includes several tasks: preparation of questionnaire, conducting survey research, elaborating the result, conclusions and recommendation for municipalities.

Assessment methods

Internship report, questionnaire and result of quantitative research

Workplaces where study visits / internships are planned

Knowledge, skills and competences to be aquired during the traineeship (expected learning outcomes)

 Interns acquire the ability to independently design and conduct quantitative research using a questionnaire

Monitoring plan

Evaluation of the partial results after each internship stage.

Evaluation plan

Interns should conduct surveys and process the results.

Planned number of working hours per week

20

Internship availability





OFFER 2

Traineeship/ internship title

Assessment of emerging technologies for smart/green cities

Short description of the traineeship

The aim of the internship will be to learn about the concept of smart or green cities and to acquire research skills in identifying and evaluating emerging technologies in cities. As part of the internship, the student with the support of the supervisor will:

- conduct a literature review on emerging technologies in smart or green cities;
- design research to enable a multi-faceted assessment of emerging technologies in smart or green cities;
- carry out a research process using selected research methods;
- prepare a research report. Additionally (depending on the level of engagement) it will be possible to prepare a research paper together with the internship supervisor.

Assessment methods

Internship report

Workplaces where study visits / internships are planned

The internship will be carried out at the University. A study visit to the Institute of Innovation and Technology BUT is also planned (2-3 hours).

Knowledge, skills and competences to be aquired during the traineeship (expected learning outcomes)

The student will acquire:

- knowledge in the field of smart/green cities;
- knowledge of how technology and innovation actors operate;
- the skills to identify and multi-faceted assessment of emerging technologies in cities;
- skills to conduct scientific research.

Monitoring plan

Regular monthly meetings. Presentation of results.

Evaluation plan

- development of a literature review on emerging technologies in smart or green cities;
- development of a research tool;
- development and presentation of the results obtained in a multi-faceted evaluation of a selected emerging technology in cities.

Planned number of working hours per week

20

Internship availability





OFFER 3

Traineeship/ internship title

Circular economy in activities of Polish companies and local government units

Short description of the traineeship

1. Participation in conducting projects classes from the subject Circular Economy.

2. Participation in the preparation of didactic materials for projects classes.

3. Participation in the implementation of activities in the international project of the European Green Deal for Cities (Erasmus+) – testing e-learning module about circular economy.

4. Overview of possibilities of financing activities in the field of circular economy from aid programs.

5. Participation in on-line seminars and conferences on the circular economy.

6. Study visits in companies.

7. Preparation of a scientific article together with the internship supervisor.

 Participation in scientific seminar organised by the Department of Production Management.
 Participation in the organizational work of the Department of Production Management.

Assessment methods

- attendance in project classes,
- report from the overview of possibilities of financing activities in the field of circular economy from aid programs,
- assessment of the quality of scientific article,
- attendance in study visit in companies and local government entities,
- attendance in on-line seminars and conferences.

Workplaces where study visits / internships are planned

Companies as well as local government units from the Bialystok district with experience in implementing circular economy.

Knowledge, skills and competences to be aquired during the traineeship (expected learning outcomes)

• Gaining knowledge about circular economy solutions used in enterprises and local government units. Acquiring the ability to include environmental issues in business.

Monitoring plan

- attendance list in project classes,
- evaluation of the report from the overview of possibilities of financing activities in the field of circular economy from aid programs,
- publication of a scientific article,
- confirmation of participation in study visits in companies and local government units,
- confirmation of attendance in on-line seminars and conferences.

Evaluation plan

Evaluation in the form of written report included research results and description of all implemented activities.

Planned number of working hours per week

20

Internship availability





OFFER 4

Traineeship/ internship title

Efficiency Analysis

Short description of the traineeship

The aim of the internship is to familiarise the student with Data Envelopment Analysis (DEA) and learn how to conduct an efficiency analysis. The trainee includes:

- literature review on DEA
- literature review on applications of DEA
- designing and carrying out own analysis
- preparation of the report

The trainee programme assumes participation in meetings, conferences, and events held at the Faculty of Engineering Management.

Assessment methods

Evaluation of the report

Workplaces where study visits / internships are planned

Knowledge, skills and competences to be aquired during the traineeship (expected learning outcomes)

The student will gain or develop:

- knowledge of efficiency and productivity paradigms
- knowledge of methods for productivity measurement
- skills to design and conduct research using DEA

Monitoring plan

Regular meetings.

Evaluation plan

Assessment of the performed tasks.

Planned number of working hours per week

20

Internship availability





OFFER 5

Traineeship/ internship title

Management of public sector units

Short description of the traineeship

During the internship, the student will learn about the methods of managing of public units, including the measures of effectiveness and efficiency as well as the methods of evaluation the quality of public services. The internships carried out in the selected public institution will provide knowledge on the specifics of the implemented activities, financing rules and evaluation methods. Form of classes: seminar with elements of tutoring.

Assessment methods

Development of a scientific publication.

Workplaces where study visits / internships are planned

Marshal's Office of Podlaskie Voivodeship Podlasie Voivodship Office in Białystok Voivodship Labour Office Knowledge, skills and competences to be aquired during the traineeship (expected learning outcomes)

- familiarizing the student with the knowledge of public management,
- familiarizing the student with the knowledge of efficiency and effectiveness evaluation methods,
- familiarizing the student with the methods of evaluation the quality of public services,
- familiarizing the student with the principles of conducting research and preparing scientific studies,
- obtaining the ability to analyse documents, draw conclusions based on the conducted studies,
- obtaining the ability of analytical thinking skills

Monitoring plan

Regular meetings with the student and reporting of work stages.

Evaluation plan

Assessment of the ongoing tasks.

Planned number of working hours per week

20

Internship availability





OFFER 6

Traineeship/ internship title

Management methods and tools used in enterprises - theoretical aspects and the practice of enterprise

Short description of the traineeship

Familiarization with the university, faculty and department where the internship will be held. Review of literature on management of innovation.

Preparing an article in English for the journal – "Academy of Management". Observation of didactic methods used by

teachers at faculty. Conducting 4 hours of classes in the subject

of Management of Innovation or Quality

Management and Control.

Consultations with teachers regarding the didactic method.

Establishing cooperation in scope of further joint projects and programs. Study visit to the selected company.

Assessment methods

Internship report.

Workplaces where study visits / internships are planned

SaMasz - producer of agricultural and municipal machinery. Glosel - internet sale; e-commerce

Knowledge, skills and competences to be aquired during the traineeship (expected learning outcomes)

- increasing language competences,
- improving the teaching process,
- establishing new contacts needed for inter-organizational cooperation in the field of applying for joint research projects.

Monitoring plan

Ongoing monitoring of the trainee's progress by the supervisor.

Evaluation plan

Ongoing assessment of the progress of the work carried out by the trainee.

Planned number of working hours per week

20

Internship availability





OFFER 7

Traineeship/ internship title

Methods of artificial intelligence

Short description of the traineeship

- Acquaintance with the main activities run at Bialystok University of Technology as well as scientific and didactic fields of Faculty of Engineering Management.
- Assisting during computer classes held by supervisor.
- Conducting scientific research and preparing the scientific papers.
- Artificial neural networks (Statistica software computer classes).
- Expert systems (several different IT tools computer classes).
- Automation of business processes with the use of Robotic Process Automation technology (UiPath software - computer classes).
- Co-organisation of scientific conferences, other events and meetings run by the faculty.
- Participation in events and workshops organised at the faculty and at the university.

Assessment methods

Evaluation of the reports on the tasks carried out.

Assessment of the particular skills gained during the internship.

Workplaces where study visits / internships are planned

Knowledge, skills and competences to be aquired during the traineeship (expected learning outcomes)

- Development of knowledge and skills concerning automatization and robotization of business processes and artificial intelligence.
- Acquisition of basic skills in the field of building artificial neural networks in the Statistica software.
- Basic skills of developing software robots to business process automation.
- Gaining knowledge on the implementation of Industry 4.0 paradigms in enterprises.
- Gaining skills of planning, organising and conducting scientific research and didactic classes.
- Developing skills of preparing scientific articles.
- Gaining skills of organising scientific conferences and events.
- Developing the competences of cooperation and team work.

Monitoring plan

Once a week meetings to discuss planned tasks and results of finished tasks. Once a month preparation of reports on the tasks carried out.

Evaluation plan

Assessment of reports and evaluation of the ongoing tasks.

Planned number of working hours per week 20

Internship availability October-June





OFFER 8

Traineeship/ internship title

Low-emission economy in the development of agriculture and rural areas

Short description of the traineeship

Review of the literature. Participation in conducting research. Preparation of a scientific article together with the scholarship supervisor. Preparation of teaching materials in English. Participation in classes - conducting selected topics of classes. Study visit in the Agriculture Advisory Centre or scientific institute.

Participation in the organizational work of the Department of Management, Economics and Finance.

Assessment methods

Scientific article.

Workplaces where study visits / internships are planned

Agriculture Advisory Centre or Scientific Institute

Knowledge, skills and competences to be aquired during the traineeship (expected learning outcomes)

Gaining knowledge about the contemporary role of agriculture and rural areas in the sustainable development of the country and the challenges related to the low-carbon economy.

Monitoring plan

Consultations (frequency depending on the needs). Reports on the implementation of assigned tasks (every month).

Evaluation plan

Student activity. Performing assigned tasks. Presentation of selected aspects related to the main topic of the internship.

Planned number of working hours per week

20

Internship availability





OFFER 9

Traineeship/ internship title

Service quality management

Short description of the traineeship

Familiarizing the student with the methods of service quality management; Preparing the literature review concerning current trends in chosen branch of service sector and drivers of its development; Identification of factors determining service quality in

chosen branch of service sector; Designing and carrying out a research process using selected research methods; Preparing final report or scientific article; Assisting during computer classes held by supervisor;

Co-organisation of meeting, conferences and events held at the faculty of engineering management;

Participation in events and workshops organised both at the faculty and the university.

Assessment methods

Preparation of a report or a scientific paper on the subject of traineeship

Workplaces where study visits / internships are planned

Knowledge, skills and competences to be aquired during the traineeship (expected learning outcomes)

The student will acquire or develop:

- knowledge concerning service quality management;
- skills to design and conduct scientific research;
- ability to interact and work in a group;
- ability to organize events.

Monitoring plan

Regular consultations. Presentation of results (once a month).

Evaluation plan

Trainee engagement and activity. Assessment of assigned tasks. Presentation of final results of research process.

Planned number of working hours per week

20

Internship availability





OFFER 10

Traineeship/ internship title

Social, cultural and religious conditions for running a business in multicultural societies

Short description of the traineeship

The internship will include the acquisition of knowledge, skills and social competences in the field of cultural diversity in the business world: Study visits, project work.

Assessment methods

An essay covering all stages of the internship.

Workplaces where study visits / internships are planned

Meetings with entrepreneurs who are also honorary consuls http://konsulat.chorwacja.bialystok.pl/zadani a-i-obowiazki/konsul-honorowy https://bialystok.wyborcza.pl/bialystok/7,3524 1,20886253,nowy-konsul-w-bialymstokuprzedsiebiorca-reprezentantem-bosni.html meeting time 1- 1.5 hours

Knowledge, skills and competences to be aquired during the traineeship (expected learning outcomes)

During the internship, the trainee acquires: knowledge about cultural diversity and intercultural education, skills in interpersonal communication techniques necessary to run a business in a multicultural international environment, broadens his social competences in the field of acquiring social and relational capital.

Monitoring plan

Preparation of an internship plan (study visits pan). Organization of an internship (contacts with entrepreneurs and gaining experience and social capital). Control of performed tasks (intern's reports and writing a final essay).

Evaluation plan

Assessment of the internship plan. Assessment of the implementation of the subsequent stages of the internship. Final assessment.

Planned number of working hours per week

20

Internship availability





OFFER 11

Traineeship/ internship title

Technology impact assessment (TIA)

Short description of the traineeship

The aim of the internship will be to learn the principles of Technology Impact Assessment and to propose the idea of functioning of the Technology Impact Assessment Centre at the University. As part of the internship, the student will review similar units operating at other universities. At the same time, as part of scientific research, the student will participate in research aimed at building models of acceptance of selected innovative technologies (e.g. digital technologies).

Assessment methods

Internship report.

Workplaces where study visits / internships are planned

Knowledge, skills and competences to be aquired during the traineeship (expected learning outcomes)

The student will acquire the ability to build technology acceptance models and their application on a specific technology example (digital, gerontechnology).

Monitoring plan

Regular monthly meetings. Presentation of results.

Evaluation plan

Development of the Technology Impact Assessment Centre concept. Development and practical verification (through research) of a technology acceptance model on selected examples (digital technologies).

Planned number of working hours per week

20

Internship availability





OFFER 12

Traineeship/ internship title

Technology Management

Short description of the traineeship

Query of literature in the field of technology management.

Case studies in the field of technology management in enterprises (e.g. from the country of the trainee).

Preparation of teaching materials in English Participation in classes - conducting selected topics of classes.

Cooperation with the student research club. Study visits in a production enterprise. Participation in the organizational work of the Department of Production Management.

Assessment methods

Preparation of a scientific paper on the subject of internships.

Workplaces where study visits / internships are planned

A production enterprise from the machine, food or printing industry (depending on the profile and interests of the trainee) - 2 hours

Knowledge, skills and competences to be aquired during the traineeship (expected learning outcomes)

- The student has knowledge and skills regarding the acquisition and use of information in the field of technology management.
- The student has the skills to freely communicate with both the scientific and business environment in the field of organization and management systems in enterprises.
- The student is able to interact and work in a group using the integrated knowledge from various fields to solve engineering problems.

Monitoring plan

Consultations (frequency depending on the needs) Reports on the implementation of assigned tasks (every 2 weeks)

Evaluation plan

Student activity Performing assigned tasks Presentation of selected aspects related to the main topic of the internship

Planned number of working hours per week

²⁰ Internship availability





OFFER 13

Traineeship/ internship title

Development of scientific, didactic and organisational skills

Short description of the traineeship Acquaintance with the structure, aims,

Acquaintance with the structure, aims, scientific and didactic fields of Faculty of Engineering Management. Preparation of scientific research and assistance during classes and lectures concerning transport systems held in English. Participation in the lectures, events and workshops organised at the faculty and Bialystok University of Technology. Co-organisation of events and meetings run by the faculty. Editing the scientific papers in the journals hosted by the Faculty of Engineering Management. A study visit to one of the logistics companies Any other tasks commissioned by the mentor.

Assessment methods

Internship report

Workplaces where study visits / internships are planned

Faculty of Engineering Management, one of the logistic companies (e.g. Multicco Group)

Knowledge, skills and competences to be aquired during the traineeship (expected learning outcomes)

- Development of knowledge and personal skills concerning different aspects of management science.
- Gaining skills of planning, organising and conducting scientific research and didactic classes.
- Developing the skills and competences concerning methods and systems used in logistics, mainly for transport planning.
- Gaining skills of organising events.
- Developing the competences of cooperation and team work.

Monitoring plan

Once a week meetings to discuss planned tasks and results of finished tasks.

Evaluation plan

Assessment of the ongoing tasks.

Planned number of working hours per week

20 *Internship availability* October-June





OFFER 1

Traineeship/ internship title

Reduction of energy consumption in HVAC and DWH systems in buildings supplied from renewable and conventional energy sources

Short description of the traineeship

Review of the literature related to solutions applied in Poland and in the applicant country.

Laboratory experiments regarding RE/HVAC/ DWH systems at BUT or energy simulations and analysis (a case study conducted using computer software in English) – depending on agreement with a supervisor. Study visit in a local company. Preparation of a final presentation in a paper/poster or power point form.

Assessment methods

Oral discussion. Written reports. Final presentation.

Workplaces where study visits / internships are planned

- KAN http://kan-therm.com/,
- BIAWAR https://www.biawar.com.pl/
- DE DIETRICH https://dedietrich.pl/
- and local design studios.

Knowledge, skills and competences to be aquired during the traineeship (expected learning outcomes)

- Selected aspects of detailed knowledge necessary for understanding heating, flowing, ventilation and air-conditioning processes that occur in environmental engineering.
- Appropriately plan experiments and tests in the field of environmental engineering and conduct them, interpret results, draw accurate conclusions based on them.
- Analyse content obtained from various sources and evaluate critically its potential applications for work in the profession.

Monitoring plan

Weekly meetings and consultations.

Evaluation plan

60% progres reports, 40% final presentation.

Planned number of working hours per week

30

Internship availability

October-December / March-June





OFFER 2

Traineeship/ internship title

The recycling technologies and use of waste materials in modern construction

Short description of the traineeship

Review of the literature related to waste materials and ways of applied in concrete composites. Laboratory experiments of preparing, recycling and modification of concrete composites based on waste materials. Study visit in company which use waste materials to concrete production technology. Preparation of a final presentation in a paper.

Assessment methods

Written reports. Final presentation.

Workplaces where study visits / internships are planned

Jadar.pl

Knowledge, skills and competences to be aquired during the traineeship (expected learning outcomes)

- Selected aspects of detailed knowledge modern recycling technology.
- Structural analysis of recycled materials.
- Planning experiments and tests in the field of civil engineering, results analysis, accurate conclusions based on them, statistical analysis.
- Preparing scientific articles.

Monitoring plan

Weekly meetings and consultations.

Evaluation plan

60% progres reports, 40% final presentation.

Planned number of working hours per week

30

Internship availability

October-December/ March-June





OFFER 3

Traineeship/ internship title

Production of renewable solid fuels from agrifood waste and their quality testing

Short description of the traineeship

Laboratory tests of the pressure agglomeration (pelletization) of solid waste feedstocks in various process and material conditions. Pellets' quality tests: kinetic durability, density, high heating value, combustion test.

Assessment methods

Based on written work and/or tests results

Workplaces where study visits / internships are planned

Knowledge, skills and competences to be aquired during the traineeship (expected learning outcomes)

- latest developments and technologies in agriculture, forestry and food processing,
- latest methods of utilising by-products of agrifood processing and forms of power generation using renewable sources,
- select appropriate sources and information regarding innovations occurring in the field of agriculture, forestry, food processing and renewable energy, as well as critically analyse, synthesise and evaluate the obtained information,
- identify problems, formulate and test research hypotheses in the field of agriculture, forestry, food processing and renewable energy, as well as recognise systemic and non-technical aspects when solving these issues,
- gather and present information and opinions concerning scientific achievements and other aspects of the engineer's activities to the public as well as make efforts to communicate such information and opinions to the public in a commonly understood manner, presenting different points of view

Monitoring plan

Partial reports, attendance list.

Evaluation plan

60% final report, 40% attendence.

Planned number of working hours per week

20-30

Internship availability

October-June (excl. February)





OFFER 4

Traineeship/ internship title

Toxicological analysis with the use of human cells as a biological models.

Short description of the traineeship

Toxicological analyzes at the molecular level. Study of the impact of selected environmental pollutants on the human body at the cellular level (in vitro cultures of human cells). Work in a science and research laboratory. Preparation of reagents for determinations. Work in the cell culture laboratory.

Assessment methods

Credit on the basis of a research report.

Workplaces where study visits / internships are planned

Knowledge, skills and competences to be aquired during the traineeship (expected learning outcomes)

- Student understands hygiene and safety rules during work with human cell lines.
- Student learns the basic cell culture techniques.
- Student has the ability to work with an inverted light microscope.
- Student knows the use of cells and tissues research methods in modern biology and biotechnology.
- Student can carried out simple research experiments and analyses under the supervisor guidance.
- Student is able to conduct a proper reasoning according to scientific data.

Monitoring plan

Periodic reports, attendance list.

Evaluation plan

50% research report, 50% presence and work in the laboratory.

Planned number of working hours per week

40

Internship availability

October-May





OFFER 5

Traineeship/ internship title

Qualitative and quantitative research on plant extracts and evaluation of their antioxidant activity.

Short description of the traineeship

Laboratory classes, during which the trainee will learn about various extraction techniques, perform extraction of selected natural products, and evaluate their quantitative and qualitative composition in terms of phenolic compounds content. Using various spectrophotometric tests, the trainee will test the antioxidant activity of the obtained extracts. The trainee will prepare a research report.

Assessment methods

On the basis of the test results report.

Workplaces where study visits / internships are planned

Knowledge, skills and competences to be aquired during the traineeship (expected learning outcomes)

- Knowledge and understanding of issues in the field of chemistry of natural products.
- Ability to use laboratory equipment, plan and carry out chemical experiments, use appropriately selected methods of isolation and identification of chemical compounds of natural origin, interpret the obtained results and draw correct conclusions and prepare documentation from the experience.
- Critical assessing the knowledge and content received in the field of chemistry of natural products.

Monitoring plan

Periodic reports, attendance list.

Evaluation plan

80% research report, 20% laboratory presence.

Planned number of working hours per week

35

Internship availability

September-November; April-June





OFFER 6

Traineeship/ internship title

Concrete tests or concrete structures

Short description of the traineeship

Laboratory practice in the form of research work. Conducting tests of concrete or concrete structures.

Assessment methods

On the basis of the report of research results, analyses.

Workplaces where study visits / internships are planned

Knowledge, skills and competences to be aquired during the traineeship (expected learning outcomes)

 Principles of analysis, modeling, design, dimensioning and construction of general construction, industrial and road transport infrastructure, bridge construction and their elements.

- Make a critical analysis of the functioning of the existing technical solutions in construction and evaluate these solutions.
- Read architectural, construction and geodetic drawings and in accordance with the principles of descriptive geometry and technical drawing, prepare graphic documentation in the environment of selected graphic programs; interpret the designs of basic construction installations.
- Plan and carry out experiments, including measurements and computer simulations, interpret the obtained results and draw conclusions.
- Choose and correctly apply construction materials and products.
- Recognizing the importance of knowledge in solving problems in the field of construction and consulting experts in the event of difficulties with solving the problem on their own.
- Thinking and conducting activities in the field of construction in an entrepreneurial way.
- Responsible fulfillment of professional duties and continuous training in areas related to the nature of the performed professional roles.

Monitoring plan

Periodic reports, reports, attendance list.

Evaluation plan

60% research report, 30% pass test, 10% presence in the laboratory.

Planned number of working hours per week

20-40

Internship availability

September-June





OFFER 7

Traineeship/ internship title

Identification and characterization of the concentration of dust suspended in the atmospheric air in a selected area

Short description of the traineeship

Measurements with portable PM10 and PM2.5 particulate meters. Operation of a stationary dust collector for collecting suspended dust.

Qualitative analysis of suspended dust obtained from a stationary dust collector. Analysis of the obtained results of suspended dust participation in a specialist workshop in the subject of "Air protection".

Assessment methods

Report on the research results and a final test on the design classes.

Workplaces where study visits / internships are planned

Knowledge, skills and competences to be aquired during the traineeship (expected learning outcomes)

- Appropriately select sources and information regarding innovative solutions in environmental engineering; make a critical analysis, synthesis and assessment of them.
- Plan and conduct advanced experiments including measurements of technicaltechnological and operational parameters of equipment used in environmental engineering; interpret obtained results and draw conclusions.
- Design, according to initial guidelines, suitable and viable water-sanitation, air protection or waste systems using appropriately selected technologies, methods, tools and materials.
- Analyze content obtained from various sources and critically evaluate its potential applications for work in the profession.

Monitoring plan

Periodic reports on the performed tests.

Evaluation plan

60% research report, 30% passing test, 10% attendance during project classes.

Planned number of working hours per week

20-40

Internship availability

October-January





OFFER 1

Traineeship/ internship title

Research on thermal and physicochemical properties of polymeric materials

Short description of the traineeship

Review of the literature in the field of polymeric materials. Selection and preparation of research materials. Development of research methodology. Experimental research, including thermal tests with the use of differential scanning calorimetry and thermogravimetry, and tests of physicochemical properties. Analysis of the obtained research results.

Assessment methods

Research report.

Workplaces where study visits / internships are planned Knowledge, skills and competences to be aquired during the traineeship (expected learning outcomes)

- The student uses general knowledge of plastics and polymer composites.
- Student performs simple tests of physicochemical and thermal properties of polymers and composites.
- Applies health and safety rules.

Monitoring plan

Regular meetings. Report on the progress of the internship.

Evaluation plan

Substantive assessment of the various stages of the internship.

Planned number of working hours per week

20

Internship availability





OFFER 2

Traineeship/ internship title

Simulation of vibration-based energy harvesting system of mechanical structure with MFC elements.

Short description of the traineeship

The aim of the internship is to familiarize the student with the issue of harvesting energy from vibrations with the use of piezoelectric elements. Thus, the student during the design classes will have the opportunity to acquire the skills of modeling a piezoelectric element and the phenomenon of harvest energy from vibrations using the programs based on finite elements of the Ansys that it is available at the faculty. Based on this program, the impact of modeling the multilayer piezo structure of the composite structure modeling and the selection of the type of active layer material will be additionally analyzed.

Assessment methods

The report contains results and discussion.

Workplaces where study visits / internships are planned

Knowledge, skills and competences to be aquired during the traineeship (expected learning outcomes)

- Student knows and understands the need to model electromechanical phenomena in order to obtain energy from vibrations.
- Student will acquire skills in modeling electromechanical phenomena and studying mechanical structures using the finite element method.

Monitoring plan

Modeling of a piezo composite as a multilayer structure. Numerical investigations of the mechanical structure with a single-layer piezo element under acting harmonic force (frequency analysis). Modeling of a piezo composite as a multilayer structure. Numerical investigations of the mechanical structure with a multi-layer piezoelectric element (frequency analysis). Analysis of numerical results.

Evaluation plan

The internship evaluation will consist in the preparation of partial reports on the individual stages of the student's work.

Planned number of working hours per week

20

Internship availability





OFFER 3

Traineeship/ internship title

Construction, design and automation of pneumatic systems

Short description of the traineeship

The classes are aimed at acquainting participants with the principles of building simple pneumatic systems and their design. The systems will be physically built in the laboratory on SMC's laboratory stands. The process of designing and testing systems on computer stations equipped with FluidSIM software.

Assessment methods

Attendance at class, building, testing, designing all systems given by the teacher.

Workplaces where study visits / internships are planned

Knowledge, skills and competences to be aquired during the traineeship (expected learning outcomes)

- Understanding the basics of the construction of pneumatic systems.
- Understanding the principle of operation of selected pneumatic components.
- Understand the principles of pneumatic design.
- Learning to use pneumatic elements that allow for the automation of processes.

Monitoring plan

Checking the correctness of the design of pneumatic systems in FluidSIM from each module of the course.

Evaluation plan

Preparation of design documentation of the built systems during internship.

Planned number of working hours per week

30

Internship availability





OFFER 4

Traineeship/ internship title

Injection processes of thermoplastic materials – industrial scale

Short description of the traineeship

Practical tests of the injection process in the industrial scale. Research mainly involving technical plastics and compositions based on them. Assessment of the influence of parameters process on the functional properties of plastics.

Assessment methods

The report containing results and discussion.

Workplaces where study visits / internships are planned

Pimar-Plastics, Czarna Białostocka

Knowledge, skills and competences to be aquired during the traineeship (expected learning outcomes)

- The student has general knowledge of practical injection methods.
- The student is able to perform simple injection tests.
- Applies health and safety rules.

Monitoring plan

Regular meetings. Report on the progress of the internship.

Evaluation plan

Substantive assessment of the various stages of the internship.

Planned number of working hours per week

20

Internship availability October-lune





OFFER 5

Traineeship/ internship title

Designing and developing a prototype of bioreactor for evaluation of hydroxyapatite formation on biomedical materials.

Short description of the traineeship

Conducting a review over known prior art and literature about bioreactors and hydroxyapatite formation process. Designing bioreactor with the use of CAD software. Preparing of technical drawings. Practical execution of a prototype of designed device. Evaluation of the bioreactor with the use of optimal methods. Conclusions.

Assessment methods

Research report presenting an evaluation of developed prototype.

Workplaces where study visits / internships are planned

Knowledge, skills and competences to be aquired during the traineeship (expected learning outcomes)

- Basic knowledge on the topic of bioreactors and importance of hydroxyapatite formation process in biomedical engineering.
- Student has a basic ability in using CAD software.
- Students applies any necessary safety rules.

Monitoring plan

Regular meetings. Report on the progress of the internship.

Evaluation plan

Substantive assessment of the various stages of the internship.

Planned number of working hours per week

30

Internship availability





OFFER 6

Traineeship/ internship title

CAM systems programming

Short description of the traineeship

The aim of the internship is to familiarize the student with Computer Aided Manufacturing (CAM) programs used for programming Computerized Numerical Control (CNC) machines in manufacturing production. During the design classes student have the opportunity to create programs to control milling and turning machines and how to select the appropriate tools. The student will acquire a basic knowledge of how to plan the sequence of operations for machining machine parts and how to select the appropriate tools.

Assessment methods

Research report.

Workplaces where study visits / internships are planned

Knowledge, skills and competences to be aquired during the traineeship (expected learning outcomes)

- Student knows and understands general principles of using CAM systems in the parts manufacturing process.
- Student will acquire skills in programming CNC milling and turning machines.

Monitoring plan

Regular meetings. Report on the progress of the internship.

Evaluation plan

Substantive assessment of the various stages of the internship.

Planned number of working hours per week

20

Internship availability





OFFER 7

Traineeship/ internship title

Research on tribological properties of polymeric materials

Short description of the traineeship

Review of the literature in the field of polymeric materials and tribological tests. Selection and preparation of research materials. Development of research methodology. Experimental pin-on-disc testing. Analysis of the obtained research results.

Assessment methods

Research report.

Workplaces where study visits / internships are planned Knowledge, skills and competences to be aquired during the traineeship (expected learning outcomes)

- The student uses general knowledge of plastics materials.
- Student performs simple tribological tests.
- Applies health and safety rules.

Monitoring plan

Regular meetings. Reports on each of the state of progress of the internship.

Evaluation plan

Substantive assessment of the various stages of the internship.

Planned number of working hours per week

20

Internship availability





OFFER 8

Traineeship/ internship title

Motion design and control of UR robotic system.

Short description of the traineeship

The aim of the internship is to familiarize the student with the issues of motion design of universal robot arm and control of UR robotic system. The student during the classes will acquire the skills of design and simulation of robotic arm motion using RoboDK program system, and will be acquanted with the ways of universal robot control using Python and URscript program systems.

Assessment methods

The report which contains the results and discussion.

Workplaces where study visits / internships are planned

Visit to Promotech enterprise is foreseen.

Knowledge, skills and competences to be aquired during the traineeship (expected learning outcomes)

- Student understands and can solve the problems of robotic arm motion design and simulation,
- Student will acquire the skills in motion planning and control of universal robot with taking into account the robotic task context.

Monitoring plan

Assessment of the correctness of the results of the fulfillment of control and design tasks at each stage of the internship course.

Evaluation plan

The internship evaluation will consist in the preparation of partial reports on the individual phases of the student's work.

Planned number of working hours per week

20

Internship availability





OFFER 1

Traineeship/ internship title

Development of didactic materials for the course SPA Web Applications Development

Short description of the traineeship

Software development , the student will conduct a lesson with Erasmus+ students on the basis of preparing materials.

Assessment methods

Presentation, using e-learning platform

Workplaces where study visits / internships are planned

Knowledge, skills and competences to be aquired during the traineeship (expected learning outcomes)

• Student knows how to use e-learning Moodle platform, programming in Angular and React framework

Monitoring plan

Consultation reports every week.

Evaluation plan

Final certificate.

Planned number of working hours per week

30

Internship availability





OFFER 2

Traineeship/ internship title

Development of didactic materials for the Algorithms and Data Structures course

Short description of the traineeship

Preparation of tutorials, open problems, questions, quizes at Moodle platform, etc

Assessment methods

Presentation, using e-learning platform

Workplaces where study visits / internships are planned

Knowledge, skills and competences to be aquired during the traineeship (expected learning outcomes)

- student knows and understands concepts related to algorithms and data structures
- student knows how to use e-learning platform
- student practice to use the basic didactic methods e.g.lecture, discussion, brainstorming

Monitoring plan

Consultation, reports every week

Evaluation plan

Final certificate

Planned number of working hours per week

30

Internship availability





OFFER 3

Traineeship/ internship title

Development of didactic materials for the "Introduction to Linux" course for Erasmus students.

Short description of the traineeship

Preparation of lectures slides, practical exercises, tests with solutions in the field of the course subject.

Assessment methods

Presentation, using e-learning platform.

Workplaces where study visits / internships are planned

Knowledge, skills and competences to be aquired during the traineeship (expected learning outcomes)

Student knows and understands:

- text-based interface,
- basic text-based Linux tools,
- Linux permissions scheme,
- regular expressions,
- bash scripts.

Student has the skills to use Moodle learning platform.

Monitoring plan

Consultation, reports every two weeks.

Evaluation plan

Final certificate.

Planned number of working hours per week

24

Internship availability





OFFER 4

Traineeship/ internship title

Development of didactic materials for the course mobile systems (iOS/Android)

Short description of the traineeship

Software development, the student will conduct a lesson with Erasmus+ students on the basis of preparing materials

Assessment methods

Review of prepared materials

Workplaces where study visits / internships are planned

Knowledge, skills and competences to be aquired during the traineeship (expected learning outcomes)

 student knows how to use e-learning Moodle platform, programming in iOS and Android mobile systems

Monitoring plan

Consultation reports every week

Evaluation plan

Final certificate.

Planned number of working hours per week

30

Internship availability

October-January





OFFER 5

Traineeship/ internship title

Development of didactic materials for Advanced Object-oriented Programming Technics course

Short description of the traineeship

During AOOPT course students refactor existing programs to use design patterns. Programs have been written in Java, they use GUI (Java Swing) and threads. The goal would be to port the example programs to other object-oriented programming languages (mainly Python, but maybe also C# and/or C++). The desired solutions should be also developed. The condition are: (1) to keep their original construction, (2) to use open, easily available libraries (GUI), (3) to allow their compilation both in Windows and Linux, (4) to publish programs under GPL licence (to allow using them by students).

Assessment methods

Developing base programs and example refactored programs

Workplaces where study visits / internships are planned

Knowledge, skills and competences to be aquired during the traineeship (expected learning outcomes)

- student knows well the object-oriented programming and and least one objectoriented programming language (Java, C++, C#, Python, ...)
- student knows the design patters (as in "Design Patterns: Elements of Reusable Object-Oriented Software" by Gamma, Helm, Johnson, Vlissides
- student is ready to learn new programming languages, their libraries and design patterns

Monitoring plan

Consultation, reports every two weeks

Evaluation plan

Final certificate.

Planned number of working hours per week

30

Internship availability





OFFER 6

Traineeship/ internship title

Development of software applications.

Short description of the traineeship

Software development , the student will conduct a lesson with Erasmus+ students on the basis of preparing materials.

Assessment methods

Presentation, using e-learning platform.

Workplaces where study visits / internships are planned

Knowledge, skills and competences to be aquired during the traineeship (expected learning outcomes)

- Student knows how to use e-learning Moodle platform.
- Programming python, php or java language.

Monitoring plan

Consultation, reports every week.

Evaluation plan

Final certificate.

Planned number of working hours per week

30

Internship availability





OFFER 1

Traineeship/ internship title

Project of real-time control system of the electric drive with PMSM.

Short description of the traineeship

 Familiarization with research equipment (1st week)
 Familiarization with Automation Studio software, concept of integrated automation in Automation
 Studio software, familiarization with drive equipment in the laboratory (2nd - 7th week)

3. Design creation in Automation Studio, equipment configuration in Automation Studio, online communication in Automation Studio (8th and 9th week).

4. Operating system basics, memory management, variables Local_Global_Retain_Permanent, drive operation modes, drive input and output management, multitasking, diagnostic tools review, programming in Lauder Diagram language, logic. (9th up to 15th week).

5. Using function blocks (TON, CTU), creating user functions, programming in ST language - Structured Text. Basics of visualization with touch panel (16th up to 23th week).

6. Preparation of the final report (24th week).

Assessment methods

Traineeship evaluation on the basis of the final result of work and the quality of final report.

Workplaces where study visits / internships are planned

One day visiting in an industrial plant and observation of the automation systems and the electrical installations (in one of the work places SMP Poland or AC S.A. or electric power plant in city). Knowledge, skills and competences to be aquired during the traineeship (expected learning outcomes)

- Traineeship in digital skills
- Structure of vector control system with Permanent Magnet Synchronous Motors, current control loop, speed control loop, position control loop.
- Concept of real-time operational system for electric drives and automation systems.
- Real time Ethernet "Powerlink"
- Design creation in Automation Studio with binary inputs, outputs, visualization on touchy screen,
- Programming and utilization of automatic drive with three phase Permanent Magnets Synchronous Motors.
- Improvement of technical English.

Monitoring plan

Progress report per every month.

Evaluation plan

Traineeship evaluation on the basis of the final result of work and the quality of final report.

Planned number of working hours per week

24

Internship availability





OFFER 2

Traineeship/ internship title

Project of multifrequency wireless energy harvesting system with periodic loop

Short description of the traineeship

- 1. Familiarization with equipment of laboratory.
- 2. Familiarization with some specific techniques of computational electromagnetics and CE CAD/CAM) software. Numerical analysis of electromagnetic phenomena in the considered periodic system.
- 3. Design of the system and analysis of the properties.
- 4. Experimantal studies on designed system.
- 5. Comparative analysis of simulation and experimental results.
- 6. Preparation of the final report.

Assessment methods

Evaluation of results of work and quality of final report

Workplaces where study visits / internships are planned

 Bialystok University of Technology, Faculty of Electrical Engineering, https://we.pb.edu.pl
 SMP Poland Sp. z o.o. (commercial enterprise) http://smpkariera.pl/

Knowledge, skills and competences to be aquired during the traineeship (expected learning outcomes)

- Familiarization with the specific construction of electric materials, they properties, methods of prototyping.
- Familiarization with the specific laboratory equipment and software applied in the of electric phenomena, conducting simulations.
- Ability of prototyping of specific 2D materials.
- Ability of the proper operate of measuring instruments.
- Advanced skills in CAD/CAM modelling.

The obtained research results can be used to prepare common scientific/technical paper.

Monitoring plan

Disccussion with supervisor, meetings.

Evaluation plan

Evaluation of results of work and quality of final report

Planned number of working hours per week

20

Internship availability

October - July





OFFER 3

Traineeship/ internship title

Application of machine learning algorithms to control a manipulator effector along a given trajectory.

Short description of the traineeship

- 1. The design of selected machine learning algorithms in Matlab/Simulnik software, including the performance of simulation studies.
- 2. Implementation of the developed algorithms in the UR3/UR5 robot controller.
- 3. Conducting experimental studies in the laboratory.
- 4. Processing and compilation of test results.
- 5. Performing comparative analysis of simulation and experimental results.

Assessment methods

Partial and final reports. The obtained research results will be used to prepare a joint publication.

Workplaces where study visits / internships are planned

Faculty of Electrical Engineering

Knowledge, skills and competences to be aquired during the traineeship (expected learning outcomes)

- Knowledge of the construction of industrial manipulators.
- Knowledge of mathematical modeling.
- Knowledge of machine learning algorithms and artificial intelligence algorithms.
- Practical skills in the field of modeling in Matlab/Simulink.
- Conducting simulations.
- Implementing algorithms in the manipulator's controller.
- Operating the manipulator, conducting experimental tests.
- Working in a team.
- Presenting work results on a seminar.

Monitoring plan

Progress will be discussed at regular weekly meetings.

Evaluation plan

Depends on the intern's work contribution and the results obtained.

Planned number of working hours per week

20

Internship availability October-lune





OFFER 4

Traineeship/ internship title

Project of an IoT distributed measurement system.

Short description of the traineeship

- 1. Familiarization with research equipment (1st week)
- 2.. Familiarization with CAD software, familiarization with IoT elements in the laboratory (2nd - 4th week).
- 3. Register level microcontroller programming, I/O ports, local communication serial interfaces (5th - 8th week).
- 4. Design and creation of the software, peripherals configuration (9th 10th week).
- 5. Preparing documentation of the project (10th 11th week).
- 6. Preparation of the final report (11th 12th week) and presentation the results at departmental seminar.

Assessment methods

Traineeship evaluation on the basis of the final result of work and the quality of final report.

Workplaces where study visits / internships are planned

AC Białystok

Knowledge, skills and competences to be aquired during the traineeship (expected learning outcomes)

Knowledge:

- •Structure of Internet of Things measurement systems.
- • Concept of Cloud computing.
- ·IoT protocols.
- •Register level programming of IoT microcontrollers.
- ·Structure of a chosen family of microcontrollers.
- ·Local communication interfaces. Skills:
- Programming microcontrollers in IoT systems, connecting analog and digital sensors,
- •Programming serial communication routines.
- ·Improvement of technical English.
- Experience in presentation of technical subject.

Monitoring plan

Progress will be discussed at regular weekly meetings.

Evaluation plan

Progress report every two weeks. Final report.

Planned number of working hours per week

20

Internship availability

March-June





OFFER 1

Traineeship/ internship title

Virtual Reality Experimentational Architectural Design

Short description of the traineeship

Trainees will work on a VR project from bottom up with the use of Unreal Engine and test the architectural design for design flaws. Work will take place primarily on laboratory equipment along with the assistance of home computers. The goal of this is to teach young engineers and architects a very powerful validation tool that can be used to test out ready designs as well as serve as a platform for the development of more radical and experimentational architectural forms.

Assessment methods

Final project / hand in.

Workplaces where study visits / internships are planned

Knowledge, skills and competences to be aquired during the traineeship (expected learning outcomes)

- Understands the basics of reproducing architectural space in VR.
- Can create a full VR experience based on a set of technical drawings.
- Can create custom 3D models to fit the design needs in VR.
- Knows how to search for answers regarding interactivity and troubleshooting.

Monitoring plan

Progress report every 2 weeks or achieved milestone.

Evaluation plan

Trainee evaluation based on overall performance and commitment to the given problem.

Planned number of working hours per week

24

Internship availability





OFFER 2

Traineeship/ internship title

Research traineeship - Adaptation to climate change in spatial planning, urban planning and architecture.

Short description of the traineeship

Challenges of the climate crisis in regional planning, spatial policy, direction of spatial development, urban design, architecture. Preparation of plan the researches, assumptions and the field of them. Creating user application for one-time measurement evaluation process. The practice: a) research methods: review of literature, way to collect data, research methods used in spatial and urban planning; b) designing: analyses methods, work over urban and architectural drawing documentation. Assisting in classes with international students.

Assessment methods

Traineeship evaluation on the basis of the final result of work and the quality of final report/article/project.

Monitoring plan

Progress report per every month of the internship.

Evaluation plan

Based on the schedule which is delivered after approved dates of the trainneeship.

Knowledge, skills and competences to be aquired during the traineeship (expected learning outcomes)

- Research methods used in describing problems in the field of spatial planning, urban studies, architecture.
- Methods used in urban analyses.
- Research methodology and workshop, organization of tasks.
- Organization of the manuscript.
- Organize process of research.
- Using research tools.
- Preparing manuscript for publication.
- Experience in teaching process.
- Communications in foreign language.
- Work in a team.
- Improvement of technical English.

Additional requirements

- Script prepared by candidate about climate change and candidate's observations in the field of urban studies, architecture, migration crisis show the problem and challenges in his region, country (at least 5 pages);
- Recommendation letter from teacher specialized in spatial planning, urban studies, urban designing or interested in the field of: adaptation to climate change in spatial planning, urban planning and architecture, relocation or migration;
- At least upper-intermediate language skills in English, recommend- certificated.

Planned number of working hours per week

24

Internship availability

March-June





OFFER 3

Traineeship/ internship title

Introduction to architectural design with OpenBIM

Short description of the traineeship

Trainees will work on a simple architectural design project with a use of advanced design software (ArchiCAD) and develop / test chosen technical problems with a use of Open BIM solutions.

Work will take place mainly on the faculty lab equipment. The goal is to develop skills in using BIM technology along with ensuring the design quality.

Assessment methods

Interim assessment + final projects.

Workplaces where study visits / internships are planned

Knowledge, skills and competences to be aquired during the traineeship (expected learning outcomes)

- Knows the principles of developing architectural projects with dedicated digital tools.
- Can develop the design with a use of 3D digital modelling.
- Knows and understands how to represent the design concept within the BIM environment.
- Is able to cooperate with the design process partners using BIM solutions.

Monitoring plan

Interim reviews of the project progress – every 2 weeks (assessed presentations)

Evaluation plan

Trainee evaluation based on overall performance and commitment to the design task performance.

Planned number of working hours per week

24

Internship availability

November - May





OFFER 4

Traineeship/ internship title

Preliminary design in timber architecture with elements of bionics

Short description of the traineeship

Nowadays, interdisciplinary design plays an important role in shaping architecture. The integration of the form and the supporting structure is gaining more and more importance. The architectural forms created as a result of observing structures in nature constitute an interesting aspect of the search of optimization. Trainees will:

Search and test of software that enables intuitive design of the initial analysis of the structure's work,

Design elements and architectural objects with elements of bionics, with particular use of timber in the construction, using pre-design method, Work will place on faculty equipment along with the assistance of home computers. Project activities: search and testing software, review of literature, using the pre-design method in architectural design, collecting data, assisting during classes with international students

Assessment methods

ITraineeship assessment on the basis of the final result of report/article/project.

Workplaces where study visits / internships are planned

Knowledge, skills and competences to be aquired during the traineeship (expected learning outcomes)

- Methods used in preliminary design,
- Methods of using bionics in architecture,
- Research methods used in describing problems in the field of preliminary construction design;
- Ability to use software in preliminary architectural design,
- Organize process of interdisciplinary project,
- Using research tools,
- Experience in teaching process;

Monitoring plan

Progress report every 2 weeks of the internship.

Evaluation plan

Trainee evaluation based on research report, presence and commitment to the given problem.

Planned number of working hours per week

24

Internship availability





OFFER 5

Traineeship/ internship title

Picturebook design - concept, illustrations, mock-up, printing

Short description of the traineeship

Trainees will work on on making a picturebook from scratch. Learning about the illustrator's craft with examples and introductory exercises. Conceptual work on the synergy of text and illustration. Workshop work on illustration (work on own computers and with traditional tools drawing, painting, collage, pop up book). Making mock-up books, and finally printing and assembling the prototype.

Assessment methods

Traineeship evalutaion on the basis of the final result – printined book

Workplaces where study visits / internships are planned

Knowledge, skills and competences to be aquired during the traineeship (expected learning outcomes)

- understands the process of creating an author's book
- develops creative skills
- has the ability to assemble a layout with his own hands
- knows interesting and creative ways to use drawing skills
- understands the publishing process
- will be able to represent abstract concepts in the artistic form
- will be able to choose typography according to the subject matter

Monitoring plan

Progress report every 2 weeks of the internship.

Evaluation plan

Trainee evaluation based on overall performance and commitment to the given problem

Planned number of working hours per week

24

Internship availability

1'st March -30'th June (summer semester)





OFFER 6

Traineeship/ internship title

In the Shadow of the sketch Own library design of freehand drawing

Short description of the traineeship

The trainees will build their own library of handy associations illustrating the means of artistic expression

The trainees will work on creating their own sketches

The trainees will work on interpreting compositional proposals on a given topic, slogan The trainees will work on creating a series of drawings

Despite moving in a very traditional area of understanding the technology itself and the conservative approach to the subject – Drawing, the trainees

not lose any of their autonomy. On the contrary. Manual ability to shape the creative attitude, and this, as you know, not only closes the narrower field the impact of Drawing. [means of artistic expression] is the foundation to try the author's interpretation of the primary areas of artistic creation which is just drawing freehand. Communication by copyright freehand drawing, is an elementary link in the interpretation of reality. This ability, not only is assigned to students of art universities.

Assessment methods

ITraineeship assessment on the basis of the final result of report/article/project.

Workplaces where study visits / internships are planned

Knowledge, skills and competences to be aquired during the traineeship (expected learning outcomes)

- knows the components of the means of artistic expression
- differentiates and consciously uses creative abilities
- knows the author's propositions of artistic expression and is able to
- interpret reality
- develops creative skills
- broadened workshop skills
- developed sensitivity in observing the structures of abstract forms

Monitoring plan

Progress report every 1 week

Evaluation plan

Trainee evaluation based on overall performance and commitment to the given problem

Planned number of working hours per week

24

Internship availability

1'st March -30'th June