

## UNESCO/POLAND CO-SPONSORED FELLOWSHIPS PROGRAMME 2020

List of Invited Member States per region and field of research as determined by the Polish authorities

Project No.	FIELD OF RESEARCH/PROJECT TITLE (Number of Fellowships)	LIMIT OF AGE	ACADEMIC REQUIREMENT Be proficient in reading and writing in English.
	<b>Automation, electronic and electrical engineering (2 projects)</b>		
01	Prediction in dynamic scheduling problems in logistics and manufacturing. (1)	not more than 35 years of age	M.Sc. degree, in computer science, control engineering or related discipline  (01) General knowledge in method and algorithms for scheduling problems in logistic and manufacturing, dynamic problems, python programing, git.
02	Representation of piece of music to machine learning with NLP methods. (1)		(02) General knowledge in Machine learning, data science, python programing with pandas, git, SQL and HDF5 file.
	<b>Biomedical Engineering (3 projects)</b>		
03	Analysis of noise sources and prediction to their influence on digital electrocardiogram. (1)	not more than 35 years of age	M.Sc. degree in biomedical engineering, electrical engineering or computer science  (3) General knowledge in computer usage and programming (C++, Java etc.), electronic equipment, signal and image processing, statistics, human physiology and measurements. Scientific and technical reading and writing in English and experience with Matlab.
04	Multimodal physiological measurements for recognition of human daily activity. (1)		(4) General knowledge in computer usage and programming (C++, Java etc.), electronic equipment, signal and image processing, human physiology and measurements. Scientific and technical reading and writing in English and experience with Matlab.
05	Electrospinning of biopolymers for biomedical applications. (2)		M.Sc. degree in materials science, biomedical engineering, chemistry, biochemistry, biology  (5) General knowledge in the field of designing, fabricating and analyzing physicochemical properties of materials; General knowledge about working in the laboratory, including basic safety procedures; Candidates with experience in writing scientific articles will be preferred; Candidates having general knowledge in the field of biology/biochemistry and/or electrochemistry will be preferred.
	<b>Earth and Environmental Sciences (6 projects)</b>		
06	Cu-Ag-Au deposits in Latin America/South-East Asia. (1)	not more than 35 years of age	M.Sc. or Ph.D. degree  (6) General knowledge in geology, mineralogy, geochemistry, mineral deposit.
07	Geology of mineral deposit. (1)		M.Sc. degree  (7) General knowledge in geology, mineralogy, geochemistry, mineral deposit.
08	Antimony bearing mineraling systems and deposits in South America: Mineralogical and geochemical characteristics. (1)		(8) General knowledge of South America geology and metallogeny; be familiar with EMPA and EDX analyses; student of economic geology; general knowledge on Sb bearing mineralizations.

09	Au-bearing epithermal systems in South America: mineralogical and geochemical characteristics. (1)		(9) General knowledge of South America geology and metallogeny; be familiar with EMPA and EDX analyses; student of economic geology; general knowledge on porphyry and epithermal systems.
10	Nb-Ta-Sn-W mineralization in pegmatites, quartz veins and greisens from the Central Africa: Mineralogical and geochemical study. (2)		(10) General knowledge of South America geology and metallogeny; be familiar with EMPA and EDX analyses; student of economic geology; general knowledge on porphyry and epithermal systems.
11	Assessment of geotourism potential of selected geological regions in the developing countries. (3)		M.Sc. or Ph.D. degree (11) General knowledge in geology, geography, tourism, geotourism, environment protection.
<b>Environmental Engineering, Mining and Energy (10 projects)</b>			
12	Selected problems in Environmental Engineering - heating, ventilation and air conditioning systems. (1)	not more than 35 years of age	M.Sc. or Ph.D. degree (12) Degree in mining or mining related fields.
13	Selected aspects of the Mining Process Modelling. (1)		(13) Degree in mining or mining related fields.
14	Selected aspects of in Mining Engineering - Susceptibility of rocks to bumps. (1)		(14) Degree in mining or mining related fields.
15	An Experimental Analysis of the Mixing Process in Agitated Vessel. (3)	not more than 35 years of age	M.Sc. degree (15) High grades during study, any individual achievements but grades, skills and achievement need to be confirmed by any independent body, the general knowledge in mathematics, chemistry, physics, fluid mechanics, overall computer skills basic of Word, Excel, CAD, have a willingness to research work.
16	Hybrid Renewable Energy Systems. (4)	not more than 35 years of age	M.Sc. degree or Ph.D. degree (16) High grades during study, any individual achievements, general knowledge in mathematics, energy conversion and storage, overall computer skills basic of Matlab, Excel, CAD. Grades, skill and achievement need to be confirmed by any independent body.
17	Drilling and Fracturing. (2)	not more than 35 years of age	M.Sc. degree (17) Be able to solve problems using mathematical methods.
18	Energy Systems with Environmental Impact. (3)	not more than 35 years of age	M.Sc. degree or Ph.D. degree (18) High grades during study, any individual achievements; general knowledge in mathematics, mathematical modelling, energy conversion and storage, energy harvesting systems, air thermodynamics, compressed air systems, particulate pollutions, programming – preference will be given for Matlab users, CAD skills – preference will be given for AutoCAD and/or SolidWorks users, charts/diagrams elaboration – preference will be given for Origin users. Each grade, knowledge, skill and achievement should confirm by any independent body.

19	Selected problems of in Mining Engineering - laboratory test on rocks. (1)	not more than 35 years of age	M.Sc. or Ph.D. degree (19) Degree in mining or mining related fields.
20	Selected problems of Environmental Engineering - reclamation and revitalization. (1)		(20) Degree in mining or mining related fields.
21	Selected aspects of in Mining Engineering - coal waste material. (1)		(21) Degree in mining or mining related fields.
22	Computer simulation of precipitation and growth process of (Al, Ti, REM- rare earth metals) inclusions in cast steel. (3)	not more than 35 years of age	M.Sc. degree (22) General knowledge in materials engineering or metallurgy or physics.
23	Advanced TEM study of the structure and properties of interphase boundaries in nanomaterials. (1)	not more than 35 years of age	Ph.D. degree in materials science or physics (23) Proven experience with transmission electron microscopy techniques.
24	Functional materials for energy technologies. (1)	not more than 35 years of age	M.Sc. degree in technical sciences (24) General knowledge in chemistry, electrochemistry and materials science is required.
<b>Mechanical Engineering (5 projects)</b>			
25	Quantifying and mapping the potential of hybrid solar/wind/hydro sources in Poland. (3)	not more than 35 years of age	M.Sc. Degree (25) The applicant should be familiar with topics related to energy storage, renewable energy sources integration to the power system, hybrid energy systems (solar-wind, solar-hydro). The applicant should have advanced knowledge about modern heuristic optimization techniques such as GA(Genetic Algorithm), PSO(Particle Swarm Optimization), GWO(Grey Wolf Optimizer), NSGA-x(Non-dominated Sorting Genetic Algorithm –x). An additional asset would be familiarity with the concept of renewable energy resources complementarity.
26	Availability problems in transportation systems and devices. (2)		M.Sc. or Ph.D. degree (26) Be able to write computer programs for example or be familiar with CAD/ CAM/ CAE programs, have a general knowledge related to transportation problems, including safety and reliability problems.
27	Transportation technology systems and devices. (2)		(27) Be able to write computer programs for example or be familiar with CAD/ CAM/ CAE programs, have a general knowledge related to transportation problems, including modeling and monitoring.
28	Transport System Telematics. (2)		(28) Knowledge in reading and writing in English; be familiar with transport system telematics and automation, be able to analysis of reliability, maintainability and availability of machine maintenance, as well as modeling.
29	Problem base engineering. (2)		(29) Be able to use MS Office and drawing programs, have a general knowledge related to engineering problems.
<b>Sociological Sciences (1 project)</b>			
30	Interrelations between new technologies and social and economic life in globalizing world. (1)	not more than 35 years of age	M.Sc. Degree (30) General knowledge in world economics.
<b>30 projects for 50 fellowships</b>			

Please refer to the list of invited Member States entitled to submit application.