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Organisation  
des Nations Unies  
pour l'éducation,  
la science et la culture

Organización  
de las Naciones Unidas  
para la Educación,  
la Ciencia y la Cultura

Организация  
Объединенных Наций по  
вопросам образования,  
науки и культуры

منظمة الأمم المتحدة  
للتربية والعلم والثقافة

联合国教育、  
科学及文化组织

## The Assistant Director-General for Priority Africa and External Relations



UNESCO Chair for  
Science, Technology  
and Engineering  
Education  
Krakow, Poland



To: National Commissions for  
UNESCO of Invited Member  
States (see Annex I)

Ref.: PAX/DRX/PPF/RD/20.001

6 March 2020

Subject: **UNESCO/POLAND Co-Sponsored Fellowships Programme in Engineering Cycle 2020**

Sir/Madam,

I am pleased to inform you that, within the framework of the UNESCO/Poland Co-Sponsored Fellowships Programme in Engineering, Cycle 2020, the Polish National Commission for UNESCO and the UNESCO Chair for Science, Technology and Engineering Education at the AGH University of Science and Technology in Krakow have placed at the disposal of certain Member States (see Annex I) **thirty (30)** fellowships of **six (6)** months duration each, in Poland, starting on 1 October 2020. The beneficiaries of these fellowships will be given the opportunity to undertake an individual research programme in the field of **Science, Technology and Engineering**.

The annexes to this letter provide detailed information regarding the qualifications required, the facilities offered, the general conditions governing the award of fellowships and the procedure for submission of applications as well as different fields of research proposed by the selected host institution.

This programme is offered in open competition. Only candidates with the necessary qualifications, who meet the criteria stipulated in the Annexes, will be selected. Given that UNESCO attaches high priority to gender equality, special attention should be paid to women's candidatures for an equal representation. Applications should be addressed by mail to Mr Stoyan Bantchev, Chief of the Participation Programme and Fellowships Section (UNESCO, 7, Place de Fontenoy – 75352 Paris 07 SP, France) **by 15 April 2020 at the latest**.

A scanned copy should be sent by e-mail (s.bantchev@unesco.org; l.zas-friz@unesco.org; r.dahan@unesco.org and unesco4@agh.edu.pl).

Yours sincerely,

Firmin Edouard Matoko

Enclosures:

- Annex I (Requirements and List of Invited Member States)
- Annex II (Terms and Conditions)
- Annex III (Details of 30 proposed projects)
- Information sheet and check list
- UNESCO Fellowship Application Form
- Certificate of Language Knowledge

## 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.

## List of Invited Member States (71)

### AFRICA

(32 Member States)

- Angola
- Benin
- Botswana
- Burkina Faso
- Cameroon
- Cape Verde
- Chad
- Côte d'Ivoire
- Democratic Republic of the Congo
- Eritrea
- Ethiopia
- Gabon
- Gambia
- Ghana
- Kenya
- Lesotho
- Madagascar
- Malawi
- Mali
- Mauritius
- Mozambique
- Namibia
- Niger
- Nigeria
- Rwanda
- Senegal
- South Africa
- Togo
- Uganda
- United Republic of Tanzania
- Zambia
- Zimbabwe

### ARAB STATES

(2 Member States)

- Iraq
- Syrian Arab Republic(the)

### ASIA AND THE PACIFIC

(23 Member States)

- Bangladesh
- Bhutan
- Brunei Darussalam
- Cambodia
- Fiji
- India
- Indonesia
- Kazakhstan
- Kyrgyzstan
- Lao People's Democratic Republic
- Malaysia
- Mongolia
- Myanmar
- Nepal
- Pakistan
- Papua New Guinea
- Philippines
- Sri Lanka
- Tajikistan
- Thailand
- Turkmenistan
- Uzbekistan
- Viet Nam

### LATIN AMERICA AND THE CARIBBEAN

(14 Member States)

- Argentina
- Bolivia (Plurinational State of)
- Brazil
- Chile
- Colombia
- Cuba
- Ecuador
- El Salvador
- Haiti
- Jamaica
- Mexico
- Panama
- Peru
- Trinidad and Tobago



## UNESCO/POLAND CO-SPONSORED FELLOWSHIPS PROGRAMME IN ENGINEERING EDITION 2020

With a view to promoting human resource capacities in the developing countries and to enhancing international understanding and friendship among nations and the people of Poland, the Polish National Commission for UNESCO and the UNESCO Chair for Science, Technology and Engineering at the AGH University of Science and Technology in Krakow are placing at the disposal of UNESCO **thirty (30)** fellowships of **six (6)** months duration starting on 1<sup>st</sup> October 2020 for the benefit of Member States listed in Annex I. Beneficiaries of these fellowships will be given the opportunity to undertake an individual research programme in the field of **Science, Technology and Engineering**. For more information please visit also <http://www.unesco.agh.edu.pl/en/> .

Details regarding the fellowships offered and the criteria of selection are listed below. The Polish authorities will make the final decision.

### A. QUALIFICATIONS REQUIRED

The required qualifications for each field of research (project) are as per the attached Annexes to this letter of announcement (see Annex I).

### B. FACILITIES OFFERED BY THE POLISH AUTHORITIES

- (i) Free tuition and access to the university facilities based on the local regulations.
- (ii) Monthly allowance of **2200 PLN** (1 USD = approximately 4,00 PLN). Thus, all living expenses and accommodation in Poland are to be borne by the fellow with this allowance; and;
- (iii) A one-time special allowance of **2200 PLN** to be paid upon arrival in Poland, this sum will cover different activities related to your stay in Krakow, such as an obligatory medical check-up upon arrival (in accordance with the internal regulations for all students); cultural, historical and/or touristic visits, conferences, workshops, and seminars related to your studies.

**No provision to finance or lodge family members is made.**

At the end of the research studies, the beneficiaries will receive a certificate attesting to their attendance at the host institution, this certificate will be given after receipt of the requested reports and financial clearance from the Institution.

### C. FACILITIES OFFERED BY UNESCO

- (i) **International travel expenses:** (by the most direct, economical route) from the beneficiary's country to and from Poland will be covered by UNESCO under its Regular Programme Budget.
- (ii) **Health insurance for fellowship beneficiaries who are declared medically fit:** UNESCO fellowship holders may be covered by a health insurance policy, taken-out by the Organization for the duration of fellowship. The costs of this health insurance is subscribed to and covered by UNESCO on behalf of awarded fellows.

### D. VISA

Fellows, from countries where Polish Embassies or Consulates exist, will have to obtain their entry visa to the country of study prior to their departure. Fellows, from countries where no such Embassy or Consulate exists, must secure their visa through the nearest Embassy or Consulate of the Republic of Poland.

UNESCO and the Government of the Republic of Poland **provide no allowance** to defray passport and visa expenses. Selected beneficiaries will have **to secure their own visas themselves.**

## E. SUBMISSION OF APPLICATION FILES

**Candidatures** should be submitted by the invited Member State. **Original applications in duplicate** must be channelled through the National Commission for UNESCO of the candidate's country and communicated to Mr Stoyan Bantchev, Chief, Participation programme and Fellowships Section, **by 15 April 2020 at the latest (GMT +01:00)** to UNESCO mailing address. An advance copy of the application should be sent by e-mail [unesco4@agh.edu.pl](mailto:unesco4@agh.edu.pl); [s.bantchev@unesco.org](mailto:s.bantchev@unesco.org); [l.zas-friz@unesco.org](mailto:l.zas-friz@unesco.org) and [r.dahan@unesco.org](mailto:r.dahan@unesco.org). Applications should have **imperatively** the following attachments in **DUPLICATE**:

- (i) UNESCO fellowships application forms, **ALL four (4) pages** duly completed **in English using capital letter** (illegible documents will be eliminated from the procedure, hand writing form must include capital letter only);
- (ii) Two photographs attached to the applications (4x6 cm);
- (iii) Certified copies **(in English)** of Master's Degree/ PhD obtained; and,
- (iv) UNESCO certificate of language knowledge, duly completed by a relevant authority, if the mother tongue of the candidate **is not English**.
- (v) Two letters of recommendation from someone related to the candidate's work, as well confirming the candidate's qualifications.
- (vi) The endorsed candidates should register themselves to the Fellowship e-registration system available on the page: <http://www.unesco.agh.edu.pl/en/> .

**Deadline 15 April 2020 at the latest**

### IMPORTANT

It is the National authority's responsibility to ensure that all candidates are duly informed of the above-mentioned conditions prior to the submission of applications.

Files which are incomplete or which are received after the deadline as well as candidatures that do not fulfil the requirements will not be taken into consideration.

**Only the selected candidates will receive a letter through their respective National Commissions for UNESCO.**

All application should be endorsed by the National Commission from the country of the candidate.

All correspondence should be in English.

UNESCO Chair for Science, Technology and Engineering Education  
at the AGH University of Science and Technology, Krakow, Poland

UNESCO/ Poland Co-sponsored Fellowship Programme in Engineering, edition 2020 A  
Projects proposal list

Table 01. Projects proposal list, UNESCO/ Poland Co-sponsored Fellowship Programme in Engineering, edition 2020 A.

Project number	Disciplines (number of positions)	Invited Member States per Regions
ID 2020A 01-02 AGH PL	Automation, electronic and electrical engineering (2)	Africa, Asia and the Pacific, Latin America and the Caribbean
ID 2020A 03-04 AGH PL	Biomedical Engineering (2)	Africa, Asia and the Pacific, Latin America and the Caribbean,
ID 2020A 05 AGH PL	Biomedical Engineering (2)	Africa, Asia and the Pacific, Latin America and the Caribbean, Arab States
ID 2019A 06-07 AGH PL	Earth and Environmental Sciences (2)	Latin America and the Caribbean, Asia and the Pacific
ID 2019A 08-11 AGH PL	Earth and Environmental Sciences (7)	Africa, Asia and the Pacific, Latin America and the Caribbean, Arab States
ID 2019A 12-14, 19-21 AGH PL	Environmental Engineering, Mining and Energy (6)	Africa, Asia and the Pacific, Latin America and the Caribbean
ID 2019A 15-18 AGH PL	Environmental Engineering, Mining and Energy (12)	Africa, Asia and the Pacific, Latin America and the Caribbean, Arab States
ID 2019A 22 AGH PL	Materials Engineering (3)	Africa, Asia and the Pacific, Latin America and the Caribbean, Arab States
ID 2019A 23 AGH PL	Materials Engineering (1)	Africa, Asia and the Pacific, Latin America and the Caribbean
ID 2019A 24 AGH PL	Materials Engineering (1)	Asia and the Pacific
ID 2019A 25 AGH PL	Mechanical Engineering (3)	Africa, Asia and the Pacific, Latin America and the Caribbean
ID 2019A 26-29 AGH PL	Mechanical Engineering (8)	Africa, Asia and the Pacific, Latin America and the Caribbean, Arab States
ID 2019A 30 AGH PL	Sociological Sciences (1)	Africa, Asia and the Pacific, Latin America and the Caribbean
Total project number: 30	Total positions into proposed projects: 50	

Date.: 03.02.2020





UNESCO Chair for Science, Technology and Engineering Education  
at the AGH University of Science and Technology, Krakow, Poland

UNESCO/ Poland Co-sponsored Fellowship Programme in Engineering, edition 2020 A  
Projects proposal list

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**UNESCO/ Poland Co-sponsored Fellowship Programme in Engineering,  
edition 2020 A  
PROJECTS PROPOSAL LIST**

Scientific contents: individual research programme in the field of engineering and technical sciences under supervision of tutor and coordinated by the UNESCO AGH Chair.

Name of the host institution: AGH University of Science and Technology, UNESCO AGH Chair. Full address: Ave. A. Mickiewicza 30, PL 30-059 Krakow, Poland ([www.unesco.agh.edu.pl](http://www.unesco.agh.edu.pl)). Project duration: 6 months. Starting date: 01.10.2020. Language: English. Correspondence is only accepted in English.

Academic requirements (obligatory for all): Candidates should have minimum M.Sc. degree, be proficient in reading and writing and spoken in English, be not more than 35 years of age, and be in good health both physically and mentally; application date status: student or employee.

**ID 2020A 01 AGH PL.** Automation, electronic and electrical engineering (discipline). Prediction in dynamic scheduling problems in logistics and manufacturing (Project title). Academic requirements: Candidates should have minimum: M.Sc. degree, in computer science, control engineering or related discipline. Qualifications required: be proficient in reading and writing in English, general knowledge in method and algorithms for scheduling problems in logistic and manufacturing, dynamic problems, python programing, GIT. Name of the institution: AGH University of Science and Technology. UNESCO Member States (Africa, Asia and the Pacific, Latin America and the Caribbean). Number of fellowships with free tuition sponsored by UNESCO: 1.

**ID 2020A 02 AGH PL.** Automation, electronic and electrical engineering (discipline). Representation of piece of music to machine learning with NLP methods (Project title). Academic requirements: Candidates should have minimum: M.Sc. degree, in computer science, control engineering or related disciplines. Qualifications required: be proficient in reading and writing in English; general knowledge in Machine learning, data science, python programing with pandas, GIT, SQL and HDF5 file. Name of the institution: AGH University of Science and Technology. UNESCO Member States (Africa, Asia and the Pacific, Latin America and the Caribbean). Number of fellowships with free tuition sponsored by UNESCO: 1.

**ID 2020A 03 AGH PL.** Biomedical Engineering (discipline). Analysis of noise sources and prediction to their influence on digital electrocardiogram (Project title). Academic requirements: Candidates should have a M.Sc. degree in biomedical engineering, electrical engineering or computer science. Qualifications required: Candidates should be proficient in reading and writing in English; Candidates should have a 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 will also be welcome. Name of the institution: AGH University of Science and Technology. UNESCO Member States (Africa, Asia and the Pacific, Latin America and the Caribbean). Number of fellowships with free tuition sponsored by UNESCO: 1.



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UNESCO/ Poland Co-sponsored Fellowship Programme in Engineering, edition 2020 A  
Projects proposal list

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**ID 2020A 04 AGH PL.** Biomedical Engineering (discipline). Multimodal physiological measurements for recognition of human daily activity (Project title). Academic requirements: Candidates should have a M.Sc. degree in biomedical engineering, electrical engineering or computer science. Qualifications required: Candidates should be proficient in reading and writing in English; Candidates should have a 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 will also be welcome. Name of the institution: AGH University of Science and Technology. UNESCO Member States (Africa, Asia and the Pacific, Latin America and the Caribbean). Number of fellowships with free tuition sponsored by UNESCO: 1.

**ID 2020A 05 AGH PL.** Biomedical Engineering (discipline). Electrospinning of biopolymers for biomedical applications (Project title). Academic requirements: Candidates should have minimum: M.Sc. in any of the following fields of science: materials science, biomedical engineering, chemistry, biochemistry, biology (or strictly related fields) is a minimum. Higher degrees of education will be preferred. Qualifications required: be proficient in reading, speaking and writing in English; have experience in analyzing scientific literature; 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. Name of the institution: AGH University of Science and Technology. UNESCO Member States (Africa, Asia and the Pacific, Latin America and the Caribbean, Arab States). Number of fellowships with free tuition sponsored by UNESCO: 2.

**ID 2020A 06 AGH PL.** Earth and Environmental Sciences (discipline). Cu-Ag-Au deposits in Latin America/South-East Asia (Project title). Academic requirements: Candidates should have minimum: M.Sc./ Ph.D. degree. Qualifications required: be proficient in reading and writing in English; general knowledge in geology, mineralogy, geochemistry, mineral deposit. Name of the institution: AGH University of Science and Technology. UNESCO Member States (Latin America and the Caribbean, Asia and the Pacific). Number of fellowships with free tuition sponsored by UNESCO: 1.

**ID 2020A 07 AGH PL.** Earth and Environmental Sciences (discipline). Geology of mineral deposit (Project title). Academic requirements: Candidates should have minimum: M.Sc. Qualifications required: be proficient in reading and writing in English; general knowledge in geology, mineralogy, geochemistry, mineral deposit. Name of the institution: AGH University of Science and Technology. UNESCO Member States (Latin America and the Caribbean, Asia and the Pacific). Number of fellowships with free tuition sponsored by UNESCO: 1.

**ID 2020A 08 AGH PL.** Earth and Environmental Sciences (discipline). Antimony bearing mineralizing systems and deposits in South America: Mineralogical and geochemical characteristics (Project title). Academic requirements: Candidates should have minimum: Candidates should have a M.Sc. degree. Qualifications required: be proficient in reading and writing in English; 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. Name of the institution: AGH University of Science and Technology. UNESCO Member States (Africa, Asia and the Pacific, Latin America and the Caribbean, Arab States). Number of fellowships with free tuition sponsored by UNESCO: 1.



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UNESCO/ Poland Co-sponsored Fellowship Programme in Engineering, edition 2020 A  
Projects proposal list

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**ID 2020A 09 AGH PL.** Earth and Environmental Sciences (discipline). Au-bearing epithermal systems in South America: mineralogical and geochemical characteristics (Project title). Academic requirements: Candidates should have minimum: Candidates should have a M.Sc. degree. Qualifications required: be proficient in reading and writing in English; 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. Name of the institution: AGH University of Science and Technology. UNESCO Member States (Africa, Asia and the Pacific, Latin America and the Caribbean, Arab States). Number of fellowships with free tuition sponsored by UNESCO: 1.

**ID 2020A 10 AGH PL.** Earth and Environmental Sciences (discipline). Nb-Ta-Sn-W mineralization in pegmatites, quartz veins and greisens from the Central Africa: Mineralogical and geochemical study (Project title). Academic requirements: Candidates should have minimum: Candidates should have a M.Sc. degree. Qualifications required: be proficient in reading and writing in English; 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. Name of the institution: AGH University of Science and Technology. UNESCO Member States (Africa, Asia and the Pacific, Latin America and the Caribbean, Arab States). Number of fellowships with free tuition sponsored by UNESCO: 2.

**ID 2020A 11 AGH PL.** Earth and Environmental Sciences (discipline). Assessment of geotourism potential of selected geological regions in the developing countries (Project title). Academic requirements: Candidates should have minimum: M.Sc./ Ph.D. degree. Qualifications required: be proficient in reading and writing in English; general knowledge in geology, geography, tourism, geotourism, environment protection. Name of the institution: AGH University of Science and Technology. UNESCO Member States (Africa, Asia and the Pacific, Latin America and the Caribbean, Arab States). Number of fellowships with free tuition sponsored by UNESCO: 3.

**ID 2020A 12 AGH PL.** Environmental Engineering, Mining and Energy (discipline). Selected problems in environmental engineering - heating, ventilation and air conditioning systems (Project title). Academic requirements: Candidates should have minimum: M.Sc./ Ph.D. degree. Qualifications required: proficient in reading and writing in English; degree in mining or mining related fields. Name of the institution: AGH University of Science and Technology. UNESCO Member States (Africa, Asia and the Pacific, Latin America and the Caribbean). Number of fellowships with free tuition sponsored by UNESCO: 1.

**ID 2020A 13 AGH PL.** Environmental Engineering, Mining and Energy (discipline). Selected aspects of the mining process modelling (Project title). Academic requirements: Candidates should have M.Sc./ Ph.D. degree. Qualifications required: proficient in reading and writing in English; degree in mining or mining related fields. Name of the institution: AGH University of Science and Technology. UNESCO Member States (Africa, Asia and the Pacific, Latin America and the Caribbean). Number of fellowships with free tuition sponsored by UNESCO: 1.

**ID 2020A 14 AGH PL.** Environmental Engineering, Mining and Energy (discipline). Selected aspects of in mining engineering - susceptibility of rocks to bumps (Project title). Academic requirements: Candidates should have minimum: M.Sc./ Ph.D. degree. Qualifications required: proficient in reading and writing in English; degree in mining or mining related fields. Name of the institution: AGH University of Science and Technology. UNESCO Member States (Africa, Asia and the Pacific, Latin America and the Caribbean). Number of fellowships with free tuition sponsored by UNESCO: 1.



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UNESCO/ Poland Co-sponsored Fellowship Programme in Engineering, edition 2020 A  
Projects proposal list

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**ID 2020A 15 AGH PL.** Environmental Engineering, Mining and Energy (discipline). An experimental analysis of the mixing process in agitated vessel (Project title). Academic requirements: Candidates should have minimum: M.Sc. in Eng. in the engineering or technical studies, a recommendation will be given to students from engineering. Qualifications required: be at least good in reading and writing in English at minimum B2 level; 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. Name of the institution: AGH University of Science and Technology. UNESCO Member States (Africa, Asia and the Pacific, Latin America and the Caribbean, Arab States). Number of fellowships with free tuition sponsored by UNESCO: 3.

**ID 2020A 16 AGH PL.** Environmental Engineering, Mining and Energy (discipline). Hybrid renewable energy systems (Project title). Academic requirements: Candidates should have minimum: M.Sc./ Ph.D. degree, recommendation will be given to students from energy, engineering and environmental fields. Qualifications required: be proficient in reading and writing in English at minimum B2 level; others: 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. Name of the institution: AGH University of Science and Technology. UNESCO Member States (Africa, Asia and the Pacific, Latin America and the Caribbean, Arab States). Number of fellowships with free tuition sponsored by UNESCO: 4.

**ID 2020A 17 AGH PL.** Environmental engineering, mining and energy(discipline). Drilling and fracturing (Project title). Academic requirements: Candidates should have a M.Sc. degree, preferably in petroleum, earth engineering, physics and mathematics. Qualifications required: be proficient in reading and writing in English; be able to solve problems using mathematical methods. Name of the institution: AGH University of Science and Technology. UNESCO Member States (Africa, Asia and the Pacific, Latin America and the Caribbean, Arab States). Number of fellowships with free tuition sponsored by UNESCO: 2.

**ID 2020A 18 AGH PL.** Environmental engineering, mining and energy (discipline). Energy systems with environmental impact (Project title). Academic requirements: Candidates should have minimum: M.Sc./ Ph.D. degree, priority will be given to students graduating from energy or environmental engineering as well as mathematical physics. Qualifications required: be proficient in reading and writing in English at minimum B2 level; others: 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. Name of the institution: AGH University of Science and Technology. UNESCO Member States (Africa, Asia and the Pacific, Latin America and the Caribbean, Arab States). Number of fellowships with free tuition sponsored by UNESCO: 3.

**ID 2020A 19 AGH PL.** Environmental Engineering, Mining and Energy (discipline). Selected problems of in mining engineering - laboratory test on rocks (Project title). Academic requirements: Candidates should have minimum: M.Sc./ Ph.D. degree. Qualifications required: proficient in reading and writing in English; degree in mining or mining related fields. Name of the institution: AGH University of Science and Technology. UNESCO Member States (Africa, Asia and the Pacific, Latin America and the Caribbean). Number of fellowships with free tuition sponsored by UNESCO: 1.



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**ID 2020A 20 AGH PL.** Environmental Engineering, Mining and Energy (discipline). Selected problems of environmental engineering - reclamation and revitalization (Project title). Academic requirements: Candidates should have minimum: M.Sc./ Ph.D. degree. Qualifications required: proficient in reading and writing in English; degree in mining or mining related fields. Name of the institution: AGH University of Science and Technology. UNESCO Member States (Africa, Asia and the Pacific, Latin America and the Caribbean). Number of fellowships with free tuition sponsored by UNESCO: 1.

**ID 2020A 21 AGH PL.** Environmental Engineering, Mining and Energy (discipline). Selected aspects of in mining engineering - coal waste material (Project title). Academic requirements: Candidates should have minimum: M.Sc./ Ph.D. degree. Qualifications required: proficient in reading and writing in English; degree in mining or mining related fields. Name of the institution: AGH University of Science and Technology. UNESCO Member States (Africa, Asia and the Pacific, Latin America and the Caribbean). Number of fellowships with free tuition sponsored by UNESCO: 1.

**ID 2020A 22 AGH PL.** Materials Engineering (discipline). Computer simulation of precipitation and growth process of (Al, Ti, REM- rare earth metals) inclusions in cast steel (Project title). Academic requirements: Candidates should have minimum: M.Sc. Qualifications required: be proficient in reading and writing in English; programming in C ++; others general knowledge in materials engineering or metallurgy or physics. Name of the institution: AGH University of Science and Technology. UNESCO Member States (Africa, Asia and the Pacific, Latin America and the Caribbean, Arab States). Number of fellowships with free tuition sponsored by UNESCO: 3.

**ID 2020A 23 AGH PL.** Materials Engineering (discipline). Advanced TEM study of the structure and properties of interphase boundaries in nanomaterials (Project title). Academic requirements: Candidates should have minimum: Ph.D. degree in materials science or physics. Qualifications required: proficiency in spoken and written English; proven experience with transmission electron microscopy techniques. Name of the institution: AGH University of Science and Technology. UNESCO Member States (Africa, Asia and the Pacific, Latin America and the Caribbean). Number of fellowships with free tuition sponsored by UNESCO: 1.

**ID 2020A 24 AGH PL.** Materials Engineering (discipline). Functional materials for energy technologies (Project title). Academic requirements: Candidates should have minimum M.Sc. degree in technical sciences. Qualifications required: proficient in reading and writing in English; general knowledge in chemistry, electrochemistry and materials science is required. Name of the institution: AGH University of Science and Technology. UNESCO Member States (Asia and the Pacific). Number of fellowships with free tuition sponsored by UNESCO: 1.

**ID 2020A 25 AGH PL.** Mechanical Engineering (discipline). Quantifying and mapping the potential of hybrid solar/ wind/ hydro sources in Poland (Project title). Academic requirements: Candidates should have minimum: M.Sc.. At least two documented scientific publications in international journals. Qualifications required: The applicant should have educational and research background in energy or power engineering or related. The applicant must be proficient in English (especially writing). 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. Name of the institution: AGH University of Science and Technology. UNESCO Member States (Africa, Asia and the Pacific, Latin America and the Caribbean). Number of fellowships with free tuition sponsored by UNESCO: 3.



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**ID 2020A 26 AGH PL.** Mechanical Engineering (discipline). Availability problems in transportation systems and devices (Project title). Academic requirements: Candidates should have minimum: M.Sc./ Ph.D. degree. Qualifications required: be proficient in reading and writing in English; 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. Name of the institution: AGH University of Science and Technology. UNESCO Member States (Africa, Asia and the Pacific, Latin America and the Caribbean, Arab States). Number of fellowships with free tuition sponsored by UNESCO: 2.

**ID 2020A 27 AGH PL.** Mechanical Engineering (discipline). Transportation technology systems and devices (Project title). Academic requirements: Candidates should have minimum: M.Sc./ Ph.D. degree. Qualifications required: be proficient in reading and writing in English; 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. Name of the institution: AGH University of Science and Technology. UNESCO Member States (Africa, Asia and the Pacific, Latin America and the Caribbean, Arab States). Number of fellowships with free tuition sponsored by UNESCO: 2.

**ID 2020A 28 AGH PL.** Mechanical Engineering (discipline). Transport system telematics (Project title). Academic requirements: Candidates should have minimum: M.Sc./ Ph.D degree. Qualifications required: be proficient 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. Name of the institution: AGH University of Science and Technology. UNESCO Member States (Africa, Asia and the Pacific, Latin America and the Caribbean, Arab States). Number of fellowships with free tuition sponsored by UNESCO: 2.

**ID 2020A 29 AGH PL.** Mechanical Engineering (discipline). Problem base engineering (Project title). Academic requirements: Candidates should have minimum: M.Sc./Ph.D. degree. Qualifications required: be proficient in reading and writing in English; be able to use MS Office and drawing programs, have a general knowledge related to engineering problems. Name of the institution: AGH University of Science and Technology. UNESCO Member States (Africa, Asia and the Pacific, Latin America and the Caribbean, Arab States). Number of fellowships with free tuition sponsored by UNESCO: 2.

**ID 2020A 30 AGH PL.** Sociological Sciences (discipline). Interrelations between new technologies and social and economic life in globalizing world (Project title). Academic requirements: Candidates should have a M.Sc. degree, M.A. degree in humanities or social sciences or economics. Qualifications required: be proficient in reading and writing in English; general knowledge in world economics. Name of the institution: AGH University of Science and Technology. UNESCO Member States (Asia, Africa, Latin America, Caribbean and Pacific). Number of fellowships with free tuition sponsored by UNESCO: 1.

