**MINISTRY OF EDUCATION AND SCIENCE OF UKRAINE**

**NATIONAL TECHNICAL UNIVERSITY OF UKRAINE**

**“IGOR SIKORSKY KYIV POLYTECHNIC INSTITUTE”**

APPROVED

Academic Council of Igor Sikorsky Kyiv Polytechnic Institute

(meeting protocol № 5 from 28/12/ 2021

Chairman of the Academic Council

\_\_\_\_\_\_\_\_\_ Mykhaylo ILCHENKO

**INTERNATIONAL ECONOMICS**

**EDUCATIONAL PROFESSIONAL PROGRAM**

**second (master's) level of higher education**

|  |  |
| --- | --- |
| **in specialty** | **051 Economics** |
| **Areas of knowledge** | **05 Social and behavioral sciences** |
| **Qualification** | **Master of Economics** |

Entered into force by Order of the Rector

of Igor Sikorsky Kyiv Polytechnic Institute

from

Kyiv - 2022

**DEVELOPED by the project team:**

**Project team leader:**

|  |  |
| --- | --- |
| Korohodova Olena, Ph.D., Associate professor, Department of International Economics | \_\_\_\_\_\_\_\_\_\_\_\_\_ |

**Project team membe*rs:***

|  |  |
| --- | --- |
| Voitko Serhii, Doctor of Economics, Professor, Head of the Department of International Economics | \_\_\_\_\_\_\_\_\_\_\_\_\_ |
| Chernenko Natalya, Ph.D., Associate professor, Department of International Economics | \_\_\_\_\_\_\_\_\_\_\_\_\_ |
| Kukharuk Anna, Ph.D., Associate professor, Department of International Economics | \_\_\_\_\_\_\_\_\_\_\_\_\_ |
| Hlushchenko Yaroslava, Ph.D., Associate professor, Department of International Economics | \_\_\_\_\_\_\_\_\_\_\_\_\_ |
| Skorobogatova Natalia, Ph.D., Associate professor, Department of International Economics | \_\_\_\_\_\_\_\_\_\_\_\_\_ |

**Stakeholders:**

Zinchuk Serhiy, Risk Manager at EXMO

Kravchuk Yuliyа, Category 1 Analyst at Enterprise: Development and Export Office

Volkova Kateryna, student of the УС-21мп group, Educational Program International Economics

Chekh Laura, student of the УС-з21мп group, Educational Program International Economics

Kiva Anastasiya, 3rd year PhD student

Zrobok Oleksiy, 1st year PhD student

Khmilevska Anastasiya, Management Trainee Commercial at Aurubis AG, Hamburg, DE.

The Department of International Economics is responsible for the training of higher education students in the educational program***ead of the International Economics Department***

Voito Serhii, Doctor of Economic Sciences, professor

**AGREED:**

Scientific and Methodical Council of Speciality 051 "Economics" Igor Sikorsky Kyiv Polytechnic Institute

Head of the Scientific and Methodical Council of Speciality \_\_\_\_\_\_\_\_\_\_\_\_ Serhii Voitko

(meeting protocol № 3 from 22/11/2022)

Methodical Council Igor Sikorsky Kyiv Polytechnic Institute

Vice-rector \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Anatolii Melnychenko

(meeting protocol № № 3 from 01 /11/ 2022)

**INCLUDED:**

1. Approved higher education standard in the specialty 051 Economics (order of the Ministry of Education and Science No. 382 dated 04.03.2020).

2. Regulations on the development, approval, monitoring and review of educational programs at Igor Sikorsky Kyiv Polytechnic Institute (Order of the Ministry of Education and Science No. 224/2022 dated 17.04.2022).

3. Comments and suggestions from scientific and pedagogical staff, representatives of student self-government, higher education seekers, and employers (stakeholders) based on discussions at meetings of the NMC of Igor Sikorsky Kyiv Polytechnic Institute in the specialty 051 "Economics" (No. 2 dated October 26, 2022, No. 3 dated November 26, 2022).

4. Discussion of the results of internal self-analysis, proposals from employers, academic community, and second (master's) level higher education seekers at department meetings (protocol No. 2 dated October 19, 2022, No. 3 dated November 23, 2022).

5. Reviews, feedback from employers, stakeholders, results of public discussions (attached).

The educational-professional program "International Economics" has been discussed and amended after receiving all wishes and suggestions from employers and higher education seekers of Igor Sikorsky Kyiv Polytechnic Institute and approved at the meeting of the Department of International Economics No. 2 dated October 19, 2022.

27» /01/2022 р.)

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**1. EDUCATIONAL PROGRAM PROFILE in the specialty 051 Economics**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | | | | |  |
| **1 – General information** | | | | | |
| Full name of the higher education institution and institute / faculty | | | National Technical University of Ukraine “Igor Sikorsky Kyiv Polytechnic Institute” Faculty of Management and Marketing | | |
| Degree of higher education and title of qualification in the original language | | | Degree HE - Master of Economics  Educational qualification - Master of Economics in the EPP "International Economics" | | |
| The official name of the ЕР | | | International Economics | | |
| Type of diploma and scope of ЕР | | | Master's degree, single, 90 ECTS credits  term of study 1 year 4 months | | |
| Accreditation availability | | | НД № 1192609 | | |
| Program cycle / level | | | National Qualifications Framework of Ukraine – the 7 level  QF-EHEA – the second cycle  ЕQF-LLL – the 7 level | | |
| Precondition | | | Bachelor's degree | | |
| Language teaching | | | Ukrainian /English | | |
| Validity of the ЕР | | | Till 01.07.2025 р. | | |
| Internet address of the of educational program permanent placement | | | [fmm@kpi.ua](mailto:fmm@kpi.ua)  http://ied.kpi.ua/uk/main/  osvita.kpi.ua | | |
| **2 – The purpose of the educational program** | | | | | |
| Training of highly qualified economic specialists with modern economic thinking, theoretical knowledge and applied skills, able to solve complex research, innovation and management problems and problems of functioning of economic systems of different levels, characterized by uncertainty of conditions and requirements. | | | | | |
| **3 – Characteristics of the educational program** | | | | | |
| Subject area | | | *Object of study and / or activity:* moderneconomic processes and phenomena, scientific methods of normative, quantitative and institutional analysis, tools for the formation of international, national, regional, sectoral economic policy and business economics.  *Learning objectives:* training of highly qualified professionals in economics who have modern economic thinking, theoretical knowledge and applied skills, able to solve complex research, innovation and management problems and problems of functioning of economic systems of different levels, characterized by uncertainty of conditions and requirements. Theoretical content of the subject area: general laws and trends of economic development, motivation and behavior of market participants; theories of micro-, macro- and international economics; modern quantitative methods of analysis of economic processes; institutional and interdisciplinary analysis; patterns of modern socio-economic processes; theories of economic management for different production systems and sectors of the economy.  *Methods, techniques and technologies:* general scientific and specific methods of cognition and research; mathematical, statistical, qualitative methods of economic analysis; sociological, expert evaluation, questionnaires; economic and mathematical modeling of forecasting; information and communication technologies, special software; research methods and presentation of research results.  *Tools and equipment*: modern information and communication equipment, information systems and software products used in economic activity | | |
| Orientation of the EP | | | Educational and professional | | |
| The main focus of the EP | | | The program is based on well-known scientific provisions, general laws and trends of economic development, scientific methods of normative, quantitative and institutional analysis, tools for the formation of international, national, regional, sectoral economic policy and enterprise economics.  Key words: corporate economy, global economy, sectoral economy, economics of foreign economic activity, economic management, anti-crisis management, economic diagnostics, competitive advantages of an enterprise, finance, intellectual property, justification of management decisions, innovation. | | |
| Features of the EP | | | The implementation of the program provides for the involvement of professional practitioners, industry experts, representatives of employers in classroom training | | |
| **4 – The suitability of graduates for employment and further education** | | | | | |
| Employability | | | Graduates can work at enterprises of any organizational and legal form in positions (according to the classifier of professions of Ukraine DK 003:2010):  2419.2 Professionals in Marketing, Business Efficiency, Industrial Rationalization, Intellectual Property: Professional in Economic Cybernetics. Specialist in ecological modeling of economic systems. Business Performance Consultant  2441. Professionals in Economics Junior Research Fellow (Economics). Research Fellow (Economics). Research Fellow-Consultant (Economics)  According to the International Standard Classification of Occupations 2008, graduates can work in positions corresponding to the groups  12 Administrative and commercial managers  121 Business services and administration managers  33 Business and administration associate professionals in Intern. comers  332 International Sales and purchasing agents and brokers. | | |
| Further education | | | Continuing education at the third (educational and scientific) level of higher education and / or acquiring additional qualifications in the adult education system. | | |
| **5 – Teaching and evaluation** | | | | | |
| Teaching and learning | | | The general learning style is task-oriented. Teaching is carried out in the form of: lectures, practical classes, computer workshops, independent work with the ability to consult with a teacher, course work, individual tasks, practice, the use of information and communication technologies (e-learning, online lectures, distance courses) for individual educational components , performance of qualifying work. All participants in the educational process are provided with timely and understandable information regarding the goals, content and programmatic results of training, the procedure and criteria for assessment. | | |
| Assessment | | | The current and semester control and defense of the qualifying work are assessed in accordance with certain criteria of the Rating assessment system.  Also, the assessment of students' knowledge is carried out in accordance with the Regulations of the assessment learning system of outcomes at Igor Sikorsky Kyiv Polytechnic Institute for all types of classroom and extracurricular work (current, calendar, semester control, oral and written exams, tests. | | |
| **6 – Program competencies** | | | | | |
| Integral competence | | | The ability to identify and solve complex economic tasks and problems, make appropriate analytical and managerial decisions in the field of economics or in the learning process, provides for research and / or innovation under uncertain conditions and requirements. | | |
| **General competences (GC)** | | | | | |
| GC 1 | | The ability to generate new ideas (creativity). | | | |
| GC 2 | | The ability to abstract thinking, analysis, synthesis. | | | |
| GC 3 | | The ability to motivate people and move towards a common goal. | | | |
| GC 4 | | The ability to communicate with representatives of other professional groups of different levels (with experts from other fields of knowledge/types of economic activity). | | | |
| GC 5 | | The ability to work as a part of a team. | | | |
| GC 6 | | The ability to develop and manage projects. | | | |
| GC 7 | | The ability to act on ethical reasons (motives). | | | |
| GC 8 | | The ability to conduct research at the appropriate level. | | | |
| **Professional competences of specialty (PC)** | | | | | |
| PC 1 | | The ability to use scientific, analytical, methodological tools to substantiate the strategy of development of economic actors and related management decisions. | | | |
| PC 2 | | The ability to communicate professionally in the field of economy in a foreign language. | | | |
| PC 3 | | The ability to collect, analyze and process statistical data, scientific and analytical materials, which are necessary for solving complex economic problems, to draw on their basis reasonable conclusions. | | | |
| PC 4 | | The ability to use modern information technologies, methods and techniques of research of economic and social processes, adequate to the established needs of research. | | | |
| PC 5 | | The ability to identify key trends in social and economic and human development. | | | |
| PC 6 | | The ability to formulate professional tasks in the field of economy and solve them, choosing the right directions and appropriate methods for their solution, taking into account the available resources. | | | |
| PC 7 | | The ability to substantiate management decisions on effective development of business entities. | | | |
| PC 8 | | The ability to assess possible risks, social and economic consequences of management decisions. | | | |
| PC 9 | | The ability to apply scientific approach to the formation and implementation of effective projects in the socio-economic sphere. | | | |
| PC 10 | | The ability to develop scenarios and strategies for the development of socio-economic systems. | | | |
| РC 11 | | The ability to apply scientific, analytical, methodological tools to the management of intellectual capital; have knowledge of the specifics of legal protection, ways of commercialization and protection of the right to intellectual capital. | | | |
| РC 12 | | The ability to identify and assess risks of international activities | | | |
| PC 13 | | The ability to develop, define, and improve the mechanisms of international organizations' functioning and evaluate their impact on national economies | | | |
| PC 14 | | The ability to apply tools in the development and implementation of international projects | | | |
| **7 – Program study results** | | | | | |
|  | Training results | | | | |
|  | TR 1 | To formulate, analyze and synthesize solutions to scientific and practical problems. | | | |
|  | TR 2 | To develop, justify and make effective decisions on the development of socio-economic systems and management of economic entities. | | | |
|  | TR 3 | To communicate fluently on professional and scientific issues in state and foreign languages ​​in speaking and writing. | | | |
|  | TR 4 | To develop socio-economic projects and a system of comprehensive actions for their implementation, considering their goals, expected socio-economic consequences, risks, legislative, resource and other constraints. | | | |
|  | TR 5 | Adhere to the principles of academic integrity. | | | |
|  | TR 6 | To evaluate the results of their own work, demonstrate leadership skills and ability to manage staff and work in a team. | | | |
|  | TR 7 | To choose effective methods of the economic activity management, to substantiate the suggested decisions on the basis of relevant data and scientific and applied researches. | | | |
|  | TR 8 | To collect, process and analyze statistical data, scientific and analytical materials needed to solve complex economic problems. | | | |
|  | TR 9 | To make the effective decisions under uncertain conditions requiring the application of new approaches, methods, and tools for socio-economic research. | | | |
|  | TR 10 | To apply modern information technologies and specialized software in socio-economic research and in management of socio-economic systems. | | | |
|  | TR 11 | To identify and critically assess the state and trends of socio-economic development, form and analyze models of economic systems and processes. | | | |
|  | TR 12 | To justify management decisions for effective business development, taking into account goals, resources, constraints and risks. | | | |
|  | TR 13 | To assess probable risks, socio-economic consequences of management decisions. | | | |
|  | TR 14 | To develop scenarios and strategies for the development of socio-economic systems | | | |
|  | TR 15 | To develop, justify and make effective decisions on managing intellectual capital, as well as tools and methods for developing strategies for managing intellectual property of an enterprise. | | | |
|  | TR 16 | To develop scenarios for international activities based on a risk-oriented approach. | | | |
|  | TR 17 | To develop cooperation plans with international organizations, taking into account the principles of their activities aimed at solving profile tasks or implementing joint projects. | | | |
|  | TR 18 | To develop and implement international projects, taking into account the tools of international project activities. | | | |
|  | **8 – Resource support for program implementation** | | | | |
|  | Staff assistance | | | The main faculty of the Educational Program consists of professors-teaching staff of the Department of International Economics who meet the personnel requirements determined by the Licensing conditions approved by Resolution of the Cabinet of Ministers of Ukraine No. 1187 dated December 30, 2015 as amended by Resolution of the Cabinet of Ministers of Ukraine No. 365 dated March 24, 2021. | |
|  | [Material and technical support](https://www.multitran.com/m.exe?s=material+and+technical+support&l1=1&l2=2) | | | According to the technological requirements for the material and technical support of educational activities of the relevant level of higher education approved by the Resolution of the Cabinet of Ministers of Ukraine dated December 30, 2015, No. 1187, as amended by the Resolution of the Cabinet of Ministers of Ukraine No. 365 dated March 24, 2021.  The educational process takes place, including in classrooms equipped with multimedia facilities, computer workstations (computers with a service life of no more than eight years), and corresponding software. Students have access to the material and technical resources of Igor Sikorsky Kyiv Polytechnic Institute, including educational buildings, library, physical education and sports center, medical center, recreational facilities, cultural and arts center, and dormitories. There is a student social service available. | |
|  | Information and methodological support | | | In accordance with the technological requirements for educational and methodological, as well as informational support of educational activities of the relevant level of higher education (Appendix 5 to the License Conditions), approved by the Resolution of the Cabinet of Ministers of Ukraine dated December 30, 2015, No. 1187, as amended by the Resolution of the Cabinet of Ministers of Ukraine No. 365 dated March 24, 2021.  The information support is provided through the website of the Department of International Economics, Telegram channels of the department and the dean's office, Facebook pages of the department and the Faculty of Management and Marketing. The educational program, study plans, catalogs of elective courses, and syllabuses are posted on the department's website. Educational and methodological support is available at the Scientific and Technical Library of Igor Sikorsky Kyiv Polytechnic Institute (Automated Library System Aleph, Web-OPAC license (user), access to scientific databases), Electronic Archive of Scientific and Educational Materials "ELAKPI", Distance Learning Platform "Sikorsky", "Electronic Campus" system. Students have free internet access. | |
|  | **9 – Academic mobility** | | | | |
|  | National credit mobility | | | The possibility of signing agreements on academic mobility and implementing double degree programs with universities in the EU. The opportunity for exchange between partner universities, aligning the content of disciplines with related subjects from specialized educational institutions. | |
|  | International credit mobility | | | Students have the opportunity to participate in international credit mobility programs offered by the University, the details of which are published by the Academic Mobility Department of Igor Sikorsky Kyiv Polytechnic Institute, including the Erasmus+ KA1 and Eurasia programs. There is the option to explore educational opportunities provided by foreign higher education institutions under cooperation agreements. Expansion of academic exchange opportunities is planned through agreements with other educational institutions. European standards for related specialties are taken into account when determining the knowledge and skills that students should acquire during their studies. | |
|  | Training of foreign applicants | | | Training based on proficiency in Ukrainian - training in general groups, or in separate groups with lecturing in English | |

**2. COMPONENTS LIST OF THE EDUCATIONAL PROGRAM**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Code | Components of the educational program  (disciplines, course projects / works,  practice, qualification work) | Number of ECTS credits | | Form of final control |
| **1. Сompulsory educational components** | | | | |
| **1.1. General training cycle** | | | | |
| ZО 1 | Scientific Research in Economics | 3 | | Тest |
| ZО 2 | Economic Measurement of Sustainable Development | 2 | | Тest |
| ZО 3 | Foreign language for Business Communication | 3 | | Тest |
| ZО 4 | Startup-Projects Development | 3 | | Тest |
| **1.2. Vocational training cycle** | | | | |
| PО 1 | Social Responsibility | | 3,5 | Тest |
| PО 2 | Intellectual Capital Management | | 3,5 | Тest |
| PО 3 | Risk Forecasting and Foresight in International Activities | | 3 | Тest |
| PО 4 | Global Economics | | 4,5 | Еxam |
| PО 5 | Development Strategies of International Organizations | | 4 | Еxam |
| PО 6 | International Trade | | 4 | Еxam |
| PО 7 | International Trade. Coursework | | 1 | Тest |
| PО 8 | Implementing International Projects Tools | | 4 | Еxam |
| PО 9 | International Scientific and Technical Cooperation | | 3 | Тest |
| PО 10 | Practice | | 14 | Тest |
| PО 11 | Training of Master Thesis | | 12 | defence |
| **2. Оptional educational components** | | | | |
| **2.1. Vocational training cycle (Оptional subjects from Faculty catalog)** | | | | |
| PВ 1 | Educational component 1 of the F-Catalog | 4.5 | | Тest |
| PВ 2 | Educational component 2 of the F-Catalog | 4.5 | | Тest |
| PВ 3 | Educational component 3 of the F-Catalog | 4.5 | | Тest |
| PВ 4 | Educational component 4 of the F-Catalog | 4,5 | | Тest |
| PВ 5 | Educational component 5 of the F-Catalog | 4.5 | | Тest |
| TOTAL IN СOMPULSORY educational components**:** | | **67.5** | | |
| TOTAL IN SELECTIVE educational components**:** | | **22.5** | | |
| The amount of educational components that ensure the certain acquisition competencies at SHE | | **67.5** | | |
| TOTAL OF THE EDUCATIONAL PROGRAM | | **90** | | |

**3 . STRUCTURAL AND LOGICAL SCHEME OF THE EDUCATIONAL PROGRAM**

**PО 8.**

Implementing International Projects Tools

**PО 5.**

Development Strategies of International Organization

**PО 4.**

Global Economics

**PО 3.**

Risk Forecasting and Foresight in International Activities

**PО 2**.

Intellectual Capital Management

**PО 1**.

Social Responsibility

**ZО 1.**

Scientific Research in Economics

**PО 11.**

Training of Master Thesis

**PО 10.**

Practice

Educational component 1 of the F-Catalog

Educational component 2 of the F-Catalog

Educational component 3 of the F-Catalog

Educational component 4 of the F-Catalog

Educational component 5 of the F-Catalog

**ZО 4**.

Startup-Projects Development

**ZО 2.**

Economic Measurement of Sustainable Development

**PО 9.**

International Scientific and Technical Cooperation

**ZО 4.**

Foreign language for Business Communication

**PО 7.**

International Trade. Coursework

**PО 6.**

International Trade.

**3 semester**

**2 semester**

**1 semester**

**4. FORM OF GRADUATE CERTIFICATION OF HIGHER EDUCATION APPLICANTS**



|  |  |
| --- | --- |
| **Certification forms of higher education applicants** | Graduation certification of applicants under the educational program "International Economics" specialty 051 "Economics" is conducted in the form of public defense of the qualification work. Qualification work is checked for plagiarism and after defense is placed in the repository of STL (scientific and technical library) University for free access. Publication of qualification works containing information with limited access should be carried out in accordance with the requirements of current legislation. The final attestation is completed by the issuance of a standard document of master's degree awarded with qualification: Master of Economics, graduation with Educational and Professional program "International Economics". |
| **Requirements for qualification work** | Qualification work (performed in the form of a master's thesis) should provide the ways of solving a complex specialized problem or practical problem in the field of international economics using theories and methods of economics.  There can be no academic plagiarism, falsification or writing off in the qualification work. |

**5. MATRIX OF CONFORMITY A PROGRAM COMPETENCIES TO THE COMPONENTS OF THE EDUCATIONAL PROGRAM**

|  | ZО 1 | ZО 2 | ZО 3 | ZО 4 | PО 1 | PО 2 | PО 3 | PО 4 | PО 5 | PО 6 | PО 7 | PО 8 | PО 9 | PО 10 | PО 11 |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| GC 1 |  |  |  | + |  |  |  |  | + |  |  | + | + |  | + |
| GC 2 | + | + |  |  |  |  | + |  |  |  |  |  |  | + | + |
| GC 3 |  | + |  | + |  | + | + | + |  | + | + | + |  |  |  |
| GC 4 | + |  | + |  |  |  |  |  |  |  |  | + | + | + |  |
| GC 5 |  |  |  |  | + |  |  |  |  | + | + |  |  | + |  |
| GC 6 |  |  |  | + |  | + |  |  |  |  |  |  |  |  | + |
| GC 7 |  | + |  |  | + |  | + | + | + | + | + |  |  |  | + |
| GC 8 | + |  |  |  |  |  |  |  | + |  |  |  | + | + | + |
| PC 1 |  |  |  |  |  | + |  |  | + |  |  |  |  | + | + |
| PC 2 |  |  | + |  |  |  |  |  |  |  |  | + |  | + | + |
| PC 3 |  |  |  |  |  | + | + |  |  |  |  | + |  | + | + |
| PC 4 | + |  |  |  |  |  | + |  |  |  |  |  | + | + | + |
| PC 5 | + |  |  |  |  |  |  |  |  | + | + |  | + | + | + |
| PC 6 |  |  |  |  |  | + |  |  | + |  | + |  | + | + | + |
| PC 7 |  | + |  |  |  | + |  | + |  |  |  | + |  | + | + |
| PC 8 |  |  |  |  |  |  | + | + |  | + |  | + |  |  | + |
| PC 9 |  |  |  | + |  |  |  |  | + |  | + |  |  | + | + |
| PC 10 |  |  |  |  |  |  | + | + | + | + | + | + |  | + | + |
| PC 11 |  |  |  | + |  | + |  | + |  |  |  |  |  | + | + |
| PC 12 |  |  |  |  |  |  | + |  |  |  |  |  |  | + | + |
| PC 13 |  |  |  |  |  |  |  |  | + |  |  |  |  | + | + |
| PC 14 |  |  |  |  |  |  |  |  |  |  |  | + |  | + | + |

**6. MATRIX OF PROVIDING PROGRAM LEARNING RESULTS BY RELEVANT COMPONENTS OF THE EDUCATIONAL PROGRAM**

|  | ZО 1 | ZО 2 | ZО 3 | ZО 4 | PО 1 | PО 2 | PО 3 | PО 4 | PО 5 | PО 6 | PО 7 | PО 8 | PО 9 | PО 10 | PО 11 |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| TR 1 | + | + |  |  |  |  | + | + |  |  |  |  | + | + | + |
| TR 2 |  |  |  |  | + |  | + | + | + |  |  | + | + | + | + |
| TR 3 |  |  | + |  |  |  |  |  |  |  |  |  | + | + | + |
| TR 4 |  |  |  | + |  |  |  |  | + |  |  |  |  | + | + |
| TR 5 | + |  |  |  | + | + |  |  |  | + | + |  |  |  | + |
| TR 6 |  |  |  | + |  | + | + |  |  | + |  | + |  |  |  |
| TR 7 | + |  |  | + |  |  |  | + | + |  | + |  | + | + | + |
| TR 8 |  |  |  |  |  | + |  |  |  |  | + |  |  | + | + |
| TR 9 |  |  |  |  |  |  |  |  |  |  | + | + |  |  | + |
| TR 10 |  |  |  |  |  |  | + |  | + |  |  |  |  | + | + |
| TR 11 |  | + |  |  | + |  |  | + |  | + | + |  |  | + | + |
| TR 12 |  | + |  |  |  | + |  | + |  | + | + | + | + | + | + |
| TR 13 |  |  |  |  | + |  | + | + |  | + | + |  |  |  | + |
| TR 14 |  |  |  |  |  |  | + | + | + |  |  | + | + | + | + |
| TR 15 |  |  |  | + |  |  |  |  | + | + |  |  |  | + |  |
| TR 16 |  |  |  |  |  |  | + |  |  |  |  |  |  | + | + |
| TR 17 |  |  |  |  |  |  |  |  | + |  |  |  |  | + | + |
| TR 18 |  |  |  |  |  |  |  |  |  |  |  | + |  | + | + |