ANNEX 1

Social Sciences and Humanities

SH1 Individuals, Institutions and Markets: Economics, finance and management

SH1_1 Macroeconomics
SH1_2 Development, economic growth
SH1_3 Microeconomics, behavioural economics
SH1_4 Marketing
SH1_5 Political economy, institutional economics, law and economics
SH1_6 Econometrics, statistical methods
SH1_7 Financial markets, asset prices, international finance
SH1_8 Banking, corporate finance, accounting
SH1_9 Competitiveness, innovation, research and development
SH1_10 Organization studies: theory & strategy, industrial organization
SH1_11 Labour economics, income distribution and poverty
SH1_12 Public economics
SH1_13 International trade
SH1_14 History of economic thought and quantitative economic history

SH2 Institutions, Values, Beliefs and Behaviour: Sociology, social anthropology, political science, law, communication, social studies of science and technology

SH2_1 Social structure, inequalities, social mobility, interethnic relations
SH2_2 Social policies, work and welfare
SH2_3 Kinship, cultural dimensions of classification and cognition, identity, gender
SH2_4 Myth, ritual, symbolic representations, religious studies
SH2_5 Democratization, social movements
SH2_6 Violence, conflict and conflict resolution
SH2_7 Political systems and institutions, governance
SH2_8 Legal studies, constitutions, comparative law, human rights
SH2_9 Global and transnational governance, international studies
SH2_10 Communication networks, media, information society
SH2_11 Social studies of science and technology

SH3 Environment, Space and Population: Environmental studies, geography, demography, migration, regional and urban studies

SH3_1 Environment, resources and sustainability
SH3_2 Environmental change and society
SH3_3 Environmental regulations and climate negotiations
SH3_4 Social and industrial ecology
SH3_5 Population dynamics, aging, health and society
SH3_6 Households, family and fertility
SH3_7 Migration
SH3_8 Mobility, tourism, transportation and logistics
SH3_9 Spatial development and architecture, land use, regional planning
SH3_10 Urban studies, regional studies
SH3_11 Social geography, infrastructure,
SH3_12 Geo-information and spatial data analysis

SH4 The Human Mind and Its Complexity: Cognitive science, psychology, linguistics, education

SH4_1 Evolution of mind and cognitive functions, animal communication

SH4_2 Human life-span development
SH4_3 Neuropsychology
SH4_4 Cognitive and experimental psychology: perception, action, and higher cognitive processes
SH4_5 Social and clinical psychology
SH4_6 Linguistics: formal, cognitive, functional and computational linguistics
SH4_7 Linguistics: typological, historical and comparative linguistics
SH4_8 Psycholinguistics and neurolinguistics: acquisition and knowledge of language, language pathologies
SH4_9 Use of language: pragmatics, sociolinguistics, discourse analysis, second language teaching and learning, lexicography, terminology
SH4_10 Philosophy of mind, epistemology and logic
SH4_11 Education: systems and institutions, teaching and learning
Environmental studies, geography,
demography, migration, regional and urban studies

SH5 Cultures and Cultural Production: Literature and philosophy, visual and performing arts, music, cultural and comparative studies

SH5_1 Classics, ancient Greek and Latin literature and art
SH5_2 History of literature
SH5_3 Literary theory and comparative literature, literary styles
SH5_4 Textual philology, palaeography and epigraphy
SH5_5 Visual arts, performing arts, design
SH5_6 Philosophy, history of philosophy
SH5_7 Museums and exhibitions
SH5_8 Music and musicology, history of music
SH5_9 History of art and architecture
SH5_10 Cultural studies, cultural diversity
SH5_11 Cultural heritage, cultural memory

SH6 The Study of the Human Past: Archaeology, history and memory

SH6_1 Archaeology, archaeometry, landscape archaeology
SH6_2 Prehistory and protohistory
SH6_3 Ancient history
SH6_4 Medieval history
SH6_5 Early modern history
SH6_6 Modern and contemporary history
SH6_7 Colonial and post-colonial history, global and transnational history, entangled histories
SH6_8 Social and economic history
SH6_9 gender history
SH6_10 History of ideas, intellectual history, history of sciences and techniques
SH6_11 Cultural history, history of collective identities and memories
SH6_12 Historiography, theory and methods of history

Physical Sciences and Engineering

PE1 Mathematics: All areas of mathematics, pure and applied, plus mathematical foundations of computer science, mathematical physics and statistics

PE1_1 Logic and foundations
PE1_2 Algebra
PE1_3 Number theory

PE1_4 Algebraic and complex geometry
PE1_5 Geometry
PE1_6 Topology
PE1_7 Lie groups, Lie algebras
PE1_8 Analysis
PE1_9 Operator algebras and functional analysis
PE1_10 ODE and dynamical systems
PE1_11 Theoretical aspects of partial differential equations
PE1_12 Mathematical physics
PE1_13 Probability
PE1_14 Statistics
PE1_15 Discrete mathematics and combinatorics
PE1_16 Mathematical aspects of computer science
PE1_17 Numerical analysis
PE1_18 Scientific computing and data processing
PE1_19 Control theory and optimization
PE1_20 Application of mathematics in sciences
PE1_21 Application of mathematics in industry and society

PE2 Fundamental Constituents of Matter: Particle, nuclear, plasma, atomic,molecular, gas, and optical physics

PE2_1 Fundamental interactions and fields
PE2_2 Particle physics
PE2_3 Nuclear physics
PE2_4 Nuclear astrophysics
PE2_5 Gas and plasma physics
PE2_6 Electromagnetism
PE2_7 Atomic, molecular physics
PE2_8 Ultra-cold atoms and molecules
PE2_9 Optics, non-linear optics and nano-optics
PE2_10 Quantum optics and quantum information
PE2_11 Lasers, ultra-short lasers and laser physics
PE2_10 Quantum optics and quantum information
PE2_11 Lasers, ultra-short lasers and laser physics
PE2_12 Acoustics
PE2_13 Relativity
PE2_14 Thermodynamics
PE2_15 Non-linear physics
PE2_16 General physics
PE2_17 Metrology and measurement
PE2_18 Statistical physics (gases)

PE3 Condensed Matter Physics: Structure, electronic properties, fluids, nanosciences, biophysics

PE3_1 Structure of solids and liquids
PE3_2 Mechanical and acoustical properties of condensed matter, Lattice dynamics
PE3_3 Transport properties of condensed matter
PE3_4 Electronic properties of materials, surfaces, interfaces, nanostructures…
PE3_5 Semiconductors and insulators: material growth, physical properties
PE3_6 Macroscopic quantum phenomena: superconductivity, superfluidity…
PE3_7 Spintronics
PE3_8 Magnetism and strongly correlated systems
PE3_9 Condensed matter – beam interactions (photons, electrons…)
PE3_10 Nanophysics: nanoelectronics, nanophotonics, nanomagnetism,

nanoelectromechanics…
PE3_12 Molecular electronics
PE3_11 Mesoscopic physics
PE3_13 Structure and dynamics of disordered systems: soft matter (gels, colloids, liquid crystals…), glasses, defects…
PE3_14 Fluid dynamics (physics)
PE3_15 Statistical physics: phase transitions, noise and fluctuations, models of complex systems…
PE3_16 Physics of biological systems

PE4 Physical and Analytical Chemical Sciences: Analytical chemistry, chemical theory, physical chemistry/chemical physics

PE4_1 Physical chemistry
PE4_2 Spectroscopic and spectrometric techniques
PE4_3 Molecular architecture and Structure
PE4_4 Surface science and nanostructures
PE4_5 Analytical chemistry
PE4_6 Chemical physics
PE4_7 Chemical instrumentation
PE4_8 Electrochemistry, electrodialysis, microfluidics, sensors
PE4_9 Method development in chemistry
PE4_10 Heterogeneous catalysis
PE4_11 Physical chemistry of biological systems
PE4_12 Chemical reactions: mechanisms, dynamics, kinetics and catalytic reactions
PE4_13 Theoretical and computational chemistry
PE4_14 Radiation and Nuclear chemistry
PE4_15 Photochemistry
PE4_14 Radiation and Nuclear chemistry
PE4_15 Photochemistry
PE4_16 Corrosion
PE4_17 Characterization methods of materials
PE4_18 Environment chemistry

PE5 Synthetic Chemistry and Materials: Materials synthesis, structure-properties relations, functional and advanced materials, molecular architecture, organic chemistry

PE5_1 Structural properties of materials
PE5_2 Solid state materials
PE5_3 Surface modification
PE5_4 Thin films
PE5_5 Ionic liquids
PE5_6 New materials: oxides, alloys, composite, organic-inorganic hybrid, nanoparticles
PE5_7 Biomaterials synthesis
PE5_8 Intelligent materials – self assembled materials
PE5_9 Coordination chemistry
PE5_10 Colloid chemistry
PE5_11 Biological chemistry
PE5_12 Chemistry of condensed matter
PE5_13 Homogeneous catalysis
PE5_14 Macromolecular chemistry
PE5_15 Polymer chemistry
PE5_16 Supramolecular chemistry
PE5_17 Organic chemistry
PE5_18 Molecular chemistry

PE5_19 Combinatorial chemistry

PE6 Computer Science and Informatics: Informatics and information systems, computer science, scientific computing, intelligent systems

PE6_1 Computer architecture, pervasive computing, ubiquitous computing
PE6_2 Computer systems, parallel/distributed systems, sensor networks, embedded systems, cyber-physical systems
PE6_3 Software engineering, operating systems, computer languages
PE6_4 Theoretical computer science, formal methods, and quantum computing
PE6_5 Cryptology, security, privacy, quantum crypto
PE6_6 Algorithms, distributed, parallel and network algorithms, algorithmic game theory
PE6_7 Artificial intelligence, intelligent systems, multi agent systems
PE6_8 Computer graphics, computer vision, multi media, computer games
PE6_9 Human computer interaction and interface, visualization and natural language processing
PE6_10 Web and information systems, database systems, information retrieval and digital libraries, data fusion
PE6_11 Machine learning, statistical data processing and applications using signal processing (e.g. speech, image, video)
PE6_12 Scientific computing, simulation and modelling tools
PE6_13 Bioinformatics, biocomputing, and DNA and molecular computation

PE7 Systems and Communication Engineering: Electronic, communication, optical and systems engineering

PE7_1 Control engineering
PE7_2 Electrical and electronic engineering: semiconductors, components, systems
PE7_3 Simulation engineering and modelling
PE7_4 Systems engineering, sensorics, actorics, automation
PE7_5 Micro- and nanoelectronics, optoelectronics
PE7_6 Communication technology, high-frequency technology
PE7_7 Signal processing
PE7_8 Networks (communication networks, sensor networks, networks of robots...)
PE7_9 Man-machine-interfaces
PE7_10 Robotics

PE8 Products and Processes Engineering: Product design, process design and control, construction methods, civil engineering, energy systems, material engineering

PE8_1 Aerospace engineering
PE8_2 Chemical engineering, technical chemistry
PE8_3 Civil engineering, maritime/hydraulic engineering, geotechnics, waste treatment
PE8_4 Computational engineering
PE8_5 Fluid mechanics, hydraulic-, turbo-, and piston engines
PE8_6 Energy systems (production, distribution, application)
PE8_7 Micro (system) engineering
PE8_8 Mechanical and manufacturing engineering (shaping, mounting, joining, separation)
PE8_9 Materials engineering (biomaterials, metals, ceramics, polymers, composites...)
PE8_10 Production technology, process engineering
PE8_11 Industrial design (product design, ergonomics, man-machine interfaces...)
PE8_12 Sustainable design (for recycling, for environment, eco-design)
PE8_13 Lightweight construction, textile technology
PE8_14 Industrial bioengineering
PE8_15 Industrial biofuel production
PE8_16 Architectural engineering

PE9 Universe Sciences: Astro-physics/chemistry/biology; solar system; stellar, galactic and extragalactic astronomy, planetary systems, cosmology, space science, instrumentation

PE9_1 Solar and interplanetary physics
PE9_2 Planetary systems sciences
PE9_3 Interstellar medium
PE9_4 Formation of stars and planets
PE9_5 Astrobiology
PE9_6 Stars and stellar systems
PE9_7 The Galaxy
PE9_8 Formation and evolution of galaxies
PE9_9 Clusters of galaxies and large scale structures
PE9_10 High energy and particles astronomy – X-rays, cosmic rays, gamma rays, neutrinos
PE9_11 Relativistic astrophysics
PE9_12 Dark matter, dark energy
PE9_13 Gravitational astronomy
PE9_14 Cosmology
PE9_15 Space Sciences
PE9_16 Very large data bases: archiving, handling and analysis
PE9_17 Instrumentation - telescopes, detectors and techniques

PE10 Earth System Science: Physical geography, geology, geophysics, atmospheric sciences, oceanography, climatology, ecology, global environmental change, biogeochemical cycles, natural resources management

PE10_1 Atmospheric chemistry, atmospheric composition, air pollution
PE10_2 Meteorology, atmospheric physics and dynamics
PE10_3 Climatology and climate change
PE10_4 Terrestrial ecology, land cover change
PE10_5 Geology, tectonics, volcanology
PE10_6 Paleoclimatology, paleoecology
PE10_7 Physics of earth's interior, seismology, volcanology
PE10_8 Oceanography (physical, chemical, biological, geological)
PE10_9 Biogeochemistry, biogeochemical cycles, environmental chemistry
PE10_10 Mineralogy, petrology, igneous petrology, metamorphic petrology
PE10_11 Geochemistry, crystal chemistry, isotope geochemistry, thermodynamics
PE10_12 Sedimentology, soil science, palaeontology, earth evolution
PE10_13 Physical geography
PE10_14 Earth observations from space/remote sensing
PE10_15 Geomagnetism, paleomagnetism
PE10_16 Ozone, upper atmosphere, ionosphere
PE10_17 Hydrology, water and soil pollution
PE10_18 Cryosphere, dynamics of snow and ice cover, sea ice, permafrosts and ice sheets

Life Sciences

LS1 Molecular and Structural Biology and Biochemistry: Molecular synthesis, modification and interaction, biochemistry, biophysics, structural biology, metabolism, signal transduction

LS1_1 Molecular interactions
LS1_2 General biochemistry and metabolism
LS1_3 DNA synthesis, modification, repair, recombination and degradation
LS1_4 RNA synthesis, processing, modification and degradation

LS1_5 Protein synthesis, modification and turnover
LS1_6 Lipid synthesis, modification and turnover
LS1_7 Carbohydrate synthesis, modification and turnover
LS1_8 Biophysics (e.g. transport mechanisms, bioenergetics, fluorescence)
LS1_9 Structural biology (crystallography and EM)
LS1_10 Structural biology (NMR)
LS1_11 Biochemistry and molecular mechanisms of signal transduction

LS2 Genetics, Genomics, Bioinformatics and Systems Biology: Molecular and population genetics, genomics, transcriptomics, proteomics, metabolomics, bioinformatics, computational biology, biostatistics, biological modelling and simulation, systems biology,genetic epidemiology

LS2_1 Genomics, comparative genomics, functional genomics
LS2_2 Transcriptomics
LS2_3 Proteomics
LS2_4 Metabolomics
LS2_5 Glycomics
LS2_6 Molecular genetics, reverse genetics and RNAi
LS2_7 Quantitative genetics
LS2_8 Epigenetics and gene regulation
LS2_9 Genetic epidemiology
LS2_10 Bioinformatics
LS2_11 Computational biology
LS2_12 Biostatistics
LS2_13 Systems biology
LS2_14 Biological systems analysis, modelling and simulation

LS3 Cellular and Developmental Biology: Cell biology, cell physiology, signal transduction, organogenesis, developmental genetics, pattern formation in plants and animals, stem cell biology

LS3_1 Morphology and functional imaging of cells
LS3_2 Cell biology and molecular transport mechanisms
LS3_3 Cell cycle and division
LS3_4 Apoptosis
LS3_5 Cell differentiation, physiology and dynamics
LS3_6 Organelle biology
LS3_7 Cell signalling and cellular interactions
LS3_8 Signal transduction
LS3_9 Development, developmental genetics, pattern formation and embryology in animals
LS3_10 Development, developmental genetics, pattern formation and embryology in plants
LS3_11 Cell genetics
LS3_12 Stem cell biology

LS4 Physiology, Pathophysiology and Endocrinology: Organ physiology, pathophysiology, endocrinology, metabolism, ageing, tumorigenesis, cardiovascular disease, metabolic syndrome

LS4_1 Organ physiology and pathophysiology
LS4_2 Comparative physiology and pathophysiology
LS4_3 Endocrinology
LS4_4 Ageing
LS4_5 Metabolism, biological basis of metabolism related disorders
LS4_6 Cancer and its biological basis
LS4_7 Cardiovascular diseases
LS4_8 Non-communicable diseases (except for neural/psychiatric, immunity-related, metabolism-related disorders, cancer and cardiovascular diseases)

LS5 Neurosciences and Neural Disorders: Neurobiology, neuroanatomy, neurophysiology, neurochemistry, neuropharmacology, neuroimaging, systems neuroscience, neurological and psychiatric disorders

LS5_1 Neuroanatomy and neurophysiology
LS5_2 Molecular and cellular neuroscience
LS5_3 Neurochemistry and neuropharmacology
LS5_4 Sensory systems (e.g. visual system, auditory system)
LS5_5 Mechanisms of pain
LS5_6 Developmental neurobiology
LS5_7 Cognition (e.g. learning, memory, emotions, speech)
LS5_8 Behavioural neuroscience (e.g. sleep, consciousness, handedness)
LS5_9 Systems neuroscience
LS5_10 Neuroimaging and computational neuroscience
LS5_11 Neurological disorders (e.g. Alzheimer's disease, Huntington's disease, Parkinson's disease)
LS5_12 Psychiatric disorders (e.g. schizophrenia, autism, Tourette's syndrome, obsessive compulsive disorder, depression, bipolar disorder, attention deficit hyperactivity disorder)

LS6 Immunity and Infection: The immune system and related disorders, infectious agents and diseases, prevention and treatment of infection

LS6_1 Innate immunity and inflammation
LS6_2 Adaptive immunity
LS6_3 Phagocytosis and cellular immunity
LS6_4 Immunosignalling
LS6_5 Immunological memory and tolerance
LS6_6 Immunogenetics
LS6_7 Microbiology
LS6_8 Virology
LS6_9 Bacteriology
LS6_10 Parasitology
LS6_11 Prevention and treatment of infection by pathogens (e.g. vaccination, antibiotics, fungicide)
LS6_12 Biological basis of immunity related disorders (e.g. autoimmunity)
LS6_13 Veterinary medicine and infectious diseases in animals

LS7 Diagnostic Tools, Therapies and Public Health: Aetiology, diagnosis and treatment of disease, public health, epidemiology, pharmacology, clinical medicine, regenerative medicine, medical ethics

LS7_1 Medical engineering and technology
LS7_2 Diagnostic tools (e.g. genetic, imaging)
LS7_3 Pharmacology, pharmacogenomics, drug discovery and design, drug therapy
LS7_4 Analgesia and Surgery
LS7_5 Toxicology
LS7_6 Gene therapy, cell therapy, regenerative medicine
LS7_7 Radiation therapy
LS7_8 Health services, health care research
metabolism-related disorders, cancer and cardiovascular diseases)
LS7_9 Public health and epidemiology
LS7_10 Environment and health risks, occupational medicine
LS7_11 Medical ethics

LS8 Evolutionary, Population and Environmental Biology: Evolution, ecology, animal behaviour, population biology, biodiversity, biogeography, marine biology, eco-toxicology, microbial ecology

LS8_1 Ecology (theoretical and experimental; population, species and community level)
LS8_2 Population biology, population dynamics, population genetics
LS8_3 Systems evolution, biological adaptation, phylogenetics, systematics, comparative biology
LS8_4 Biodiversity, conservation biology, conservation genetics, invasion biology
LS8_5 Evolutionary biology: evolutionary ecology and genetics, co-evolution
LS8_6 Biogeography, macro-ecology
LS8_7 Animal behaviour
LS8_8 Environmental and marine biology
LS8_9 Environmental toxicology at the population and ecosystems level
LS8_10 Microbial ecology and evolution
LS8_11 Species interactions (e.g. food-webs, symbiosis, parasitism, mutualism)

LS9 Applied life Sciences and Non-Medical Biotechnology: Agricultural, animal, fishery, forestry and food sciences; biotechnology, genetic engineering, synthetic and chemical biology, industrial biosciences; environmental biotechnology and remediation

LS9_1 Applied genetic engineering, transgenic organisms, recombinant proteins,biosensors
LS9_2 Synthetic biology, chemical biology and new bio-engineering concepts
LS9_3 Agriculture related to animal husbandry, dairying, livestock raising
LS9_4 Aquaculture, fisheries
LS9_5 Agriculture related to crop production, soil biology and cultivation, applied plant biology
LS9_6 Food sciences
LS9_7 Forestry, biomass production (e.g. for biofuels)
LS9_8 Environmental biotechnology, bioremediation, biodegradation
LS9_9 Applied biotechnology (non-medical), bioreactors, applied microbiology
LS9_10 Biomimetics
LS9_11 Biohazards, biological containment, biosafety, biosecurity