

## Annex B) Science Technology Engineering & Mathematics Disciplines

Primary Area: <b>Biological Sciences A</b>	
<i>Disciplines</i>	<i>Other Research Areas</i>
Agricultural Biotechnology	including but not limited to: Agricultural Biotechnology Diagnostics (incl. Biosensors); Agricultural Marine Biotechnology; Agricultural Molecular Engineering of Nucleic Acids and Proteins; Genetically Modified Technology; Livestock Cloning; Marker Assisted Selection; Biomass Feedstock Production Technologies; Biopharming.
Biology (Theoretical, Mathematical, Thermal, Cryobiology, Biological Rhythm)	including but not limited to: Theoretical Biology; Mathematical Biology; Thermal Biology; Cryobiology; Biological Rhythm.
Environmental Biotechnology	including but not limited to: Biodiscovery; Biological Control; Bioremediation; Environmental Biotechnology Diagnostics (incl. Biosensors); Environmental Marine Biotechnology; Environmental Molecular Engineering of Nucleic Acids and Proteins.
Evolutionary Biology	including but not limited to: Animal Systematics and Taxonomy; Biogeography and Phytogeography; Biological Adaptation; Ethology and Socio-biology; Evolution of Developmental Systems; Evolutionary Impacts of Climate Change; Host-Parasite Interactions; Life Histories; Phylogeny and Comparative Analysis; Plant Systematics and Taxonomy; Speciation and Extinction.
Marine Biology, Freshwater Biology	including but not limited to: Marine Biology, Freshwater Biology.
Microbiology, Mycology and Virology	including but not limited to: Bacteriology; Infectious Agents; Microbial Ecology; Virology; Mycology.
Microbial Genetics	including but not limited to: Microbial Genetics.
Plant Sciences, Botany	including but not limited to: Phycology (incl. Marine Grasses); Plant Cell and Molecular Biology; Plant Developmental and Reproductive Biology; Plant Pathology; Plant Physiology; Botany.
Zoology, Ornithology, Entomology, Behavioural Sciences Biology	including but not limited to: Animal Behaviour; Animal Cell and Molecular Biology; Animal Developmental and Reproductive Biology; Animal Immunology; Animal Neurobiology; Animal Physiological Ecology; Animal Structure and Function; Invertebrate Biology; Vertebrate Biology.

Primary Area: <b>Biological Sciences B</b>	
<i>Discipline</i>	<i>Other Research Areas</i>
Biochemical Research Methods	including but not limited to: Biochemical Research Methods.
Biochemistry and Molecular Biology	including but not limited to: Analytical Biochemistry; Bioinformatics (Bioinformatics Software to be Computer Science); Enzymes; Protein Trafficking; Proteomics and Intermolecular Interactions; Receptors and Membrane Biology; Signal Transduction; Structural Biology (incl. Macromolecular Modelling); Synthetic Biology; Systems Biology.
Cell Biology	including but not limited to: Cell Development, Proliferation and Death; Cell Metabolism; Cell Neurochemistry; Cellular Interactions (incl. Adhesion, Matrix, Cell Wall).
Developmental Biology	including but not limited to: Developmental Biology.
Genetics and Heredity	including but not limited to: Anthropological Genetics; Cell and Nuclear Division; Developmental Genetics; Epigenetics (incl. Genome Methylation and Epigenomics); Gene Expression (incl. Microarray and other genome-wide approaches); Genetic Immunology; Genome Structure and Regulation; Genomics; Molecular Evolution; Neurogenetics; Population, Ecological and Evolutionary Genetics; Quantitative Genetics (incl. Disease and Trait Mapping Genetics).
Industrial Biotechnology	including but not limited to: Bio catalysis and Enzyme Technology; Bioprocessing, Bioproduction and Bioproducts; Fermentation; Industrial Biotechnology Diagnostics; Industrial Microbiology (incl. Biofeedstocks); Industrial Molecular Engineering of Nucleic Acids and Proteins.
Medical Biotechnology	including but not limited to: Gene and Molecular Therapy; Medical Biotechnology Diagnostics; Medical Molecular Engineering of Nucleic Acids and Proteins; Regenerative Medicine (incl. Stem Cells and Tissue Engineering).
Reproductive Biology	including but not limited to: Reproductive Biology.

Primary Area: <b>Chemistry</b>	
<i>Discipline</i>	<i>Other Research Areas</i>
Analytical Chemistry	including but not limited to: Analytical Spectrometry; Electro analytical Chemistry; Flow Analysis; Immunological and Bioassay Methods; Instrumental Methods; Quality Assurance, Chemo metrics, Traceability and Metrological Chemistry; Sensor Technology; Separation Science.
Colloid and Nanochemistry	including but not limited to: Colloid and Surface Chemistry; Nanochemistry; Molecular and Organic Electronics; Nanotoxicology (chemical aspects).
Electrochemistry	including but not limited to: Dry Cells; Batteries; Fuel cells; Corrosion metals; Electrolysis.
Inorganic, Organometallic and Nuclear Chemistry	including but not limited to: Bioinorganic Chemistry; f-Block Chemistry; Inorganic Green Chemistry; Main Group Metal Chemistry; Non-metal Chemistry; Solid State Chemistry; Transition Metal Chemistry; Inorganic Chemistry; Organometallic Chemistry, Supramolecular Chemistry (inorganic and organometallic aspects); Nuclear Chemistry.
Macromolecular and Materials Chemistry	including but not limited to: Chemical Characterisation of Materials; Supramolecular Chemistry (materials chemistry aspects); Optical Properties of Materials; Physical Chemistry of Materials; Polymerisation Mechanisms; Synthesis of Materials; Theory and Design of Materials; Molecular and Organic Electronics.
Medicinal and Biomolecular Chemistry	including but not limited to: Biologically Active Molecules; Biomolecular Modelling and Design; Characterisation of Biological Macromolecules; Cheminformatics and Quantitative Structure-Activity Relationships; Molecular Medicine; Proteins and Peptides.
Organic Chemistry	including but not limited to: Free Radical Chemistry; Natural Products Chemistry; Organic Chemical Synthesis; Organic Green Chemistry; Physical Organic Chemistry.
Physical Chemistry	including but not limited to: Catalysis and Mechanisms of Reactions; Chemical Thermodynamics and Energetics; Solution Chemistry; Structural Chemistry and Spectroscopy; Transport Properties and Non-equilibrium Processes.
Theoretical and Computational Chemistry	including but not limited to: Quantum Chemistry; Radiation and Matter; Reaction Kinetics and Dynamics; Statistical Mechanics in Chemistry.

Primary Area: <b>Computer Science</b>	
<i>Discipline</i>	<i>Other Research Areas</i>
Artificial Intelligence and Image Processing	including but not limited to: Adaptive Agents and Intelligent Robotics; Artificial Life; Computer Graphics; Computer Vision; Expert Systems, Image Processing; Natural Language Processing; Neural, Evolutionary and Fuzzy Computation; Pattern Recognition and Data Mining; Simulation and Modelling; Virtual Reality and Related Simulation.
Computation Theory and Mathematics	including but not limited to: Analysis of Algorithms and Complexity; Applied Discrete Mathematics; Computational Logic and Formal Languages; Mathematical Software; Numerical Computation.
Computer Software	including but not limited to: Bioinformatics Software; Computer System Architecture; Computer System Security; Concurrent Programming; Multimedia Programming; Open Software; Operating Systems; Programming Languages; Software Engineering.
Data Format	including but not limited to: Coding and Information Theory; Data Encryption; Data Structures; Markup Languages.
Distributed Computing	including but not limited to: Distributed and Grid Systems; Mobile Technologies; Networking and Communications; Ubiquitous Computing; Web Technologies.
Information Systems	including but not limited to: Computer-Human Interaction; Conceptual Modelling; Database Management; Decision Support and Group Support Systems; Global Information Systems; Information Engineering and Theory; Information Systems Development Methodologies; Information Systems Management; Information Systems Organisation; Information Systems Theory; Interorganisational Information Systems and Web Services.

Primary Area: <b>Earth and Environmental Sciences</b>	
<i>Discipline</i>	<i>Other Research Areas</i>
Biodiversity Conservation	including but not limited to: Conservation and Biodiversity.

Ecology	including but not limited to: Behavioural Ecology; Community Ecology; Ecological Physiology; Freshwater Ecology; Marine and Estuarine Ecology (incl. Marine Ichthyology); Paleoecology; Population Ecology; Terrestrial Ecology. Ecological Impacts of Climate Change; Ecosystem Function; Invasive Species Ecology.
Environmental Sciences	including but not limited to: Environmental Impact Assessment; Environmental Management; Environmental Monitoring; Environmental Rehabilitation; Natural Resource Management; Wildlife and Habitat Management.
Geochemistry	including but not limited to: Exploration Geochemistry; Inorganic Geochemistry; Isotope Geochemistry; Organic Geochemistry.
Geophysics	Electrical and Electromagnetic Methods in Geophysics; Geodynamics; Geophysical Fluid Dynamics; Geothermics and Radiometrics; Gravimetrics; Magnetism and Palaeomagnetism; Seismology and Seismic Exploration.
Geology	including but not limited to: Basin Analysis; Extraterrestrial Geology; Geochronology; Igneous and Metamorphic Petrology; Marine Geoscience; Ore Deposit Petrology; Petroleum and Coal Geology; Sedimentology; Stratigraphy (incl. Biostratigraphy and Sequence Stratigraphy); Structural Geology; Tectonics, Volcanology.
Meteorology and Atmospheric Sciences	including but not limited to: Atmospheric Aerosols; Atmospheric Dynamics; Atmospheric Radiation; Climate Change Processes; Climatology (excl. Climate Change Processes); Cloud Physics; Meteorology; Tropospheric and Stratospheric Physics, Atmospheric Chemistry.
Mineralogy	including but not limited to: Mineralogy and Crystallography.
Oceanography, Hydrology, Water Resources	including but not limited to: Biological Oceanography; Chemical Oceanography; Physical Oceanography, Hydrology: Surfacewater Hydrology, Water Resources.
Palaeontology	including but not limited to: Palaeontology; Palynology.
Physical Geography	including but not limited to: Geomorphology and Regolith and Landscape Evolution; Glaciology; Hydrogeology; Natural Hazards; Palaeoclimatology; Quaternary Environments; Surface Processes.

<b>Primary Area: Engineering</b>	
<i>Discipline</i>	<i>Other Research Areas</i>

Chemical Engineering	including but not limited to: Chemical engineering (plants, products); Chemical Process Engineering.
Civil Engineering	including but not limited to: Civil engineering; Architecture engineering; Construction Engineering, Municipal and Structural Engineering; Transport Engineering; Geotechnics.
Electrical Engineering, Electronic engineering, Information Engineering	including but not limited to: Electrical and Electronic Engineering; Robotics and Automatic Control; Automation and Control Systems; Communication Engineering and Systems; Telecommunications; Computer Hardware and Architecture;
Environmental Engineering	including, but not limited to: Environmental and Geological Engineering,; Petroleum Engineering (fuel, oils); Energy and Fuels; Remote Sensing; Mining and Mineral Processing; Marine Engineering, Sea Vessels; Ocean Engineering.
Food and Beverage Engineering	including but not limited to: Food Engineering; Beverage Engineering.
Materials Engineering	including but limited to: Materials Engineering; Ceramics; Coating and Films; Composites (including laminates, reinforced plastics, cermets, combined natural and synthetic fibre fabrics; filled composites); Paper and Wood; Textiles (including synthetic dyes, colours and fibres); Nanoscale Materials (engineering aspects only).
Mechanical Engineering	including but not limited to: Mechanical Engineering; Applied Mechanics; Thermodynamics; Aerospace Engineering; Nuclear-related Engineering; (Nuclear Physics to be Physics); Audio Engineering, Reliability Analysis.
Medical and Biomedical Engineering	including but not limited to: Medical Engineering; Medical Laboratory Technology (including laboratory samples analysis; diagnostic technologies).

Primary Area: <b>Mathematics</b>	
<i>Disciplines</i>	<i>Other Research Areas</i>
Applied Mathematics	including but not limited to: Approximation Theory and Asymptotic Methods; Biological Mathematics; Calculus of Variations, Systems Theory and Control Theory; Dynamical Systems in Applications; Financial Mathematics; Operations Research; Theoretical and Applied Mechanics; Numerical Analysis; Numerical Solution of Differential and Integral Equations; Optimisation.

Pure Mathematics	including, but not limited to: Algebraic and Differential Geometry; Category Theory, K Theory, Homological Algebra; Combinatorics and Discrete Mathematics; Group Theory and Generalisations; Lie Groups, Harmonic and Fourier Analysis; Mathematical Logic, Set Theory, Lattices and Universal Algebra; Operator Algebras and Functional Analysis; Ordinary Differential Equations; Difference Equations and Dynamical Systems; Partial Differential Equations; Real and Complex Functions (incl. Several Variables); Topology.
Statistics and Probability	including but not limited to: Applied Statistics; Biostatistics; Forensic Statistics; Probability Theory; Statistical Theory; Stochastic Analysis and Modelling.

Primary Area: <b>Physics</b>	
Disciplines	Other Research Areas
Acoustics	including but not limited to: Acoustics and Acoustical Devices; Waves.
Astronomy and Space Science	including but not limited to: Astrobiology; Astronomical and Space Instrumentation; Cosmology and Extragalactic Astronomy; Galactic Astronomy; General Relativity and Gravitational Waves; High Energy Astrophysics; Cosmic Rays; Mesospheric, Ionospheric and Magnetospheric Physics; Planetary Science; Space and Solar Physics; Stellar Astronomy and Planetary Systems.
Atomic, Molecular and Chemical Physics	including but not limited to: Magnetic Resonances; Moessbauer effect; Atomic and Molecular Physics; Chemical Physics.
Biophysics	including but not limited to: Biological Physics; Medical Physics.
Condensed Matter Physics	including but not limited to: Condensed Matter Characterisation Technique Development; Condensed Matter Imaging; Condensed Matter Modelling and Density Functional Theory; Electronic and Magnetic Properties of Condensed Matter; Superconductivity; Soft Condensed Matter; Surfaces and Structural Properties of Condensed Matter.
Fluids and Plasma Physics	including but not limited to: Surface Physics; Plasma Physics; Fusion Plasmas; Electrical Discharges; Fluid Physics.
Nuclear Physics	including but not limited to: Nuclear Physics.

Optics	including but not limited to: Laser Optics; Quantum Optics; Classical and Physical Optics; Lasers and Quantum Electronics; Nonlinear Optics and Spectroscopy; Photonics, Optoelectronics and Optical Communications.
Particles and Fields Physics	including but not limited to: Particle Physics; Degenerate Quantum Gases and Atom Optics; Field Theory and String Theory.
Theoretical Physics	including but not limited to: Mathematical Aspects of Classical Mechanics, Quantum Mechanics and Quantum Information Theory; Mathematical Aspects of General Relativity; Mathematical Aspects of Quantum and Conformal Field Theory, Quantum Gravity and String Theory; Statistical Mechanics, Physical Combinatorics and Mathematical Aspects of Condensed Matter; Electrostatics and Electrodynamics; Thermodynamics and Statistical Physics.