National Smart Specialisations	Specific Areas of National Smart Specialisations
NSS 1. Healthy society	I. RESEARCH AND DEVELOPMENT OF MEDICINAL PRODUCTS
	II. ADVANCED THERAPY MEDICINAL PRODUCTS (ATMP) AND BIOLOGICAL
	III. RESEARCH AND DEVELOPMENT OF INNOVATIVE DIETARY SUPPLEMENTS AND FOODSTUFFS FOR SPECIAL NUTRITIONAL PURPOSES
	IV. MEDICAL DEVICES AND SUPPLIES
	V. MEDICAL TECHNOLOGIES
	VI. MEDICAL IT TOOLS
	VII. DIAGNOSTICS BASED ON IMAGING AND OTHER DETECTION TECHNIQUES
	VIII. MARKERS/TESTING
	IX. TELEMEDICINE
	X. COORDINATED HEALTH CARE
	XI. NEW PREVENTIVE AND/OR THERAPEUTIC TARGETS
	XII. CLINICAL TRIALS
	XIII.BIOLOGICAL, BIO-EQUIVALENT (FORMERLY BIOSIMILAR), INNOVATIVE, GENERIC MEDICINAL PRODUCTS AND MEDICAL SUPPLIES, AS WELL AS DIETARY SUPPLEMENTS AND FOODSTUFFS FOR SPECIAL NUTRITIONAL PURPOSES
	XIV. ACTIVE SUBSTANCES OF MEDICINAL PRODUCTS (API)
	XV. DERMATOLOGICAL AND COSMETIC EXTERNAL USE THERAPEUTIC PRODUCTS
	XVI. THERAPEUTIC PRODUCTS OF NATURAL ORIGIN
NSS 2. Modern agriculture, forestry and food	I. ELEMENTS OF COMMON INNOVATION IN THE AGRICULTURE AND FORESTRY AND WOOD SECTORS
	II. SOIL AND AGRICULTURAL LAND
	III. BIOLOGICAL PROGRESS IN PLANT AND ANIMAL PRODUCTION
	IV. PLANT AND ANIMAL PRODUCTION TECHNOLOGY
	V. AGRICULTURAL MACHINERY AND EQUIPMENT
	VI. ORGANIC AND MINERAL FERTILISERS, PLANT PROTECTION PRODUCTS AND GROWTH REGULATORS
	VII. PRODUCTION, STORAGE, WAREHOUSING
	VIII. PROCESSING OF AGRICULTURAL CROPS AND ANIMAL PRODUCTS
	IX. INNOVATIVE METHODS TO IMPROVE ANIMAL WELL-BEING AND HEALTH PROTECTION
	X. FOOD AND THE CONSUMER
	XI. MODERN FORESTRY
	XII. INNOVATIVE WOOD AND WOOD-BASED PRODUCTS
	XIII. INDIVIDUALISATION OF FURNITURE PRODUCTION
	XIV. INNOVATIVE PROCESSES AND PRODUCTS IN THE PULP, PAPER AND PACKAGING INDUSTRY
NSS 3. Sustainable (bio)products, (bio)processes and environment	I. BIO-BASED RAW MATERIALS
	II. INNOVATIVE (BIO)TECHNOLOGICAL PROCESSES
	III. BIOPRODUCTS AND SPECIALTY CHEMICAL PRODUCTS
	IV. BIOTECHNOLOGY IN PROTECTION OF THE ENVIRONMENT
NSS 4. Sustainable energy	I. ENERGY GENERATION
	II. SMART GRIDS / SMART POWER GRIDS
	III. ENERGY STORAGE
	IV. RES (RENEWABLE ENERGY SOURCES)
	V. PROSUMER ENERGY
	VI. ENERGY FROM WASTE, ALTERNATIVE FUELS AND PROTECTION OF THE ENVIRONMENT
NSS 5. Smart zero-emission building	I. MATERIALS AND TECHNOLOGIES
	II. BUILDING ENERGY SYSTEMS
	III. DEVELOPMENT OF MACHINERY AND EQUIPMENT
	IV. DEVELOPMENT OF APPLICATIONS AND IT ENVIRONMENTS
	V. INTEGRATED DESIGN
	VI. VERIFICATION OF ENERGY AND ENVIRONMENT
	VII. PROCESSING AND REUSE OF MATERIALS
NSS 6. Environmentally friendly transport	I. INNOVATIVE MEANS OF TRANSPORTATION
	II. ENVIRONMENTALLY FRIENDLY DESIGN SOLUTIONS AND COMPONENTS IN MEANS OF TRANSPORT
	III. SYSTEMS OF TRANSPORT MANAGEMENT
	IV. INNOVATIVE MATERIALS IN MEANS OF TRANSPORT
	V. INNOVATIVE TECHNOLOGIES FOR THE PRODUCTION OF MEANS OF TRANSPORT AND THEIR COMPONENTS
NSS 7. Circular economy	I. ECODESIGN FOR THE CIRCULAR ECONOMY
	II. PRODUCTION AND USE OF RENEWABLE AND NON-RENEWABLE RESOURCES
	III. PROCESSING AND PRODUCTION
	IV. USE AND CONSUMPTION
	V. WASTE AND WASTEWATER
NSS 8. Advanced materials and nanotechnology	I. ECOLOGICAL, BIOMIMETIC, BIONIC AND BIODEGRADABLE MATERIALS AND NANOMATERIALS, WITH REGARD TO THE ENVIRONMENTAL FOOTPRINT, CLOSED-LOOP CIRCULATION, WASTE MINIMISATION AS WELL AS CLEANER TECHNOLOGY AND NANOTECHNOLOGY, INCLUDING RATIONALISATION OF THE USE OF POLYMERIC MATERIALS
	II. MULTIFUNCTIONAL AND NANOSTRUCTURED MATERIALS WITH RADICALLY ENHANCED NEW FUNCTIONALITY AND THEIR TECHNOLOGIES
	III. ULTRA-LIGHT, ULTRA-DURABLE AS WELL AS RADICALLY ENHANCED HEAT AND INCANDESCENCE COMPOSITE MATERIALS AND NANOMATERIALS
	IV. ADVANCED MATERIALS AND NANOMATERIALS FOR RENEWABLE ENERGY, CONVERSION, STORAGE AND ENERGY EFFICIENCY
	V. COMPOSITE MATERIALS AND NANOMATERIALS WITH A MATRIX OR REINFORCEMENT OF NANOFIBRES, NANOWIRES AND NANOTUBES, INCLUDING CARBON NANOTUBES, AND THEIR TECHNOLOGIES
	VI. ADVANCED MATERIALS, TECHNOLOGIES AND NANOTECHNOLOGIES FOR PRODUCTS WITH HIGH ADDED VALUE AND HIGH RELEVANCE TO INDUSTRIAL VALUE CHAINS, ALONG WITH 3D AND 4D INCREMENTAL TECHNOLOGIES
	VII. ADVANCED MATERIALS AND NANOMATERIALS AS WELL AS TECHNOLOGIES AND NANOTECHNOLOGIES FOR MEDICAL AS WELL AS HEALTH CARE PURPOSES AND ENGINEERING AND BIOLOGICAL MATERIALS INVOLVING LIVING TISSUES AND CELLS
	VIII. ADVANCED MATERIALS AND NANOMATERIALS AS WELL AS TECHNOLOGIES AND NANO-TECHNOLOGIES FOR SECURITY APPLICATIONS
	IX. MULTIFUNCTIONAL ANTI-WEAR, PROTECTIVE AND SPECIAL PHYSICOCHEMICAL PROPERTIES LAYERS AND NANOLAYERS, AS WELL AS SPATIAL, LAYERED, SELF-ORGANIZING AND SELF-HEALING COMPOSITES AND NANOCOMPOSITES

	X. MODELING AND SIMULATION, USE OF DATABASES AND DIGITAL TWINS IN TERMS OF STRUCTURE AND PROPERTIES, AS WELL AS COMPUTER AIDED DESIGN AND MANUFACTURING OF MATERIALS AND NANOMATERIALS
NSS 9. Electronics and photonics	I. SENSORS AND DETECTORS (DESIGN, TECHNOLOGY, MATERIALS)
	II. TECHNOLOGIES, MATERIALS AND EQUIPMENT FOR PHOTOVOLTAICS
	III. TECHNOLOGIES, MATERIALS AND OPTICAL FIBER EQUIPMENT
	IV. INNOVATIVE SOURCES OF OPTICAL RADIATION (MATERIALS, TECHNOLOGIES, DEVICES).
	V. SYSTEMS AND SENSOR AND TELECOMMUNICATIONS NETWORKS
	VI. INNOVATIVE CIRCUITS AND SYSTEMS FOR ELECTRONICS, OPTOELECTRONICS AND INTEGRATED PHOTONICS
	VII. INNOVATIVE TECHNOLOGIES AND SYSTEMS FOR PRINTED ELECTRONICS
	VIII. APPLICATION ISSUES
	IX. HORIZONTAL ISSUES IN SENSOR AND PHOTONIC TECHNOLOGIES
NSS 10. Technologies for information, communication, and geo-information	I. FUTURE INTERNET TECHNOLOGIES, INTERNET OF THINGS TECHNOLOGIES, EMBEDDED SYSTEMS
	II. SMART GRIDS IN INFRASTRUCTURES
	III. ARCHITECTURES, SYSTEMS AND APPLICATIONS FOR SMART GRIDS
	IV. INFORMATION MANAGEMENT
	V. MIXED REALITY AND HUMAN-MACHINE AND MACHINE-MACHINE INTERFACES
	VI. CYBERSECURITY
	VII. DEVELOPMENT OF ARTIFICIAL INTELLIGENCE
	VIII. POSITIONING AND NAVIGATION
	IX. ACQUISITION OF GEO-INFORMATION
	X. PROCESSING, ANALYSIS, SHARING AND VISUALISATION OF GEO-INFORMATION
	XI. GEOINFORMATICS
	XII. INNOVATIVE APPLICATIONS OF GEO-INFORMATION
	XIII. TECHNOLOGIES FOR INFORMATION, COMMUNICATION AND GEO-INFORMATION IN REDUCING THE NEGATIVE IMPACT OF HUMAN ACTIVITY ON THE ENVIRONMENT
NSS 11. Automation and robotics	I. DESIGN AND OPTIMISATION OF MANUFACTURING PROCESSES
	II. PROCESS AUTOMATION AND ROBOTISATION TECHNOLOGIES
	III. DIAGNOSIS AND MONITORING
	IV. CONTROL SYSTEMS
	V. MACHINERY AND EQUIPMENT FOR AUTOMATING AND ROBOTISING PROCESSES
NSS 12. Creative industries	I. PATTERNING-DESIGN
	II. GAMES
	III. MULTIMEDIA
	IV. EXTENDED REALITY (XR)
NSS 13. Marine technologies	I. DESIGN, CONSTRUCTION AND CONVERSION OF SPECIALIZED MARINE VESSELS AND THEIR SPECIALIZED EQUIPMENT
	II. DESIGN, CONSTRUCTION AND RECONSTRUCTION OF MARINE AND NEAR-SHORE STRUCTURES
	III. PROCESSES AND EQUIPMENT USED FOR LOGISTICS BASED ON MARITIME AND INLAND TRANSPORTATION
	IV. MODERN TECHNOLOGIES IN THE DREDGING INDUSTRY