

DESCRIPTION OF NARROW AREAS

Note: To find appropriate Narrow Capability Areas use the 'EDIT, FIND' facility to locate key words within the taxonomy.

Broad Capability Area	FATS3 Narrow Area No.	Narrow Capability Area	Descriptions:
Structural & Smart Materials & Structural Mechanics	0010	Metals & Metal Matrix Composite Technology	Metals & Metal Matrix Composite Technology. Metallic alloys, Intermetallics, metal matrix composites (MMC), and materials used as fibre and particulate reinforcements in MMCs, nano materials, microstructural analysis, as-prepared, heat treated or fractured, processes for making novel metallic alloys or MMCs and processes for shaping metallic materials, such as casting, powder, vapour deposition, forging, superplastic forming, for applications in all service environments. Material research and modelling to improve alloy design and alloy behaviour.
Structural & Smart Materials & Structural Mechanics	0020	Ceramics, CMCs & Glass Technology	Ceramics, CMCs & Glass Technology. Structural ceramic materials, including ceramic matrix composites (CMCs), and glass ceramics, fibre and particulate reinforcements, nano materials, microstructural analysis processes for making and shaping new structural ceramic materials, ceramic technologies, research to develop material modelling to improve ceramic material design and understand ceramic materials behaviour.
Structural & Smart Materials & Structural Mechanics	0030	Polymers & Polymer Matrix Composite Technology	Polymers & Polymer Matrix Composite Technology. Organic materials for structural purposes, polymers and polymer matrix composites (PMC), thermosets, thermoplastics, elastomers, and materials used as reinforcing elements in PMCs such as fibres, particulates and laminates. Biomimetic composite materials; processes for making novel fibres or matrices, or for total composite manufacture and for shaping conventional composite materials, polymers, polymeric materials. Research to develop material modelling to improve design of materials based on polymers, polymer composites. Understanding of the behaviour and mechanical properties of such materials. Production with composites, design with composites, development of processes associated with composites
Structural & Smart Materials & Structural Mechanics	0040	Structural Materials Processing - Joining Technology	Structural Materials Processing - Joining Technology. Weld optimisation, weld residual stress modelling. Joints between metallic, or ceramic or polymer-based materials, or between dissimilar combinations of these material types, joining and bonding processes, such as adhesive, diffusion, welded, interlayer, pre- and post-joining treatments, and the application of cost-effective joints in all service environments.
Structural & Smart Materials & Structural Mechanics	0050	Structural Materials Processing - Surface Protection Technology	Structural Materials Processing - Surface Protection Technology. Corrosion barriers, thermal barriers, and other protective techniques to increase the lives of structures and components; processes to control surface behaviour and increase component life and structures in service environments using, advanced coating processes such as metal arc and flame spray, plasma spray, vapour deposition, diffusion processes, specialised paint formulations, and other protective coatings.
Structural & Smart Materials & Structural Mechanics	0060	Non-Destructive Evaluation & Life Extension of Structural Materials	Non-Destructive Evaluation & Life Extension of Structural Materials. Risk based inspection. Structural integrity, properties and characteristics of defects in structural materials using non-destructive tests and techniques to detect flaws and cracks, inspection procedures through to service applications; understanding the limitations of techniques like ultrasonic, radiography, acoustic emission, optical and eddy current procedures. Techniques to predict service life of structures and components under the influence of mechanical, thermal and chemical environments.
Structural & Smart Materials & Structural Mechanics	0070	Corrosion & Wear Control Technology	Corrosion & Wear Control Technology. Processes to control high temperature oxidation and aqueous corrosion and erosion, and degradation due to wear relating to structures and components, environmental testing and accelerated tests for life prediction purposes and susceptibility of designs to corrosion damage.
Structural & Smart Materials & Structural Mechanics	0080	Structural Mechanics	Structural Mechanics. Determining the effects of vibration and fatigue on structures and components, using practical dynamic and static structural analysis methods and techniques or employing finite element analysis and other computerised simulation techniques to understand the response of structures to a variety of conjoint mechanical environment influences. Analysis and evaluations of fracture mechanics, and fracture resistance. Life extension technology, surveillance, determination of static, dynamic and hydrodynamic performance of marine structures. Structural design of platforms, including those which may undergo explosive loadings. Research to aid the assessments of design options. Research in aeroelasticity, hydroelasticity, structural dynamics and structural acoustics.
Structural & Smart Materials & Structural Mechanics	0090	Structural Materials Processing - Forming	Structural Materials Processing - Forming. Forming processes required to shape all forms of structural materials.
Structural & Smart Materials & Structural Mechanics	0100	Structural Materials Processing - Material	Structural Materials Processing - Material Removal. Physical techniques employed to remove material accurately and without microstructural damage during the manufacture of close tolerance components.

Structural & Smart Materials & Structural Mechanics	0110	Smart / Functional Materials for Structural Uses	Smart / Functional Materials for Structural Uses. Optical fibres, conducting wires, electro-active polymer films, electro-active ceramics and shape memory alloys as either sensing elements or actuators in "smart/functional" structural materials, materials aspects of, and application of embedded silicon micro-sensors for in service, in-situ monitoring of composite structures. Biomimetic materials which may have structural applications.
Signature Related Materials	0120	Acoustic & Vibration Absorbing Materials	Acoustic & Vibration Absorbing Materials. Materials which can be used to attenuate or dampen the transmission and reflection of sound energy, medical acoustic materials, flesh simulants, and materials for machinery isolation and blast protection, active (smart) materials for control of vibration and noise, processes which shape such materials and which lead to improved bonding to underlying structures; and frequency selective or responsive materials.
Signature Related Materials	0130	IR Signature Control Materials	IR Signature Control Materials. Materials which absorb infra-red radiation used to reduce the IR signature of equipment, tailoring properties like reflectivity and emissivity, absorbing materials, materials which change properties (e.g. IR reflectivity) for application in stealth coatings; and frequency selective or responsive materials.
Signature Related Materials	0140	Radar Absorbing Materials & Coatings	Radar Absorbing Materials & Coatings. Materials which serve as electromagnetically active constituents in coatings for use on low radar cross section structures, materials for signature reduction applications, including frequency selective or responsive RAM, switchable conductors and tailored dielectrics, RAM, and multispectral materials.
Signature Related Materials	0150	Structural Radar Absorbing Materials	Structural Radar Absorbing Materials. Radar Absorbing Materials & Coatings. Radar absorbing fibre reinforced polymer composites and associated conducting and absorbing sealants, non-invasive loss layers and frequency selective or responsive surfaces, and integrating structural RAM into platforms.
Electronic Materials Technology	0160	Silicon - based materials	Silicon - based materials. III-V Compounds . Silicon - based materials. Silicon materials for low cost thermal detectors and low power high performance electronic devices, Si and SiGe alloys, porous silicon for quantum and bio-compatible devices, and silicon carbide for use in microwave and high temperature electronic devices.
Electronic Materials Technology	0170	III-V Compounds	III-V Compounds. III-V compounds such as GaAs, InAs, InSb, GaSb, AlSb, AlN, InP and GaN used in passive sensing, ECM sub-systems, radar and active imaging.
Electronic Materials Technology	0180	Other Semiconducting Materials	Other Semiconducting Materials. Other Semiconducting Materials. CMT technology employed in high performance and elevated temperature detectors.
Electronic Materials Technology	0190	Insulating & Dielectric Materials	Insulating & Dielectric Materials. Insulating & Dielectric Materials. Applications of I&Ds (electrical and thermal) to integrated circuits, thermal detectors, pigments in LO coatings and as IR absorbing materials, ferro-electric materials for applications in room temperature detectors, and the application of I&D devices in high power RF systems.
Electronic Materials Technology	0200	Carbon-based Materials	Carbon-based Materials. Carbon 60, carbon suspensions, diamonds and diamond coatings; organic semiconductors and optical polymer matrices for electronic and opto-electronic effects.
Electronic Materials Technology	0210	Superconducting Materials	Superconducting Materials. Thin films for application in microwave sensing and signal processing, wire fabrication technologies for electric power applications, superconducting materials for mine-CM magnetic sweeping and for high power RF systems, and HTS materials.
Electronic Materials Technology	0220	Magnetic Materials	Magnetic Materials. Thin film magnetic materials used in sensors and in signature reducing applications, and "smart" magnetic materials.
Photonic/Optical Materials & Device Technology	0230	Optical Materials & Devices	Optical Materials & Devices. IR/Visible/UV Detector Materials & DevicesOptical Materials & Devices. Optical components, splitters and couplers, optical materials for wideband RF fibre optic links and fibre optics for communication, design and fabrication of optics for use in demanding applications, and materials for both lenses and their coatings.
Photonic/Optical Materials & Device Technology	0240	IR/Visible/UV Detector Materials & Devices	IR/Visible/UV Detector Materials & Devices. High performance photon thermal detectors, optical devices for high speed detection, optical switching, and infrared detection on SiGe, ferroelectrics and InSb arrays.
Photonic/Optical Materials & Device Technology	0250	Non-Linear Optical Materials & Devices	Non-Linear Optical Materials & Devices. Optical materials capable of fast switching used in tuneable filters; optical limiters and those showing non-linearities in liquid crystals, polymers and polar organic materials.
Photonic/Optical Materials & Device Technology	0260	Display Materials & Devices	Display Materials & Devices. Nanophase polydisperse tuneable filters and other novel liquid crystal materials for display applications.
Photonic/Optical Materials & Device Technology	0270	Lasers - all types	Lasers - all types. FIR, VNIR, mid-IR, dye and frequency diverse sources, processes to produce solid state mid-IR material structures in a range of III-V compounds and the fabrication of laser structures. Compliance with JSP 390 Military Laser Safety.
Photonic/Optical Materials & Device Technology	0280	Non-Laser Devices	Non-Laser Devices. III-V materials and porous silicon for light emitting diodes, and other types of LEDs.
Photonic/Optical Materials & Device Technology	0290	Transparent Materials	Transparent Materials. Diamond windows and coatings, and other materials which are transparent to electromagnetic radiation, and which are capable of sustaining mechanical and/or thermal loads.
Electronic, Electrical & Electromechanical Devices	0300	Device Concepts & Fabrication	Device Concepts & Fabrication. Technologies for application in novel IR and EO devices such as displays. Process technologies to fabricate advanced devices, micro-structured and deformable surfaces to control the scattering direction of incident radiation for stealth purposes, devices for applications in high power RF systems, and MEMS fabrication technology and device developments which give rise to novel luminescence effects.
Electronic, Electrical & Electromechanical Devices	0310	Device Packaging	Device Packaging. Application to ASICs and MMICs at the prototype stage and to multichip modules, novel packaging requirements for bio-compatible Si and micro-sensors and device packaging in high power RF systems.

Electronic, Electrical & Electromechanical Devices	0320	Device Integration & Reliability	Device Integration & Reliability. Defects in electronic components, device obsolescence tracking processes, specifications, and tests for reliability, quality and fitness for purpose. Integration of discrete devices in silicon based materials and in other types of semi-conductors and devices in applications like high power RF systems and ASIC devices handling large amounts of sonar data.
Electronic, Electrical & Electromechanical Devices	0330	Electrical Batteries, Primary	Electrical Batteries, Primary. Battery systems technologies, high energy, high density batteries, advanced power sources, thermal batteries, and power source integration using microsensors for autonomous operation to monitor all issues relating to battery performance. Portable Power. Primary (non-rechargeable) batteries technology.
Electronic, Electrical & Electromechanical Devices	0331	Electrical Batteries, Secondary	Electrical Batteries, Secondary. Battery systems technologies, high energy, high density batteries, advanced power sources, thermal batteries, rechargeable batteries for portable equipment and aqueous rechargeable batteries, and power source integration using microsensors for autonomous operation to monitor all issues relating to battery performance. Portable Power. Secondary (rechargeable) batteries technology.
Electronic, Electrical & Electromechanical Devices	0340	Electrical Fuel Cells	Electrical Fuel Cells. Fuel reforming, fuel storage (hydrogen), and system integration; integrated full electric propulsion applications and high power pulsed systems; and fuel cell technology for man-portable systems. Portable Power.
Electronic, Electrical & Electromechanical Devices	0350	Solar Cells	Solar Cells. Solar cell technology, Organic solar cells for lightweight, flexible integrated power supplies and photovoltaic cells.
Electronic, Electrical & Electromechanical Devices	0360	Power Sources & Devices – RF	Power Sources & Devices – RF. Solid state power devices such as amplifiers and circuits, (RF, microwave and millimetre wave) used in radar, communication and ECM systems.
Electronic, Electrical & Electromechanical Devices	0370	Power Sources & Devices – Acoustic	Power Sources & Devices – Acoustic. Miniaturisation of acoustic power sources and high power, wide bandwidth, compact acoustic sources used in active sonar systems operating in either air or water.
Electronic, Electrical & Electromechanical Devices	0380	Other Electrical Power Sources & Devices	Other Electrical Power Sources & Devices. Electrical generating and power converting devices, such as flywheel sustained systems, used in a variety of mobile equipment requiring standalone energy sources.
Electronic, Electrical & Electromechanical Devices	0390	Electric Motors	Electric Motors. Electric motors technology, Electric motors used in a wide range of demanding applications.
Electronic, Electrical & Electromechanical Devices	0400	Inertial/Gravitational Devices	Inertial/Gravitational Devices. Inertial and gravitational devices, particularly detectors, used in a variety of applications such as guidance systems.
Energetic Materials and Plasma Technology	0410	Propellants	Propellants. Propellant materials compliant with DOSG policy on handling and use of propellant materials and fuels for ramjets, and environmentally friendly disposal at end of service life. (Duty of Care).
Energetic Materials and Plasma Technology	0420	Conventional Fuels & Lubricants	Conventional Fuels and lubricants. Fuels and lubricants compliant with DOSG policy, hazard management processes, and approval and quality assessments.(Duty of Care).
Energetic Materials and Plasma Technology	0430	Explosives	Explosives. Explosive materials used in weapons systems and armour applications compliant with DOSG policy on the handling and use of energetic materials for defence purposes, and disposal at end of service life. Compliance with Def Stan 07-85 Weapon System Design Requirements. (Duty of Care).
Energetic Materials and Plasma Technology	0440	Pyrotechnics	Pyrotechnics; countermeasures, underwater mine disposal compliant with DOSG policy for handling and use of pyrotechnic materials, initiators and obscurants, and disposal at the end of their service life. Compliance with Def Stan 07-85 Weapon System Design Requirements. (Duty of Care).
Energetic Materials and Plasma Technology	0450	Plasma Techniques	Plasma Techniques. Plasmas, such as in ETC gun systems, intense light propagation, absorption and scattering effects in plasmas, and interactions of plasmas with all forms of matter.(Duty of Care).
Energetic Materials and Plasma Technology	0460	Explosive Detection Techniques	Explosive Detection Techniques. Active optical sensing and surface enhanced Raman effects for chemical detection purposes, bulk and trace detection techniques for explosives, bio-engineered organisms for use in explosive detection systems and related degradation determination activities. (Duty of Care)
Chemical, Biological and Medical Materials	0470	Chemical Agents, Precursors & related materials	Chemical Agents, Precursors & related materials. Identifying, analysing and evaluating chemical materials, understanding toxicity, producibility and properties of chemicals, applications and use of such agents, and to predict the consequences of their use. Detection, protection and medical countermeasures, and pathology and handling of supertoxic chemicals.
Chemical, Biological and Medical Materials	0480	Biological Agents, Precursors & related materials	Biological Agents, Precursors & related materials. Identifying, analysing and evaluating biological materials, understanding toxicity, producibility and properties of biological materials, how such agents might be used, and the ability to predict the consequences of their use; detection, protection and medical countermeasures, and in vitro, pathology and handling of highly infectious pathogens.
Chemical, Biological and Medical Materials	0490	Mid-Spectrum Agents	Mid-Spectrum Agents. Materials that are produced from biological sources which have severe toxic effects on personnel, predicting the probable consequence of their use, and detection of MSA, protection from MSA and appropriate medical countermeasures.
Chemical, Biological and Medical Materials	0500	Chemical & Biological Detection	Chemical & Biological Detection. CB agent materials and toxic chemicals detection techniques, particularly monitoring levels of hazard, identifying the agent and establishing the exposure period retrospectively, application of MS and IMS techniques to the analysis process, genetic engineering and amplification, antibody / antigen interactions, gene probes and biosensor transduction, novel silicon sensor devices, such as bio-compatible porous silicon sensors, and optical sensing and surface enhanced Raman effects.
Chemical, Biological and Medical Materials	0510	Other non-CBW Chemicals	Other non-CBW Chemicals. Toxicology issues relating to non-CB chemicals used in equipment, fire protection coatings and fire resistant materials, alternatives to halons and other materials prohibited by the Montreal Protocol, monitoring techniques for submarine atmospheres; an advanced chemical analysis techniques for materials.
Chemical, Biological and Medical Materials	0520	Medical Products & Materials	Medical Products & Materials. Blood products and other important medical materials, including biomimetics for medical purposes; and vaccines and other disease controlling substances. Analysing and testing of blood, blood products and other medical products and materials.

Computing Technologies and Mathematical Techniques	0530	Software, Solutions	Software, Solutions. Software systems engineering, software design, platform-independent, platform-specific, user experience design, documentation and integration
Computing Technologies and Mathematical Techniques	0531	Software, Integration	Software Integration. Software integration processes, product integration with existing processes.
Computing Technologies and Mathematical Techniques	0532	Software, Development	Software Development. Development of algorithms, techniques and models; simulation language developments. Software testing. Integration. Activities that result in software products including modification, reuse, re-engineering and maintenance. Emerging technologies.
Computing Technologies and Mathematical Techniques	0533	Software, Configuration	Software Configuration Management. Software configuration control, software qualification, implementation controls for software changes
Computing Technologies and Mathematical Techniques	0534	Software, Requirements	Software Requirements. Software requirements analysis, system behaviour, user interaction with software, functional and non-functional requirements, identification of benefits. Integration.
Computing Technologies and Mathematical Techniques	0535	Software, Programming	Software Programming. Programming language, software suite, integrated development environment (IDE), application programming interface (API). Integration.
Computing Technologies and Mathematical Techniques	0536	Software, Quality Assurance	Software Quality Assurance management, software quality control
Computing Technologies and Mathematical Techniques	0540	Protocol Technology	Protocol Technology. Satellite and terrestrial communications systems, management and control
Computing Technologies and Mathematical Techniques	0541	Communication Protocols	Communication Protocols. Protocols relevant to communications, communications design.
Computing Technologies and Mathematical Techniques	0542	Networks	Networks. Civil protocols and their interaction with other networks, including LANs and WANs, Distributed Interactive Simulation protocols.
Computing Technologies and Mathematical Techniques	0543	Middleware	Middleware. Connecting software components and applications. Embedded software and time-critical aspects of middleware, middleware (transaction managers) in networked information systems. Integration.
Computing Technologies and Mathematical Techniques	0550	COTS Software Assessment	COTS Software Assessment. Commercial off the Shelf (COTS) software identification and assessment.
Computing Technologies and Mathematical Techniques	0551	COTS Software Integration	COTS Software Integration. Production of COTS product integration and maintenance procedures.
Computing Technologies and Mathematical Techniques	0560	Software Architectures	Software Architectures. Relationships between software elements and externally visible properties of those elements. Software Architecture systems and the design of Distributed Systems. MODAF. Integration.
Computing Technologies and Mathematical Techniques	0561	Hardware Architectures	Hardware Architectures. Hardware Architecture systems and the design of Distributed Systems. Design implementation. Integration.
Computing Technologies and Mathematical Techniques	0562	Parallel Computing	Parallel Computing. Parallel computing systems. Parallel computers - computers with more than one processor.
Computing Technologies and Mathematical Techniques	0570	Software Tools	Software tools and methodologies used to investigate fault tolerance/detection, atomicity and liveness; software quality and reliability issues, and fault tolerant computing and fault tolerant software. Emerging technologies. Integration.
Computing Technologies and Mathematical Techniques	0571	Computing Hardware	Computing Hardware. Hardware, tools and methodologies used to investigate fault tolerance/detection, atomicity and liveness; quality and reliability issues. Emerging technologies. Integration.
Computing Technologies and Mathematical Techniques	0580	Secure Computing Techniques	Secure Computing Techniques. Secure operational procedures and secure segregation of information, including infosec, at all levels of communications and information systems, open systems integration and standards. System vulnerabilities. Knowledge of CESA approved product scheme (CAPS), CESA approved products, check testing, IT health-check. Emerging technologies.
Computing Technologies and Mathematical Techniques	0581	Distributed Systems Security	Distributed Systems Security. Log-in, authentication, access control and distributed systems. Integration.
Computing Technologies and Mathematical Techniques	0582	Network System	Network System Administration. System administration, installation, and network security.
Computing Technologies and Mathematical Techniques	0590	Encryption Software	Encryption Software. Quantum optical processing for secure communication systems, system vulnerabilities; encryption work in the context of information warfare processes and infosec, abstract algebra, computational complexity. Cryptographic algorithms.
Computing Technologies and Mathematical Techniques	0591	Encryption & Crypto Techniques	Encryption and Crypto Techniques. Interaction of communications systems design and encryption techniques. Public Key Infrastructure (PKI).
Computing Technologies and Mathematical Techniques	0600	Mathematical Modelling	Mathematical Modelling. Hydrocode and analytical modelling, modelling for synthetic environments, human factors, communications networks and related issues, platform dynamic modelling, modelling of risk assessment techniques.
Computing Technologies and Mathematical Techniques	0601	Mathematical Modelling Evaluation	Mathematical Modelling Evaluation. Measurement sets, relations between system variables, properties of the system, interpolation, extrapolation, evaluation and assessment.
Computing Technologies and Mathematical Techniques	0610	OA Tools & Techniques	OA Tools & Techniques. OA/OR techniques for application to security issues.
Computing Technologies and Mathematical Techniques	0611	Object Oriented Techniques	Object Oriented Techniques. Object oriented techniques applied to all levels of communications, information systems networks and information systems management. Ontology. Integration.
Computing Technologies and Mathematical Techniques	0612	Rapid prototyping	Rapid Prototyping and cost effective re-use of validated model elements.
Computing Technologies and Mathematical Techniques	0620	Software Accreditation	Software Accreditation. Accreditation of software.
Computing Technologies and Mathematical Techniques	0621	Software Verification Technology	Software Verification Technology. Verification of software. Dynamic verification (test or experimentation), static verification (analysis).
Information and Signal Processing Technology	0630	Data & Information Management Technology	Data & Information Management Technology. Data mining and automatic image retrieval, ILS and CALS techniques, real-time database structures. Developing information management life cycle processes. Information storage and retrieval management. Ontology.

Information and Signal Processing Technology	0631	Data & Information Storage	Data & Information Storage. Data and information storage techniques, including datawarehousing technologies, data and information management and compression techniques, and application of IM techniques to knowledge-based engineering designs. Maintenance of archival and current information databases. Ontology.
Information and Signal Processing Technology	0640	Digital Signal Processing Techniques	Digital Signal Processing Techniques. DSP for high-throughput MCM sonars and UUVs, underwater weapon homing and countermeasure algorithms and systems, DSP techniques in relation to radar systems, weapon dynamics, guidance and weapon/target interactions, application of DSP to Satcom EPM and multifunction RF modems, software radio concepts, EPM and adaptive systems concepts for tactical communications, evaluation and analysis of DSP in systems involving PAR, sonar, and communications hardware, fast DSP techniques, signal correlation, single flux quantum logic in high temperature superconducting devices, and Focal Plane Processing techniques and data compression / decompression techniques for video and other applications. Emerging technologies.
Information and Signal Processing Technology	0650	Optical Signal Processing Techniques	Optical Signal Processing Techniques. Pattern and target recognition for repeaters, and jammers, mm and microwave generation, adaptive optics and distributed apertures, novel components for implementation in optical processing algorithms, OSP in the context of prototyping ground stations, and data compression and decompression techniques for video and other applications.
Information and Signal Processing Technology	0660	Image/Pattern Processing Techniques	Image/Pattern Processing Techniques. IR focal plane arrays and passive mm wave imaging using advanced super resolution algorithms, HF sonar imaging, and real time image processing to support unmanned vehicles, machine vision and AFV crew aids; and target detection, recognition and identification.
Information and Signal Processing Technology	0670	Speech & Natural Language Processing Techniques	Speech & Natural Language Processing Techniques. Language modelling, hardware and applications evaluation, speech and voice recognition systems. Emerging technologies.
Information and Signal Processing Technology	0680	Optimisation & Decision Support Technology	Optimisation & Decision Support Technology. AI and expert techniques for support of data fusion, decision support techniques and their application to satcom system management, AI/ET in information management, MCM sonar classification systems, combat management systems and planning aids, analysis of security issues, decision planning aids, aids to situational awareness, optical processing components and algorithms for neural network implementation, Neural Nets in HUMS, fatigue and load exceedance monitoring, and neuro-fuzzy systems and recurrent NNs.
Information and Signal Processing Technology	0690	Information & Data Fusion Techniques	Information & Data Fusion Techniques. I&DF techniques in multispectral sensor systems, sensor integration and picture compilation, anti-stealth and target identification, weapons systems such as guidance, dynamics, and weapon/target interactions, data fusion applied to combat aircraft and sensor systems, including software, simulation and flight trial techniques; and CALS and CIRPLS activities.
Information and Signal Processing Technology	0700	Other Information Processing Technology	Other Information Processing Technology. OIPT to aid the evaluation and analysis of non-spatial recognition algorithms as applied to long range targeting systems and to model the optical properties of complex pigments and binders.
Human Sciences	0710	Human Information Processing	Human Information Processing. Human sensory, perceptual and cognitive processes, modelling of the human visual system, human error and reliability, workload reduction for crew systems in platforms and installations, human decision making and situational awareness, and human interaction with systems.
Human Sciences	0720	Military Human Resources	Military Human Resources. Recruitment, selection and retention of personnel, management of equal opportunities, aptitude, personal qualities, and physical characteristics, manpower modelling, and systems complementing.
Human Sciences	0730	Teams, Organisations & Cultures	Teams, Organisations & Cultures. Team process and effectiveness, impact of command and leadership style on organisational behaviour, human determinants of collective performance - e.g. morale; impact of cultural norms on social behaviour; and influences on social perception.
Human Sciences	0740	Human Survivability, Protection & Stress Effects	Human Survivability, Protection & Stress Effects. Impact of stressors on human performance, behaviour and well-being, impact of irregular duty schedules and sleep loss; physical and mental fatigue, impact of thermal strain, clothing assemblies, decompression and diving, post-traumatic stress effects and fear, head impact modelling, prevention of musculo-skeletal injuries, and human performance implications of protection against environmental and/or weapon threats.
Human Sciences	0750	Not used	Not used
Human Sciences	0751	Not used	Not used
Human Sciences	0752	Not used	Not used
Human Sciences	0760	Not used	Not used
Human Sciences	0770	Not used	Not used
Human Sciences	0780	Performance Enhancing Techniques	Performance Enhancing Techniques. Enhancement of individual physical and mental performance, nutrition, pharmacological agents, ergogenic aids, and other treatments to enhance human performance.
Human Sciences	0790	Surgical Techniques & Medical Procedures	Surgical Techniques and Medical Procedures. Treatment of battlefield casualties affected by either conventional or novel weapons, ballistic and explosive effects on human tissues, and the effects of hyperbaric oxygen treatment of soft tissue injuries.
Human Sciences	0800	Human Health Physics	Human Health Physics. Dosimetry techniques to assess the nature and scale of radiation effects on personnel.
Human Sciences	0810	Human Performance Monitoring Techniques	Human Performance Monitoring Techniques. Techniques to sense and monitor the performance of personnel, physiological sensing and monitoring.
Human Sciences	0820	Not used	Not used

Operating Environment Technologies	0830	Oceanography	Oceanography. Ocean bed imaging, underwater environment, effect on underwater weapon homing algorithms, and HF acoustics propagation for applications such as MCM sonars.
Operating Environment Technologies	0840	Terrain Science	Terrain Science. Terrain representation in models and synthetic environments, digital map processing facilities, land mapping from space imagery, and air navigation route planning.
Operating Environment Technologies	0850	Meteorology	Meteorology. Representation of weather systems in models and synthetic environments, ocean-atmosphere coupling for underwater propagation modelling, effect of meteorological conditions on long range radar propagation at sea, and sensing remote air movements using optical techniques.
Operating Environment Technologies	0860	Upper Atmosphere & Space Environment	Upper Atmosphere & Space Environment. Ionospheric and exo-atmospheric space environment and its effects on spacecraft, measuring and modelling space radiation and debris effects, the effect of ionospheric environment on EHF satcomms, sensors for BMD, HF and space based radar and precision time systems such as GPS.
Operating Environment Technologies	0870	Acoustic Propagation in Air & Water	Acoustic Propagation in Air & Water. Propagation of sound at all frequencies, effects of bottom and surface interactions, velocity structure both vertical and horizontal, reverberations and transmission loss.
Operating Environment Technologies	0880	Electromagnetic Propagation in Air & Water	Electromagnetic Propagation in Air & Water. Propagation of electromagnetic radiation at all frequencies, effect of meteorological conditions on long range radar propagation at sea.
Mechanical, Thermal & Fluid-Related Technologies and devices	0890	Mechanical Technologies & Devices	Mechanical Technologies & Devices. Mechanical technologies, mechanical devices including bearings, seals, clutches, and their application in devices used in all environments
Mechanical, Thermal & Fluid-Related Technologies and devices	0891	Hydraulic Technologies & Devices	Hydraulic Technologies & Devices. Hydraulic technologies, hydraulic devices including actuators and pumps etc, and their application in devices used in all environments.
Mechanical, Thermal & Fluid-Related Technologies and devices	0900	Lubrication Technology	Lubrication Technology. Lubricants and lubricating systems used in defence equipments, lubrication faults and failures, associated hazards, quality assessment, performance monitoring of lubrication products and systems throughout service life.
Mechanical, Thermal & Fluid-Related Technologies and devices	0910	Thermal & Thermodynamic Technologies & Devices	Thermal & Thermodynamic Technologies & Devices. Thermal and thermodynamic technologies used in devices including heat exchangers and thermal de-icing devices. Heat transfer by conduction, convection and radiation, gas turbines and conventional internal combustion engines.
Mechanical, Thermal & Fluid-Related Technologies and devices	0920	Fluid Mechanics – Phenomenological & Experimental	Fluid Mechanics Phenomenological and Experimental. Gas dynamics and hydrodynamics, vortex behaviour, flow separations, unsteady flows, wind tunnels; shock tubes, water tanks, facility testing, wall interference corrections, support interference corrections, non-intrusive measurements, balance design, calibration and pressure measurements, isolated weapons, weapon carriage and release. (For Air environment use Airworthiness Management broad capability area).
Mechanical, Thermal & Fluid-Related Technologies and devices	0930	Fluid Dynamics Techniques	Fluid Dynamics Techniques. Computational fluid dynamics, evaluation and analysis of hydrodynamic performance of all types of marine platforms, evaluation and analysis of supercomputer outputs, fluid dynamic and numerical mathematics in turbulence modelling, transition prediction, viscous flow, solution algorithms, grid generation, CFD/CAD interfaces, GUI and data interpretation and presentation. (For Air environment: use Airworthiness Management broad capability area).
Lethality & Platform Protection	0940	Not used	Not used
Lethality & Platform Protection	0950	Penetrators	Penetrators. All types of penetrator designs employing kinetic energy (KE) in the context of armour/anti-armour and hard / buried target interactions.
Lethality & Platform Protection	0960	Battle Damage Reduction Techniques	Battle Damage Reduction Techniques. Techniques for reducing the vulnerability of military platform structures and installations to penetrative and blast or shock wave effects. Threat assessment. (For Air environment: use Airworthiness Management broad capability area).
Lethality & Platform Protection	0970	Not used	Not used
Lethality & Platform Protection	0980	Not used	Not used
Lethality & Platform Protection	0990	Armour Systems	Armour Systems in the context of armour/anti-armour and hard/buried target, heavy armours and electric armours, mine effects simulation and protective measures, and anti-torpedo hardkill devices for ships and submarines.
Lethality & Platform Protection	1000	Not used	Not used
Lethality & Platform Protection	1010	Other Platform Protection	Platform Protection Measures. Protection of platforms from threat weapons, counter stealth. Threat assessment.
Propulsion & Powerplants	1020	Gas Turbines	Gas Turbines. Platforms and weapons and related structural design aspects, torpedo thermal engine designs, testing techniques for engine performance parameters, resistance of gas turbines to effects of sand and salt ingestion. Expertise in component design and production. (For Air environment: use Airworthiness Management broad capability area).
Propulsion & Powerplants	1030	Reciprocating & Rotary IC Engines	Reciprocating and Rotary IC Engines. IC engines for platform systems and weapons systems, vibration and/or noise reduction in engines. (For Air environment: use Airworthiness Management broad capability area).
Propulsion & Powerplants	1040	Not used	Not used
Propulsion & Powerplants	1050	Gun & Launch Tube Propulsion	Gun & Launch Tube Propulsion. All calibre gun tube designs using chemical propellants, weapon system integration applications and associated structural design, electrothermal gun system designs, non-chemically-driven launcher tube systems.
Propulsion & Powerplants	1060	Electric Propulsion - Rotary & Linear	Electric Propulsion Rotary and Linear. Electric and hybrid propulsion systems for submarines, surface ships, underwater weapons, UUVs, and land vehicles, platform or weapons system integration, electromagnetic launch systems and their integration into land and sea platforms.

Propulsion & Powerplants	1070	Transmissions/ Powertrains	Transmissions & Powertrains. Ship and submarine gearboxes and powertrains, wheeled and tracked vehicle transmissions and powertrains, life and reliability aspects. (For Air environment: use Airworthiness Management broad capability area).
Propulsion & Powerplants	1080	Ion Thrusters	Ion Thrusters. Ion thruster designs to improve performance and operating life.
Propulsion & Powerplants	1090	Nuclear Propulsion	Nuclear Propulsion. Engineering aspects of non-nuclear elements in nuclear propulsion systems.
Propulsion & Powerplants	1100	Not used	Not used
Propulsion & Powerplants	1110	Final Drive - Water	Final Drive Water Propulsors. Propulsors, performance, interaction with the local operating environment, radiated noise effects.
Propulsion & Powerplants	1120	Final Drive - Wheels & Tracks	Final Drive Wheels and Tracks. Wheeled and tracked drive systems, interaction with the local operating environment. Traction.
Design Technologies for Platforms & Weapons	1130	Not used	Not used
Design Technologies for Platforms & Weapons	1140	Hydrodynamic Designs	Hydrodynamic Designs. Hull form, integration of stealth technology, hydrodynamic, sea-keeping and handling of marine platforms and marine structures, hydrodynamic aspects of naval weapons systems such as the effects of flow noise on torpedo homing systems, wake effects.
Design Technologies for Platforms & Weapons	1150	Structural Designs	Structural Designs. Structural design for platforms and weapons systems, and for battlefield bridging, structural aspects of integration with stealth design, predictive modelling, dynamics and acoustic measurement and associated test activities. Prevention of transmission of noise through structures and equipment, CAD. (For Air environment: use Airworthiness Management broad capability area).
Design Technologies for Platforms & Weapons	1160	Mechanical Designs	Mechanical engineering design for platforms and weapons and their sub-systems, test activities and predictive modelling, aircraft launch and recovery system, CAD.
Design Technologies for Platforms & Weapons	1170	Stealth Designs	Minimising hull vibration in ships and submarines arising from machinery and fluid flow effects, analysis of threat stealth design and threat sensor technology, reduced signature stealth designs for platform and weapon applications, predictive modelling and specialised testing facilities for stealth design aspects, co-ordinating the management of signatures.
Design Technologies for Platforms & Weapons	1180	Not used	Not used
Design Technologies for Platforms & Weapons	1190	Thermal/Cryogenic Designs	Thermal Cryogenic Designs. Thermal and cryogenic design factors and their integration in platforms and weapon systems, associated test activities and predictive modelling.
Design Technologies for Platforms & Weapons	1200	Not used	Not used
Design Technologies for Platforms & Weapons	1210	Optical Designs	Optical Designs. Optical design factors, and their integration in platforms and weapons systems, associated test activities and predictive modelling.
Design Technologies for Platforms & Weapons	1220	Acoustic Designs	Acoustic Designs. Acoustic design factors, and their integration in platforms and weapons systems, associated test activities and predictive modelling.
Design Technologies for Platforms & Weapons	1230	Environmental Protection Designs	Environmental Protection Designs. Designs for reducing the effects of icing on the performance of equipment, designs to combat the effects of thermal extremes on equipment, designs for the protection for of engines from the effects of sand ingestion.
Electronic Warfare Systems and DEW Technologies	1240	DET – RF	DET RF. RF DE systems and their effects on silicon microelectronic components, circuits, and sub-assemblies. Integration of DE into weapon systems, non-destructive RF DE systems and their integration into anti-ship missile defence systems.
Electronic Warfare Systems and DEW Technologies	1250	DET – Lasers	DET Lasers. Integration of laser DE systems into platforms and weapon systems. High power laser technology.
Electronic Warfare Systems and DEW Technologies	1260	DET – other types	DET. Particle beam technology, and their integration into platforms and weapon systems.
Electronic Warfare Systems and DEW Technologies	1270	ECM – RF	ECM RF. Generic and specific countermeasure waveforms integrated into ECM systems to protect platforms. Communications ECM and non-communications ECM, tactical communications ECM, long range surveillance and tactical battlefield ECM systems, microwave filter and MMIC design aspects of ECM systems, power amplifiers for jammers, micro- and milli-metre wave ECM techniques.
Electronic Warfare Systems and DEW Technologies	1280	EOCM - IR/Visible/UV	EOCM IR Visible and UV. Generic and specific waveforms integrated into EOCM systems. Communications EOCM, and non-communications EOCM, laser technology, stealth materials, negative luminescent device technologies and E-O sensors in the context of ECM systems, sensor design and signature measurement related to EOCM.
Electronic Warfare Systems and DEW Technologies	1290	ECM – Acoustic	ECM Acoustic. Countermeasures to acoustic homing torpedoes and their launch platforms. Acoustic ECM systems integration and the associated man-machine interface requirements.
Electronic Warfare Systems and DEW Technologies	1300	ECM – Magnetic & Electrical	ECM Magnetic and Electrical. Magnetic and electrical CMs to torpedoes and their fuzes. M&E threat to spacecraft systems, integration of ECM systems into combat systems.
Electronic Warfare Systems and DEW Technologies	1310	ESM – Communications	ESM Communications. Communications ESM techniques and technology, integration of ESM with weapon systems and for tactical employment, information warfare technology, long range and tactical battlefield communications and counter-communications technology. Geolocation of interferers and unauthorised users. Emerging technologies.
Electronic Warfare Systems and DEW Technologies	1320	ESM – Non-Communications	ESM non-Communications. Techniques for the high probability of intercept of RF signals, their rapid identification, and integration of ESM systems into weapon and combat systems. Radiographic mapping of electromagnetic sources from satellite observations.

Electronic Warfare Systems and DEW Technologies	1330	EPM – RF	EPM RF. RF EPM and integration of EPM systems with weapon systems, spread spectrum techniques applied to communications signals at SHF and EHF, hardening of communications assets and advanced adaptive EPM for HF communications, micro- and millimetre wave frequencies for EPM purposes.
Electronic Warfare Systems and DEW Technologies	1340	EOPM – IR/Visible/UV	EOPM IR Visible and UV. Image processing algorithms for navigation and targeting sensors for threat systems. EOPM across visible, IR and FIR, for eyes, imagers and magnifying optics, integration aspects related to weapon systems, sensor design.
Electronic Warfare Systems and DEW Technologies	1350	EPM – Acoustic	EPM Acoustic. Mine avoidance sonars in submarines and surface ships. Acoustic EPM systems integration at the man-machine interface.
Electronic Warfare Systems and DEW Technologies	1360	EPM – Magnetic & Electrical	EPM Magnetic and Electrical. Reducing effects of magnetic and electrical stray fields and hazards on equipment.
Signature Control and Signature Reduction	1370	Radar Signatures	Radar Signatures. Platform radar signatures and integration of radar signature control into weapon systems, threat radar sensor technology, active stealth measures in the context of radar signatures. Modelling and prediction analysis.
Signature Control and Signature Reduction	1380	Laser Signatures	Laser Signatures. Manipulating platform laser signatures and integration of laser signature control into weapon systems, threat laser sensor technology, low observable materials technology, operating environment signatures. Modelling and prediction analysis.
Signature Control and Signature Reduction	1390	IR Signatures	IR Signatures. Manipulating platform IR signatures and integration of signature control into weapon systems, effects of pigments and other materials on signature control, stealth missile launch detection (plumes), threat IR sensor technology, operating environment signatures, thermal signature control in the context of gas turbines. Reciprocating / rotary engines, rockets and ramjets. Modelling and prediction analysis.
Signature Control and Signature Reduction	1400	UV/Visible Signatures	UV and Visible Signatures. Manipulation of platform UV/Visible signatures and integration of signature control with weapon systems, threat UV/Vis sensor technology, missile detection filters and operating environment signatures, coatings and micro-structured surfaces to minimise laser retro-reflections. Modelling and prediction analysis.
Signature Control and Signature Reduction	1410	Acoustic Signatures	Acoustic Signatures. Manipulation of underwater acoustic signatures of marine craft and torpedo decoys, detection and classification of targets, mine threat analysis, optimising processing techniques, acoustic echo characteristics of target ships and submarines, torpedo and fuzing systems, active and passive measurement techniques for underwater signatures, acoustic signature detection of helicopters, modelling to predict rotor noise and its propagation through the environment, land-based systems acoustic signatures, the application of passive and active acoustic signature control to land equipment, laser generated acoustic waves, acoustic signature control of gas turbines and reciprocating/rotary engines. Modelling and prediction analysis.
Signature Control and Signature Reduction	1420	Electrical & Electrochemical Signatures	Electrical and Electrochemical Signatures. Mine threats to maritime vessels, reduction of electrical signatures of maritime platforms, electrical signatures for TEMPEST testing, evaluation and certification. Modelling and prediction analysis.
Signature Control and Signature Reduction	1430	Magnetic Signatures	Magnetic Signatures. Mine threat for maritime vessels, reducing or manipulating magnetic signatures of maritime platforms, interaction between torpedo fuzes, targets and countermeasures in the undersea environment, measurement of the magnetic signature content of equipment and components fitted in minehunting and mine countermeasure vessels, magnetic signature ranging and reduction, display technology for operation in environments with magnetic fields. Modelling and prediction analysis.
Sensor Systems	1440	RF Sensors/Antennas – Active	RF Sensors Antennas Active. Detectability of air targets and surface targets using active radar, covering all radar frequencies, DSP, system modelling, detectors, antennas, system design, active array technology and advanced processing for multifunction radar, space based communications antennas and radar for surveillance, system design, system modelling, integrated sensor suites, SARA, MIT, maritime rec, advanced phased arrays, obstruction avoidance sensors, calibration and metrology, integration of radomes.
Sensor Systems	1450	RF Sensors/Antennas – Passive	RF Sensors Antennas Passive. Detectability of air targets and surface targets using passive radiometric sensors, covering all radiometric frequencies, antenna calibration, and MMIC design and device packaging technology for a low cost passive radar imager.
Sensor Systems	1460	Not used	Not used
Sensor Systems	1470	IR Sensors – Passive	IR Sensors Passive. Integrated sensor suites incorporating targeting, navigation, terrain and obstruction avoidance IR sensors, optics, system modelling, IR detectors, lasers and system design, vision systems for AFVs and WASAD, intelligent surveillance systems, IR detection of buoyant mines on the sea surface, and IR detection of land mines, space based IR surveillance, smart IR sensors, advanced IR detector designs for improved identification and counterstealth, integration of IR domes.
Sensor Systems	1480	UV/Visible wave Sensors	UV and Visible Wave Sensors. Integrated sensor suites incorporating UV/Visible sensors for targeting and other applications, optics, system modelling, UV/Vis detectors, UV/Vis lasers, system design, organic semiconductors for application in photon detection and image intensifiers, UV-sensitive missile launch detectors, visual sensors for space-based surveillance.
Sensor Systems	1490	Acoustic Sensors – Active	Acoustic Sensors Active. Airborne ASW systems, active sonobuoys and sonic processors, HF acoustics, propagation and support analysis of MCM, mine avoidance, MCM reconnaissance systems, design and integration of towed bodies for LF active sonar, underwater homing, acoustic countermeasures, active sonar transducers, arrays, associated signal and data processing, display systems, integration of sonar domes.
Sensor Systems	1500	Acoustic Sensors – Passive	Acoustic Sensors Passive. Airborne ASW systems, passive sonobuoys, service sonic processors, acoustics and propagation for land and airborne vehicle detection and location of artillery and rockets, HF acoustics for passive mine detection, underwater weapon passive sensors, handling, reliability and sonar performance of towed arrays and other passive sonar systems and passive sonar array types, ferroelectric liquid crystal polymers in compact, sensitive, directional sonar elements, silicon acoustic sensors and integrated sensors for passive sonar systems, integration of sonar domes.

Sensor Systems	1510	Non-Acoustic Sensors – UW	Non-Acoustic Sensors UW. Non-acoustic sensors for mine detection in very shallow water/surf zone and for MCM reconnaissance, non-acoustic sensor technology for application to underwater weapon homing and fuzing, non-acoustic UW sensor to complement acoustic sensors non-acoustic sensors in the oceanographic environment, wake detection systems and biodetection (biologics) techniques for underwater non-
Sensor Systems	1520	Electrical & Electro-chemical Sensors	Electrical & Electro-chemical Sensors. Underwater electric potential (UEP) sensor technology.
Sensor Systems	1530	Magnetic Sensors	Magnetic Sensors. Integration of magnetic material with silicon circuitry to provide smart micro-magnetic sensors, magnetic sensor application to weapon systems and to fuzing systems in weapons and in land mine detection systems.
Sensor Systems	1540	CB Sensors systems	CB sensor systems to monitor the level of the hazard, identify the agent and identify exposure retrospectively, genetic engineering and amplification, antibody / antigen interactions, gene probes and biosensor transduction in CB detection systems.
Sensor Systems	1550	Explosive Detection Sensors	Explosive Detection Sensors. EDS in very shallow water/surf zone mine detection and to land mine detection.
Sensor Systems	1560	Microsensor systems for Active Control	Microsensor Systems for Active Control. Silicon microsystems technology for sensors and transducers, fibre probes using frequency selective RAM smart/functional material technology to control the shape of intelligent structures, sound damping applications, structural applications of micro-electronic and mechanical systems (MEMS) technology to active structures.
Sensor Systems	1570	Motion Sensor Systems	Motion Sensor Systems. Gyroscopic control systems and inertial sensors for platforms and weapons, signal processing of motion sensor systems, measurement structural vibration.
Sensor Systems	1580	Environmental Monitoring Systems	Environmental Monitoring Systems. Systems to monitor atmosphere quality in submarines and crew spaces in other military platforms and installations. Determination and analysis of noise levels in crew spaces. (See also: Safety Management capabilities, including Occupational Health & Safety Management Systems).
Guidance and Control Systems - Weapons & Platforms	1590	Navigation systems	Navigation systems. Integration and application of navigation systems to missile seekers, fire control systems, MCM and reconnaissance systems, silicon microsystems technology for micro-accelerometers and micro-gyros, embedded control and signal processing electronics, technology insertion in navigation systems. Auto-pilots.
Guidance and Control Systems - Weapons & Platforms	1600	Weapon Guidance & Control Systems	Weapon Guidance and Control Systems. Guidance and control technology, remote guidance techniques for underwater weapons, integrated precision attack techniques, ballistic systems, silicon microsystems technology in precision G&C systems employed in missiles, technology insertion in G&C systems, Seekers/Homers in underwater weapon systems and attack platforms, advanced focal plane arrays and related image processing and data fusion techniques, seeker guidance system testing using dynamic infra-red scene projectors, RF phased arrays and multispectral (radar & IR) sensors in seekers, acoustic sensor technology for precision homing systems. Auto-pilots.
Guidance and Control Systems - Weapons & Platforms	1610	Platform Guidance & Control Systems	Platform Guidance and Control Systems. G&C systems, avionics and vetrronics in platforms, fire control systems, autonomous underwater vehicles, integrated precision attack techniques, HFI technology for control systems in crew spaces and cockpits, multivariable, discrete, non-linear control design methods and relevant image processing and data fusion technology, satellite attitude and orbit control systems. Mission planning, control planning. Weapon launch systems.
Guidance and Control Systems - Weapons & Platforms	1620	Display System	Display Systems. Displays for helmet systems, missile seekers, AFV fire control systems, torpedo track information displays, related display information on target and environmental conditions, technology insertion.
Guidance and Control Systems - Weapons & Platforms	1630	Stores & Weapon Release/Discharge	Stores and Weapon Release, Discharge. Release and discharge of stores and weapons from land and sea platforms, full scale experiments and predictive modelling.
Simulators, Trainers and Synthetic Environments	1640	Skills Training Systems	Skills Training Systems. Skills training, synthetic environments in skills training systems, hardware-in-the-loop and PC-based systems in skills trainers.
Simulators, Trainers and Synthetic Environments	1650	Tactical/Crew Training Systems	Tactical Crew Training Systems. Synthetic theatre of war (STOW) and synthetic environments, virtual reality in simulators to reflect the critical cues provided by the real platform, hardware-in-the-loop and PC-based systems in tactical and crew trainers.
Simulators, Trainers and Synthetic Environments	1660	Command & Staff Training Systems	Command and Staff Training Systems. Command level training systems, STOW and use of speech in interactive training, synthetic environments in command level training systems, computer assisted staff training systems, hardware-in-the-loop and PC-based systems in command and staff trainers. Solutions for command and staff training and education focussed on individual / team.
Simulators, Trainers and Synthetic Environments	1670	Virtual Reality	Virtual Reality. Virtual crew stations for procurement and training, integration of 3-D imaging and display technology in remote telepresence, cognitive aspects of operator performance, assessment of the physiological impact imposed by man, the task, and the environment. Measuring performance in VR environment, understanding the nature of physiological and psychological interactions between humans and VR, value of VR in design and training systems.
Simulators, Trainers and Synthetic Environments	1680	Synthetic Environments-Synthetic Force Generation	Synthetic Environments Synthetic Force Generation. Synthetic environments, including computer generated forces and semi-automated forces for training, OA, platforms, sensor systems and countermeasure systems, assessment of system performance. Support to design, testing, validation, acceptance, of synthetic environments. Understanding the nature of physiological and psychological interactions between humans and SEs. Assessing the value of SEs in design, selection and training activities.
Simulators, Trainers and Synthetic Environments	1690	Synthetic Environments-Natural Environment	Synthetic Environments Natural Environment Generation. SEs for natural environment generation, generation of geotypical terrain and feature/cultural data. Variable Representation in support to simulation systems, modelling to generate internal wave wake for the prediction of
Simulators, Trainers and Synthetic Environments	1700	Synthetic Environments-Management Systems	Synthetic Environments Management Systems. Management of databases covering terrain, environment, dynamic models. Configuration management and maintenance of models and software for Ses. HLA, languages and AI for SEs.

Integrated Systems Technology	1710	Systems Engineering	Systems engineering. Systems performance analysis at the systems level and multi-disciplinary optimisation. System engineering application coherence with life cycle. MODAF. Systems thinking, systems theory, complexity, systems context, systems interoperability, system-of-systems definition and development, requirements elicitation and refinement, systems performance and trade-off analysis at the system-of-systems level and multi-disciplinary optimisation. Top down design processes. Life cycle definition and management.
Integrated Systems Technology	1711	Integrated Systems Design	Integrated Systems Design. Systems integration, integrated systems, integration processes, integration of user requirements. Bottom up integration processes.
Integrated Systems Technology	1712	Data Exchange Formats	Data Exchange Formats. Development, interpretation, implementation and testing of NATO and US data exchange formats including J-Series family of Tactical Data Links and Character Orientated messaging.
Integrated Systems Technology	1720	Interoperability Standards	Interoperability Standards. Interpretation of national and international standards for all technologies, system interoperability, specification writing, network management techniques, and relevant testing methods.
Integrated Systems Technology	1721	Interoperability, Software	Interoperability Software. Interpretation of national and international standards for software systems, networks, protocols and software. System interoperability.
Integrated Systems Technology	1722	Interoperability, Telecommunications	Interoperability Telecommunications. Interpretation of national and international standards for telecommunications systems, networks, system interoperability across the digitized battle space with communication systems, protocols and software. System interoperability.
Integrated Systems Technology	1730	Radiation Hardening	Radiation Hardening. Integrated system design, integrated hardening, reconfiguration and electronic monitoring techniques, protection against space radiation, radiation hardening of ICs.
Integrated Systems Technology	1740	Robotics/Automation in Operational Systems	Robotics Automation in Operational Systems. Automated systems for remote underwater EOD and engineering systems; remotely controlled sea and land equipment, and integration of embedded computing, communications and sensor fusion.
Integrated Systems Technology	1750	Systems Architecture	Systems Architecture. Systems-of-systems level design and verification, Systems-of-systems level architectural modelling, MODAF modelling, Systems interoperability, Requirements elicitation and refinement, Dynamic modelling, Mission-thread analysis.
Integrated Systems Technology	1760	Health Monitoring Systems	Health Monitoring Systems. Integrated systems for health monitoring of all engineering systems.
Integrated Systems Technology	1770	Systems Test	Systems Test. System test procedures. Detection of chemical products released during overheating or early stages using robust sensors providing unambiguous indications.
Integrated Systems Technology	1771	Fire Detection Systems	Fire detection systems. Reliable fire detection.
Integrated Systems Technology	1780	System Repair Technologies	System Repair Technologies. Repair schemes and procedures for system performance and system durability. Level of Repair Analysis (LORA)
Integrated Systems Technology	1790	Electro-Magnetic Compatibility	Electromagnetic Compatibility. EMC issues in integrated system design, material property measurement, antenna measurement, continued equipment function in the presence of lightning strikes.
Integrated Systems Technology	1791	Electro-Magnetic Compatibility Analysing &	Electromagnetic Compatibility Analysing and Modelling. Identifying and overcoming electromagnetic hazards, quantifying electromagnetic phenomena in systems, predictive modelling and evaluating and analysing EMC interference and failure.
Integrated Systems Technology	1800	In-Service Data Capture Systems	In Service Data Capture Systems. The capture and analysis of in service operational data.
Integrated Systems Technology	1810	Integrated Systems Testing	Integrated Systems Testing. Whole system tests methods. Hardware in the loop, trials.
Integrated Systems Technology	1811	Integrated Systems Evaluation	Integrated Systems Evaluation. Whole system evaluation methods, assessment, qualification and acceptance
Integrated Systems Technology	1820	Middleware Systems, Applications	Middleware Systems Applications. Datawarehousing activities and message-oriented applications.
Communications and CIS-related Technologies	1830	Communications Systems – below micro & mm wave	Tactical communications systems below microwave frequencies, systems working at frequencies from ELF through HF to SHF and EHF, transmission media, vulnerability of systems at the RF modulation, coding and protocol level, systems management issues relating to threat and countermeasures, tactical and trunk management systems, the interaction at network and systems level, EHF systems for satellite payloads and ground stations, long haul communications systems in SATCOM and STRATCOM.
Communications and CIS-related Technologies	1840	Communications Systems – micro & millimetre wave	Communications Systems below micro and mm wave. Phased array technology for communications links, design architectures for tactical and strategic communications systems, antenna subsystems, supporting generic technology such as MMICs, solid state microwave sources in communication system design, high power microwave tubes for transmitter systems, SATCOM.
Communications and CIS-related Technologies	1850	Communications Technology – IR/Visible/UV	Communications Technology IR Visible UV. Miniature laser device technology in optical communications systems.
Communications and CIS-related Technologies	1860	Communications Technology – Acoustic	Communications Technology Acoustic. Acoustic communications system design for UUV to submarine communications, off-platform sensors, multi-static operations design, underwater navigation design, speech and signal intelligibility system design, communications systems for airborne applications.
Communications and CIS-related Technologies	1870	Communications & CIS Security Systems	Communications and CIS Security Systems. System vulnerabilities, infosec and information warfare techniques, security policy and architectures, COMSEC. Emerging technologies.

Communications and CIS-related Technologies	1880	Command & Information System Integration	Command and Information System Integration. Combat management systems, surveillance and satcoms systems, intelligence systems, data fusion, speech and special systems, open systems, JCSI architecture and test bed processes, information management and infosec, distributed systems. Emerging technologies.
Communications and CIS-related Technologies	1881	Command & Information System Vulnerability	Command and Information System Vulnerability. Vulnerability and survivability of communications systems and networks, system efficiency.
Communications and CIS-related Technologies	1890	Non co-operative Target Recognition	Non co-operative Target Recognition. Thermal imaging systems and secure communication systems, combat ID systems, radar systems for Non-Co-operative Target Recognition (NCTR).
Communications and CIS-related Technologies	1900	Geographic Information Systems	Geographic information systems. Digital map processing facilities. (See also Global Information Systems (GIS) Strategic & Technical Consultancy broad area)
Communications and CIS-related Technologies	1910	Optimisation, Planning & Decision Support Systems	Optimisation, Planning & Decision Support Systems. Battlespace Spectrum Management Systems, tactical decision making processes, survivability and operational effectiveness using methods which derive 'measures of effectiveness', decision support systems to formulate Staff Targets and Requirements, global optimisation of service to all users across the JBD environment, mission support systems.
Communications and CIS-related Technologies	1920	Infrastructure to Support Info Management &	Infrastructure to Support Information Management and Dissemination. Integrated CIS Infrastructures. BISA, CIBIS and UCS, dissemination management systems, complex network-based systems behaviour modelling.
Communications and CIS-related Technologies	1930	Network Management Systems	Network management systems requirements and techniques, data links.
Communications and CIS-related Technologies	1931	Communications Networks & Services	Communications Networks and Services. Network integration, service definition and development, service management, service level agreements, operational support systems.
Communications and CIS-related Technologies	1940	Air Traffic Control Systems	Air Traffic Control Systems. ATC systems. Specification of ATC systems. Test and Repair schemes. Independent assessment of specifications.
Personnel Protection Measures	1950	Not used	Not used
Personnel Protection Measures	1960	Not used	Not used
Personnel Protection Measures	1961	Not used	Not used
Personnel Protection Measures	1970	Not used	Not used
Personnel Protection Measures	1980	CB & N Countermeasures – Medical	CBR and N Countermeasures Medical. NBC medical countermeasures, pre-treatments (drugs and vaccines) and therapy (drugs and procedures), anti-emetic drugs used to combat deleterious effects of radiation, biotechnology, pharmacology, toxicology and pathology for the protection of personnel from CB threats. Dose assessment, health physics assessment and consequence assessment. (See also: Safety Management capabilities).
Manufacturing Processes/Design Tools/Techniques	1990	Design for Improved Manufacturability, Reliability & Maintainability	Design for Improved Manufacturability, Reliability and Maintainability. Reliability modelling vehicles and equipment, satcom systems, open systems, and device reliability design concepts, Asics, interconnects and packaging for cryptographic ICs. Integration. (For Air environment: use Airworthiness Management broad capability area).
Manufacturing Processes/Design Tools/Techniques	2000	Cost Engineering	Cost Engineering Support. Integration of structural, aerodynamic, signature and control techniques for cost optimisation at the design stage. Structural design and materials requirements in cost reductions.
Manufacturing Processes/Design Tools/Techniques	2001	Cost Modelling	Cost modelling and analysis, cost modelling for all platforms. Cost models at system and sub-system level. Minimisation of cost in technology obsolescence, cost modelling in design for improved affordability.
Manufacturing Processes/Design Tools/Techniques	2010	Concurrent Engineering & Reduced Design Cycle	Concurrent Engineering and Reduced Design Cycle. Configuration control at all levels from IC board to platform, concurrent engineering design tools.
Manufacturing Processes/Design Tools/Techniques	2020	Advanced Prototyping & Rapid Manufacture	Advanced Prototyping and Rapid Manufacture. Device prototyping, rapid manufacture, rapid prototyping tools for software developments, virtual manufacturing.
Manufacturing Processes/Design Tools/Techniques	2030	Techniques & Systems for Production Manufacturing	Techniques and Systems for Production Manufacturing of equipment such as flexible assembly, robotics/automation, IT systems, 'just-in-time' provision of components and subsystems, reduced emissions manufacture. Minimising systems installation problems during assembly such as by use of robotics, modular systems, multiplexing, improved interfaces/connectors, operator support tools for installation and remedial functions visualisation tools.
Manufacturing Processes/Design Tools/Techniques	2040	Not used	Not used
Manufacturing Processes/Design Tools/Techniques	2050	Manufacturing Process Simulation	Manufacturing process simulation techniques to identify potential problem areas and cost effective remedial solutions, material behaviour modelling.
Manufacturing Processes/Design Tools/Techniques	2060	Lean Manufacturing	Lean manufacturing techniques which minimise delays in component supply and insertion into the manufacturing and assembly processes.
Manufacturing Processes/Design Tools/Techniques	2070	Manufacturing, Test & Process Control Technology	Manufacturing, Test and Process Control Technology. Real time process control, cure monitoring of composites, weld process monitoring, on-line tolerance measurement and control, material behaviour modelling.
Manufacturing Processes/Design Tools/Techniques	2080	Environmentally Friendly Factory Processes	Environmentally Friendly Factory Processes. Environmentally friendly (EF) materials and processes, minimising human effects caused by chemical effluent sources or noise transmission, meeting requirements of the Montreal Protocol and other international agreements, EF processes and product behaviour. (See also: Safety Management, and Environmental Management capabilities).

Manufacturing Processes/Design Tools/Techniques	2090	Knowledge Based	Knowledge Based Engineering. Maximising effective use of existing data and know-how contained in libraries of past experience.
Defence Analysis	2100	Policy, Force Development	Policy and Force Development. Policy development studies. Force development studies.
Defence Analysis	2101	Balance of Investment	Balance of Investment studies
Defence Analysis	2110	Combined Operational Effectiveness & Investment Appraisals	Combined Operational Effectiveness & Investment Appraisals. COEIA studies and investigations.
Defence Analysis	2120	Not used	Not used
Defence Analysis	2130	Not used	Not used
Defence Analysis	2140	Scenario Generation	Scenario Generation. Generating scenarios.
Defence Analysis	2150	Tactical Development & Support to Operations &	Tactical development and support to Operations and Training.
Defence Analysis	2160	Other Effectiveness & Performance Studies	Other effectiveness and performance studies, other than COEIA.
Defence Analysis	2170	Military Doctrine Analysis	Military Doctrine Analysis. Analysing military doctrine.
Defence Analysis	2180	Wargaming & Combat Simulation	Wargaming & Combat Simulation. Open and closed gaming, table top games and exercises, computer analysis, judgmental analysis, operational environment simulation, emulation and stimulation.
Integrated Platforms	2190	Undersea Platforms	Undersea Platforms. Design, testing, certification, modification, maintenance and repair of undersea platforms, equipment and components. Manufacturing support.
Integrated Platforms	2200	Fighting Land Vehicles	Fighting Land Vehicles. Design, testing, certification, modification maintenance and repair of fighting land vehicles, equipment and components. Manufacturing support.
Integrated Platforms	2210	Logistic, Command & Surveillance Land Vehicles	Logistic, Command and Surveillance Land Vehicles. Design, testing, certification, modification, maintenance and repair of logistic, command and surveillance land vehicles, equipment and components. Manufacturing support.
Integrated Platforms	2220	Not used	Not used
Integrated Platforms	2230	Not used	Not used
Integrated Platforms	2240	Not used	Not used
Integrated Platforms	2250	Unmanned Land/Sea Vehicles	Unmanned Land and Sea Vehicles. Support to design, testing, certification, modification, maintenance and repair of unmanned vehicles, equipment and components. Manufacturing support.
Integrated Platforms	2260	Not used	Not used
Integrated Platforms	2270	Communications Satellites	Communications Satellites. Support to design, testing, certification, modification, maintenance and repair of communications satellites, equipment and components. Manufacturing support.
Integrated Platforms	2280	Surveillance & Navigation Satellites	Surveillance and Navigation Satellites. Support to design, testing, certification, modification, maintenance and repair of surveillance and navigation satellites, equipment and components. Manufacturing support.
Integrated Platforms	2290	Other Satellites	Satellites other than for surveillance and navigation. Support to design, testing, certification, modification, maintenance and repair of other
Integrated Platforms	2300	Space Launchers	Space Launchers. Design, testing, certification, modification, maintenance and repair of space launchers, equipment and components. Manufacturing support.
Integrated Platforms	2310	Fighting Sea Surface Platforms	Fighting Sea Surface Platforms. Design, testing, certification, modification, maintenance and repair of fighting sea platforms, equipment and components. Manufacturing support.
Integrated Platforms	2320	Logistic & Support Sea Surface Platforms	Logistic and Support Sea Surface Platforms. Design, testing, certification, modification, maintenance and repair of logistic and support sea surface platforms, equipment and components. Manufacturing support.
Weapons	2330	Mines - Land	Mines Land. Location and disposal of land mines. Weapon system processing. Compliance with Def Stan 07-85 Weapon System Design Requirements. (Duty of Care).
Weapons	2340	Missiles - Anti-Air	Missiles Ground to Air and Air to Air. Design, testing, certification, modification, maintenance and repair of anti-air missiles, equipment and components. Manufacturing support. Weapon system processing. Compliance with Def Stan 07-85 Weapon System Design Requirements. (Fo Air launched Missiles: use Airworthiness Management broad capability area). (Duty of Care).
Weapons	2350	Missiles - Anti Surface (Sea)	Missiles Anti Surface (Sea). Design, testing, certification, modification, maintenance and repair of anti-surface missiles, equipment and components. Manufacturing support. Weapon system processing. Compliance with Def Stan 07-85 Weapon System Design Requirements. (Duty of Care).
Weapons	2360	Gun Systems - Platform Mounted	Gun Systems Platform Mounted. Design, testing, certification, modification, maintenance and repair of platform mounted gun systems, equipment and components. Manufacturing support. Weapon system processing. Compliance with Def Stan 07-85 Weapon System Design Requirements. (Duty of Care).
Weapons	2370	Gun Systems - Hand Held	Gun Systems Hand Held. Design, testing, certification, modification, maintenance and repair of hand held gun systems, equipment and components. Manufacturing support. Weapon system processing. Compliance with Def Stan 07-85 Weapon System Design Requirements. (Duty of Care).

Weapons	2380	Directed Energy Weapons	Directed Energy Weapons. Design, testing, certification, modification, maintenance and repair of directed energy weapons systems, equipment and components. Manufacturing support. Weapon system processing. Compliance with Def Stan 07-85 Weapon System Design Requirements. (Duty of Care).
Weapons	2390	Non-Lethal Weapons	Non-Lethal Weapons. Design, testing, certification, modification, maintenance and repair of non-lethal weapons systems, equipment and components. Non-lethal weapon system processing. Manufacturing support. Compliance with Def Stan 07-85 Weapon System Design Requirements. (Duty of Care).
Weapons	2400	Mines - Sea	Mines Sea. Design, testing, certification, modification, maintenance and repair of sea mines, equipment and components. Manufacturing support. Weapon system processing. Compliance with Def Stan 07-85 Weapon System Design Requirements. (Duty of Care).
Weapons	2410	Missiles - Anti Ground (Land)	Missiles Anti Surface (Land). Design, testing, certification, modification, maintenance and repair of anti-ground (land) missiles, equipment and components. Manufacturing support. Weapon system processing. Compliance with Def Stan 07-85 Weapon System Design Requirements. (Duty of Care).
Weapons	2420	Torpedoes - Anti Submarine	Torpedoes Anti Submarine. Design, testing, certification, modification, maintenance and repair of anti-submarine torpedoes, equipment and components. Manufacturing support. Weapon system processing. Compliance with Def Stan 07-85 Weapon System Design Requirements. (Duty of Care).
Weapons	2430	Torpedoes - Anti Surface	Torpedoes Anti Surface. Design, testing, certification, modification, maintenance and repair of anti-surface torpedoes, equipment and components. Manufacturing support. Weapon system processing. Compliance with Def Stan 07-85 Weapon System Design Requirements. (Duty of Care).
Installations and Facilities	2440	Ground Stations	Ground Stations. Design, installation/construction, testing, certification, modification, maintenance and repair of ground stations.
Installations and Facilities	2450	Fortifications/Defences	Fortifications and Defences. Design, installation/construction, testing, certification, modification, maintenance and repair of fortifications and
Installations and Facilities	2460	Battlefield Engineering	Battlefield Engineering. Design, installation/construction, testing, certification, modification, operation, maintenance and repair of battlefield engineering facilities.
Installations and Facilities	2470	T&E Facilities	Test and Evaluation Facilities. Design, installation/construction, testing, certification, modification, operation, maintenance and repair of T&E
Installations and Facilities	2480	Site Decontamination	Site Decontamination. Site decontamination operations, remediation, certification, hazardous waste clearance. (See also Environmental Management capabilities).
Not used	2490	Not used	Not used
Not used	2500	Not used	Not used
Not used	2510	Not used	Not used
Not used	2520	Not used	Not used
Miscellaneous Defence Functions and Policy Support	2530	Estate (Grounds & Accommodation)	Estate (Grounds & Accommodation). Property Professional Services, including legal & financial, Health & Safety, planning, estate management estate maintenance.
Miscellaneous Defence Functions and Policy Support	2540	Construction	Construction. Living accommodation, offices, families quarters, workplace strategy, space planning, design & implementation, architecture, engineering.
Miscellaneous Defence Functions and Policy Support	2550	Hard Facilities Management	Advice on Hard Facilities Management, HFM (eg. Mechanical, electrical and other physical assets / plant, maintenance).
Miscellaneous Defence Functions and Policy Support	2560	Estate Services	Estate Services. Design, advice & maintenance, Property Services, Rating Support, Technical Assurance.
Miscellaneous Defence Functions and Policy Support	2570	Not used	Not used
Miscellaneous Defence Functions and Policy Support	2580	Not used	Not used
Battlespace Information	2590	Information Infrastructure	Information Infrastructure. Hardware, software and firmware. NEC, integration management, interoperability, Infosec, information architecture, system security. MODAF.
Battlespace Information	2600	Not used	Not used
Battlespace Information	2610	Not used	Not used
Battlespace Information	2620	Digitisation of the Battlespace	Digitisation of the Battlespace. Hardware, software and firmware, integration processes, NEC, testing and trials, maturity assessment, equipment installation. MODAF.
Battlespace Information	2630	ISTAR	ISTAR architecture, equipment fusion, persistent and deep ISTAR, NEC, management, tasking, processing and dissemination, and Interoperability. MODAF.
Battlespace Information	2640	Military Intelligence	Military Intelligence. Military knowledge, Military analysis, imagery intelligence, human intelligence, counter intelligence, security advice.
Business Processes	2650	Requirements Capture	Requirements capture, definition and specification, requirements identification, incremental requirements capture
Business Processes	2651	Requirements Engineering	Requirements Engineering, expertise with DOORS, requirements capture, system modelling
Business Processes	2652	Not used	Not used
Business Processes	2653	Not used	Not used
Business Processes	2654	Requirements, Business	Requirements Business. High level project objectives, Vision Scope Document
Business Processes	2655	Requirements, User	Requirements User. End user tasks and facilities, Use Case, User Requirements Documents (URD)

Business Processes	2656	Requirements, Functional	Requirements Functional. Quality attributes, data manipulation and processing, satisfying Use Cases, non-functional requirements.
Business Processes	2660	Concepts	Concepts. Concept evaluation environments, concept development and assessment, system and platform concept studies
Business Processes	2661	Product Definition	Product definition, rapid system prototyping, CAD.
Business Processes	2662	Business Case Support	Business Case Support. Business case drafting, Investment Appraisal, COEIA
Business Processes	2670	Product Supportability	Product Supportability. Capability management, capability support, technology watch, supportability engineering, Upkeep strategies.
Business Processes	2671	Contractor Logistic Support	Contractor Logistic Support (CLS) principles and solutions, demonstration of benefits of CLS solutions, viability of CLS solution, cost comparisons, impact statements of adopting a CLS solution, identification of CLS boundaries, compliance with Upkeep and Support Policies. Support solutions, support strategy, support chain.
Business Processes	2680	Whole Life Cycle Improvement	Whole Life Cycle Improvement. Decision support systems, transformation support, technology insertion. Technology road mapping, technology management, Multi Criteria Decision Analysis (MCDA), cost capability trade off analysis.
Business Processes	2681	Whole Life Cycle Improvement Support	Whole Life Cycle Improvement Support. Policy and economics research.
Business Processes	2682	Contractor Analysis	Contractor Analysis. Support to calculation and assessment of wage rates, overhead rates, QMAC. Support to company viability assessments. Rates Calculation
Business Processes	2683	Procurement Analysis	Procurement Analysis. Estimating, pricing, parallel pricing, support to capability and capacity analysis.
Business Processes	2684	Whole Life Cycle Cost	Whole Life Cycle Cost. Financial cost estimates and economic analysis. Production, developing and maintenance of whole life cycle cost model and framework. Record of assumptions made during estimating and monitoring Whole Life Cycle (WLC) Costs of the platform or equipment, production of Master Data & Assumptions List (MDAL), life cycle costs, cost of ownership.
Business Processes	2690	Business Process Simulation	Business Process Simulation. Process modelling and analysis, opportunity analysis.
Business Processes	2700	Benchmarking	Benchmarking. Systems engineering processes, benchmarking support. Systematic comparisons of organisational performances.
Business Processes	2701	Best Practice	Best Practice. Systems engineering processes, identification of best practice.
Business Processes	2710	Lean Enterprise Models	Lean Enterprise. Lean manufacturing, Lean logistics, Force Field Analysis, Value Stream Mapping, continuous improvement, Just In Time (JIT), Value management.
Business Processes	2720	Change Management - Business	Change Management Business. Business change, transitioning individuals, teams and organisations from a current state to a desired future state, organisational change, management processes, change management models, strategy development.
Business Processes	2730	Change Management - Engineering	Change Management Engineering. Change management in systems engineering, requesting, determining attainability, planning, implementing and evaluating changes to a system, supporting the processing of changes, enabling traceability of changes.
Business Processes	2731	Options Analysis	Option Analysis. Operational Analysis, Options Analysis, Investment Appraisal, System modelling, trade off studies.
Business Processes	2740	Procurement & Contracting Processes, Pre-award Activities	Procurement and Contracting Processes, pre-award activities. Capability and competence assessment, commercial law, supplier sourcing, e-commerce, audit. Financing and procurement procedures, tendering and selection, compliance with legislation,
Business Processes	2741	Procurement & Contracting Processes, Post-award	Procurement and Contracting Processes, post-award activities. Capability and competence assessment, commercial law, supplier sourcing, e-commerce. Contract management, review, post contract let Management Information, supplier development, audit and review.
Project Management and Acquisition Support functions	2750	Logistics	Logistics Support Analysis. Integrated Logistic Support.
Project Management and Acquisition Support functions	2751	Logistics, Storage	Logistics storage. Stores management and accounting, high value asset tracking, storage, packing.
Project Management and Acquisition Support functions	2752	Logistics, Transport	Logistics transport. General transport, specialist transport and transport of hazardous material transport. (See also Safety Management and Environmental Management capabilities)
Project Management and Acquisition Support functions	2760	Risk Management, Project	Risk management. Risk analysis, assessment and evaluation, project risk assessment, programme risk, risk estimation, probability modelling. Monitoring the control of risk. Advance development of suitable strategies and contingency/fall-back positions. Impact minimalisation.
Project Management and Acquisition Support functions	2761	Risk Management Tools	Risk management tools, including risk management software tools.
Project Management and Acquisition Support functions	2762	Not used	Not used
Project Management and Acquisition Support functions	2763	Not used	Not used
Project Management and Acquisition Support functions	2764	Risk Assessment, Fire	Risk assessment fire. Identifying and evaluating fire hazards, platform fire risks, impact of legislation.
Project Management and Acquisition Support functions	2765	Risk, Business	Risk Business. Identification and assessment of risk, business risk management at strategic and corporate level. Human factors.
Project Management and Acquisition Support functions	2766	Risk Consultancy	Risk Consultancy. Integrated solutions, process linking, risk modelling, implementing processes, risk assessment, risk assessors, risk mitigation. Linking of risk to project or programme.
Project Management and Acquisition Support functions	2770	Through Life Management	Through life management. Use Studies. Packaging, Handling, Storage and Transport. Supply Support. Post Design Services support, Disposal support, Data Reporting, Analysis and Corrective Action System, Through life management planning, policy, assurance, and advice. Configuration management.
Project Management and Acquisition Support functions	2771	Surveillance	Surveillance. Support to equipment surveillance and life extension programmes.
Project Management and Acquisition Support functions	2780	Quality Assurance	Quality Assurance Procedures. Production of QA procedures for all applications

Project Management and Acquisition Support functions	2781	Quality Assurance	Quality Assurance Assessments. Production of Quality assessments. Quality audit.
Project Management and Acquisition Support functions	2782	Technical Assurance Support	Technical assurance support. Interpretation of classification society rules, international standards and legislation, specification compilation and authorship, acceptance.
Project Management and Acquisition Support functions	2783	Technology Assessment & Analysis	Technology Assessment and analysis, technology route-map generation, technology development plan compilation.
Project Management and Acquisition Support functions	2790	Not used	Not used
Project Management and Acquisition Support functions	2791	Not used	Not used
Project Management and Acquisition Support functions	2792	Not used	Not used
Project Management and Acquisition Support functions	2793	Not used	Not used
Project Management and Acquisition Support functions	2794	Not used	Not used
Project Management and Acquisition Support functions	2795	Not used	Not used
Project Management and Acquisition Support functions	2796	Not used	Not used
Project Management and Acquisition Support functions	2800	Reliability & Maintainability	Reliability and maintainability. Availability, Reliability and Maintainability requirements, reliability prediction, software reliability. Failure Modes, Effects and Criticality Analysis (FMECA). Equipment operating context.
Project Management and Acquisition Support functions	2801	Reliability & Maintainability Support	Reliability and maintainability support. Reliability testing, Reliability demonstrations, Maintainability demonstrations. Maintenance Schedules.
Project Management and Acquisition Support functions	2802	Reliability Centred Maintenance	Reliability Centred Maintenance (RCM), RCM tool, optimisation of maintenance schedules against given levels of availability. RCM studies, RCM analysis. Maintain and support PCM databases.
Project Management and Acquisition Support functions	2810	Not used	Not used
Project Management and Acquisition Support functions	2820	Parts Management	Parts management. Part identification, part sourcing, parts consumption estimation, screening of part numbers, parts data gathering.
Project Management and Acquisition Support functions	2830	Technical Authoring Activities	Technical authoring activities. Amendments to drawings and technical documentation in all formats and maintenance of configuration records. Specification writing, technical document writing, academic papers. Conversion of legacy information to editable electronic media. Extraction and capture of meta data. Outputs in hard copy, microfiche or electronic media. Technical documents databases. Technical document database management, and database input and maintenance. Development and maintenance of Master Record Index (MRI) constructor software. Production and maintenance of MRI. Development and maintenance of Build Standards.
Project Management and Acquisition Support functions	2831	Technical Illustration	Technical illustration and drawings, verification and validation. Outputs in hard copy, microfiche or electronic media.
Project Management and Acquisition Support functions	2832	Technical Documents, Verification & Validation	Technical documents verification and validation. Verification and validation of specifications, technical documents, technical publications, technical illustrations and drawings.
Project Management and Acquisition Support functions	2833	Technical Documents, Support	Technical documents, support. Drawing office support including help desk and secretarial services. Storage, archive and procurement of drawings, technical documents and work books in hard copy and/or soft copy. Supply of drawings, technical documents and data to designated recipients. Maintenance of service drawing number register.
Project Management and Acquisition Support functions	2834	Graphics, Design	Graphics design. 3-D modelling, illustration, exhibition design and display, promotional material, publication design and development, training material, web design, forms, labels, corporate print, pamphlets, publications, design for Prints Advisory Services.
Project Management and Acquisition Support functions	2835	Graphics, Support	Graphics support. Operational print, print in accordance with the disability Discrimination Act (Braille, Talking Books, large format). Storage & distribution, electronic and microfilm publishing, electronic scanning and archiving, specification consultancy.
Project Management and Acquisition Support functions	2840	Inspection & Testing	Inspection and testing. Quality control, configuration control, testability, qualification testing, acceptance testing, range testing support, test and measurement equipment. Non-destructive testing (NDT), inspection services, inspection plans. Equipment calibration. Control and Instrumentation systems.
Project Management and Acquisition Support functions	2841	Environmental Testing	Environmental testing including vibration testing, climatic testing, pressure testing, shock and impact testing, abrasion. Environmental Test and Measurement equipment.
Project Management and Acquisition Support functions	2842	Test Specifications	Test specifications, test procedures, in service testing procedures, environmental test specifications.
Project Management and Acquisition Support functions	2850	Integration	Integration. System of Systems. Equipment integration. Capability Maturity Model Integration (CMMI), Technology Maturity Assessment.
Project Management and Acquisition Support functions	2860	In Service Support Solutions	In Service Support Solutions. Support Solutions Envelope, turn around requirements.
Project Management and Acquisition Support functions	2861	In Service Support, Spares	In service support spares. Lines and depths of maintenance. Spares requirements, spares modelling.
Project Management and Acquisition Support functions	2862	Benefits Analysis	Benefits Analysis. Analysing, identifying and reporting on time or cost benefits etc from adopting alternative strategies. Benefits Realisation Management - the management of change to deliver the change and associated benefits. Realising the benefits of the change. Project support to benefits-led approach to delivering change programmes.
Project Management and Acquisition Support functions	2870	Not used	Not used

Project Management and Acquisition Support functions	2880	Equipment Disposal	Equipment disposal. Legislative requirements, licensing, sales, decommissioning, hazardous materials handling. (See also Safety Management and Environmental Management capabilities).
Project Management and Acquisition Support functions	2890	Planning	Planning. Production of tools and methodologies to display project activities. Estimating, logical sequencing and time analysis. Audit, review and assessment of Project. Planning Management. Development of initial Plan. Business planning. Process linking.
Project Management and Acquisition Support functions	2900	Scheduling	Scheduling. Identify resources needed to carry out project activities. Control Cycle - business process controlling project execution against project baseline plan. Manage intermediate and final configuration items.
Project Management and Acquisition Support functions	2910	Programme Management	Programme management. Identification of programmes, drafting of Terms of Reference, definition of programmes, production of vision statements, management of budget and benefits, programme closure, plus audit, review, and assessment of programme.
Project Management and Acquisition Support functions	2920	Earned Value Management	Earned Value Management (EVM). Providing an EVM Service to the customer project team. Providing EVM guidance and support with (1) development of EVM contractual requirements and in line with customer guidance and policy (eg. as detailed in the MoD Acquisition Operating Framework - AOF); (2) during contract negotiations pertaining specifically to EVM contract clauses; (3) setting up and/or running customer owned EVM activities such as, Integrated Baseline Review (IBR), EVM System (EVMS) Review, EVM Demonstration Review (DR), Earned Value Data Analysis and Reporting, EVM Surveillance Review (SR), contractor owned reviews such as for IBR and EVMS Readiness Reviews. Provision of specialist EVM training.
Project Management and Acquisition Support functions	2930	Control Techniques	Control techniques. Applications for communication and programme control, error budget management.
Obsolescence Management	2940	Obsolescence Equipment Health Check	Obsolescence equipment health check. Report on the level of obsolescence risk (current and predicted) for a project.
Obsolescence Management	2950	Obsolescence Component Monitoring	Obsolescence component monitoring. Proactive continuous obsolescence monitoring of selected components
Obsolescence Management	2960	Obsolescence Programme Review	Obsolescence programme review. Review and Audit of Obsolescence Management programme to ensure efficacy of current or planned arrangements.
Obsolescence Management	2970	Obsolescence Impact Appraisal	Obsolescence impact appraisal. Report on the impact that the current identified obsolescence risk will have on a project.
Obsolescence Management	2980	Obsolescence Part Source of Supply	Obsolescence part source of supply. Search for a source of supply for an apparently unobtainable part.
Obsolescence Management	2990	Obsolescence Alternative Solution Provision	Obsolescence alternative solution provision. The identification of an alternative obsolescence mitigation solution when an alternative source of supply cannot be found.
Obsolescence Management	3000	Obsolescence System Sustainability Audit	Obsolescence system sustainability audit. A detailed report using modelling and simulation techniques to assist in prioritising resources and demonstrating what is achievable with the resources available. Sensitivity analysis to show the impact of changes to funding levels, component
Global Info Systems (GIS) Strategic & Tech Consultancy	3010	Geospatial Data, Evaluation, Analysis & Management	Geospatial data, evaluation, analysis and management. Spatial data quality management, data modelling, data translation. GIS data capture services. GIS software and value added services
Global Info Systems (GIS) Strategic & Tech Consultancy	3020	GIS Application & Software Development	GIS application and software development. Web based interfaces (user interface design, portal design and secure hosting). Systems integrator services based primarily on COTS / GOTS software. Extensive Rapid Application Development (RAD) services for Geospatial Decision Support solutions. Customisation/development for specific GIS software packages and bespoke Decision Support solutions.
Global Info Systems (GIS) Strategic & Tech Consultancy	3030	Not used	Not used
Global Info Systems (GIS) Strategic & Tech Consultancy	3040	Not used	Not used
Global Info Systems (GIS) Strategic & Tech Consultancy	3050	Geospatial Web Services	Geospatial web services. Interoperable web-based services to bring together data from distributed servers. User interface design, portal design and secure hosting. Geospatial data and geospatial analysis applications over the Internet. Webmap authoring, web feature, web coverage, web processing, gazetteer, registry and catalogue services. Mapmaking & reproduction
Global Info Systems (GIS) Strategic & Tech Consultancy	3060	Not used	Not used
Airworthiness Management	3070	Air Systems Safety Guidance	Air Systems Safety Guidance. Air Systems Safety, Policy, Standards and Regulations, including Guidance on Interpretation. Supporting ASG in developing policy, standards and regulations to reflect advances in knowledge and technology. Standards and regulations include JSP 553, JA 100A, DS 05-130, DS 00-970, DS 05-122 and DS 05-123. Providing support as required in progressing policy initiatives, maintaining airworthiness related technical procedures. (Duty of Care).
Airworthiness Management	3080	Aviation SI & MSI Guidance	Aviation SI and Sysl Guidance. Aviation Structural and System Integrity (SI & Sysl) Advice & Guidance. Providing SI and Sysl specialist advice. Supporting the ASD AVI Team in their review, development, preparation and verification of SI and Sysl Management Policy, and Statements of Operating Intent and Usage (SOIU). Drafting, or commenting on, changes to Policy, the Release to Service or supporting documentation arising from the SOIU process. (Duty of Care).
Airworthiness Management	3090	Provision of Competence Assessment	Provision of Competence Assessment. Provision of Design, Maintenance and Repair Organisation competence assessment. Provide assistance with MAOS approvals iaw Def Stan 05-130. Providing support to DMSD for assessment of DAOS member organisations. Support to IPTs for assessment of Design and Maintenance Organisation competence. (Duty of Care).

Airworthiness Management	3100	Air System Safety Assurance of Compliance.	Air System Safety Assurance of Compliance. Air System Safety (including Airworthiness and T&E) policy, standards and regulations - provide assurance of compliance. Provide assistance to conduct safety audits and surveys of IPTs and report findings. Manage MOD T&E air safety audit process for MOD and MOD contractor's facilities and personnel. Functional assurance against airworthiness standards. (Duty of Care).
Airworthiness Management	3110	Ship Air Interface	Ship Air Interface SME Advice and acceptance services. Supporting ASG in drafting ship/air interface requirements, conduction of inspections, provision of advice for Ship Aviation Safety Cases and Safety Reviews. (Duty of Care).
Airworthiness Management	3120	Aircraft modification & repair schemes	Aircraft modification and repair schemes. Aircraft modification design and certification; Test; independent assessment, and generation of associated documentation. (Duty of Care).
Airworthiness Management	3130	Continued Airworthiness	Continued Airworthiness. Embodiment of modifications and repair schemes; maintenance of aircraft in accordance with the aircraft document set; with documentation of all associated activities. (Duty of Care).
Airworthiness Management	3140	Air - Fluid Mechanics	Fluid Mechanics (Air). Fluid mechanics - phenomenological & experimental. Aerodynamics, gas dynamics and hydrodynamics, vortex behaviour, flow separations, unsteady flows, wind tunnels; shock tubes, water tanks, facility testing, wall interference corrections, support interference corrections, non-intrusive measurements, balance design, calibration and pressure measurements, testing of fixed wing and rotorcraft components such as intakes, afterbodies, propellers, helicopter rotors, isolated weapons, weapon carriage and release, wing and bod configurations, dynamic derivative, scale effect, and transition fixing. (Duty of Care).
Airworthiness Management	3150	Air - Fluid Dynamics Techniques	Fluid Dynamics Techniques (Air). Phenomenological & Experimental. Computational fluid dynamics, evaluation and analysis of hydrodynamic performance of all types of marine platforms, evaluation and analysis of supercomputer outputs, fluid dynamic and numerical mathematics in turbulence modelling, transition prediction, viscous flow, solution algorithms, grid generation, CFD/CAD interfaces, GUI and data interpretation and presentation, rotorcraft fluid dynamics, use of models to predict rotor loads, signature, novel rotor technology and advanced configurations, and the aerodynamic effects of icing on rotors. (Duty of Care).
Airworthiness Management	3160	Air - Battle Damage Reduction Techniques	Battle Damage Reduction Techniques (Air). Techniques for reducing the vulnerability of military platform structures and installations to penetrative and blast or shock wave effects. Threat assessments. (Duty of Care).
Airworthiness Management	3170	Air - Defensive Aids Suite	Defensive Aids Suite (Air). DAS systems. (Duty of Care).
Airworthiness Management	3171	Air - UAVs	Unmanned Aerial Vehicle Systems, UAVs. (Duty of Care).
Airworthiness Management	3180	Air - Gas Turbines	Gas Turbines (Air). Aero-engines and controls, system integration, intakes, propulsion, lift nozzles, platforms and weapons and related structural design aspects, testing techniques for engine performance parameters, resistance of gas turbines to effects of sand and salt ingestion. Expertise in component design and production. (Duty of Care).
Airworthiness Management	3190	Air - Reciprocating & Rotary IC. Engines	Reciprocating and Rotary IC Engines (Air). IC engines for platform systems and weapons systems, vibration and/or noise reduction in engines.(Duty of Care).
Airworthiness Management	3200	Air - Transmissions & Powertrains	Transmissions & Powertrains (Air). Rotorcraft transmissions; gearboxes and powertrains, life and reliability aspects. (Duty of Care).
Airworthiness Management	3210	Air - Final Drive, Air Propellers & Rotors	Final Drive, Air Propellers & Rotors (Air). Propeller and lifting rotor designs, integrity and life aspects, interactions with the local operating environment, radiated noise effects, rotor icing effects.(Duty of Care).
Airworthiness Management	3220	Air - Aerodynamic Designs	Aerodynamic designs, basic and unsteady, rotorcraft, stealth weapon designs, part aircraft configurations such as intakes, afterbodies, weapons, weapon carriage and release systems. High lift systems, wind tunnel testing, applied aerodynamics, prediction and measurement techniques. CFD methods and applications, aero-elastic dynamic loading. (Duty of Care).
Airworthiness Management	3230	Air - Structural Designs	Structural design for air platforms and weapons systems, structural aspects of integration with aerodynamic and stealth design, predictive modelling, dynamics and acoustic measurement and associated test activities. Prevention of transmission of noise through structures and equipment, CAD. (Duty of Care).
Airworthiness Management	3240	Air - Design for Manufacturability, R&M	Design for improved Manufacturability, Reliability & Maintainability (R&M). Reliability modelling air vehicles and equipment, aircraft and helicopter structures and systems, open systems, high integrity systems and device reliability design concepts. Integration. (Duty of Care).
Airworthiness Management	3250	Air Launched Missiles - Anti-Air	Design, testing, certification, and support to modification, maintenance and repair of air launched anti-air missiles, equipment and components. Manufacturing support. Integration.(Duty of Care).
Airworthiness Management	3260	Air - Physical Protection Systems	Physical Protection Systems – Operating Environment. Maintenance of physical and visual performance with effective communication in high ambient noise environments. Specialist clothing and individual equipment, safety and support systems, air conditioning for humans and equipment, internal noise control for habitability purposes. (See also: Safety Management, and Human Factors Integration capabilities). (Duty of Care).
Safety Management	3270	Occupational Health & Safety Management Systems	Occupational Health & Safety Management Systems. Provide advice and support to IPTs and BUs on Occupational Health & Safety issues to enable IPTs/BUs to comply with the requirements of JSP 375. Provision of specialist assessment and services covering the subjects listed in Chapter 2 of JSP 375 including workplace risk assessments, DSE, Working at Height, Dangerous Substances and Explosive Atmospheres (DSEAR), Control of Substances Hazardous to Health (COSHH), Manual Handling, management of noise and vibration in the workplace, management of asbestos, control of Legionella, management of contractors, occupational health assessments, accident investigation, stress management, well-being, and Registration Evaluation and Assessment of Chemicals (REACH). Radiation Protection. (Duty of Care).

Safety Management	3280	Occupational Health & Safety Management Systems Documentation & Policy	Occupational Health & Safety Management Systems Documentation and Policy. The production of Health & Safety documentation and policy, including Safety Management Systems based on the activities within individual teams, Organisation and Arrangement Statements. (Duty of Care).
Safety Management	3290	Occupational Health & Safety Management Training	Occupational Health & Safety Management Training. Production of Training Courses in the following areas: Director and Senior Management Responsibilities with focus on Corporate Manslaughter, Workplace Risk Assessor, DSE Assessor, IOSH, Managing Safety (and other general Health & Safety training), Working at Height, Dangerous Substances and Explosive Atmospheres (DSEAR), Control of Substances Hazardous to Health (COSHH), Registration Evaluation and Assessment of Chemicals (REACH), Manual Handling, Control of Noise and Vibration in the workplace, Control of Asbestos, Control of Legionella, Control of Contractors, and Stress Management. (Duty of Care).
Safety Management	3300	System Safety Risk Assessment	System Safety Risk Assessment. Safety Risk Management, facilitating safety risk assessments, safety impact statements, human factors. Risk based inspections. Hazard analysis. (Duty of Care).
Safety Management	3310	System Safety Management	System Safety Management, advice and support in setting up Safety Management Systems incorporating MoD policies. Safety Management Systems. Safety procedures and statutory requirements. Hazard identification. Project Oriented Safety Management System (POSMS) compliance. (Duty of Care).
Safety Management	3320	Safety Management Support	Safety Management Support. Identification of safety objectives, targets and criteria. Residual safety risk management, Data Reporting, Analysis Corrective Action System. Legal compliance. (Duty of Care).
Safety Management	3330	Safety Hazard Analysis	Safety hazard analysis, hazard management. (Duty of Care).
Safety Management	3340	Safety Cases	Safety Cases. Production of Safety Cases, support to generation and development of Safety Cases and associated work for legacy systems. (Duty of Care).
Safety Management	3350	Safety Audit	Independent Safety Audits, auditing of Safety Cases and Safety Management Systems. (Duty of Care).
Safety Management	3360	Safety Assessment	Safety Assessment. Assessment of Safety submissions, assessment of safety documents. (Duty of Care).
Safety Management	3370	Safety Validation	Safety Validation. Independent validation of test and trials safety data and information. (Duty of Care).
Safety Management	3380	Safety Legislation	Safety Legislation. Identification of safety legislation relevant to particular equipments, systems and domains. (Duty of Care).
Environmental Management	3390	Environmental Management Systems	Environmental Management Systems. Environmental Management and Protection. Environmental Impact Assessment, screening and scoping studies, Environmental Management Systems (EMS), assurance and reporting. Waste management. Advice and support in setting up Environmental Management Systems incorporating MoD policies. ISO 14001 systems. Advice on Project Oriented Environmental Management System (POEMS) compliance. Sustainable Development. Procedures and statutory requirements. (Duty of Care).
Environmental Management	3400	Environmental Management Training	Environmental Management Training. Production of Training Courses for Environmental Management including Director and Senior Management Responsibilities, Project Oriented Environmental Management System (POEMS) compliance, EMS application, compliance with Environmental legislation. (Duty of Care).
Environmental Management	3410	Environmental Risk	Environmental Risk Management, facilitating environmental risk assessments, environmental impact statements. (Duty of Care).
Environmental Management	3420	Environmental Legislation	Identification of environmental legislation relevant to particular equipments, systems and domains. (Duty of Care).
Environmental Management	3421	Environmental Audit	Environmental Audit. Auditing of Environmental Management Systems i.e. POEMS. (Duty of Care).
Maritime Safety	3430	Surface Ship Stability	Surface Ship Stability. Knowledge and experience in applying Standards and regulations including JSP 430, NSC, NSSC, Def Stan 02:109, MAP 01:24, IMO conventions and watertight integrity survey. The preparation of certification plans and safety cases for vessels in the acquisition cycle. (Duty of Care).
Maritime Safety	3440	Surface Ship Structural Strength	Surface Ship Structural Strength. Knowledge and experience in applying Standards and regulations including JSP 430, NSC, NSSC, SOLAS and pollution regulations and structural survey. The preparation of certification plans and safety cases for vessels in the acquisition cycle. (Duty of Care).
Maritime Safety	3450	Surface Ship Escape & Evacuation	Surface Ship Escape and Evacuation. Knowledge and experience in applying Standards and regulations covering JSP 430, NSC and NSSC. The preparation of certification plans and safety cases for vessels in the acquisition cycle. (Duty of Care).
Maritime Safety	3460	Fire	Fire. Knowledge and experience of applying JSP 430, Def Stan 07-204 pts 1 & 3, 08-147, 02-357 pt1 including Annex C of JSP 430. The preparation of certification plans and safety cases for vessels in the acquisition cycle. (Duty of Care).
Maritime Safety	3470	Explosives, Maritime Safety	Explosives. Knowledge and experience of applying JSP430, JSP 520, JSP 862 and Def Stan 00-101 (Design Standards for Explosive Safety in MoD Ships and Submarines). Preparation of certification plans, development of ship explosive safety cases to support safety and certification submissions by IPTs for MoD vessels. Such work necessary to permit: A) the safe storage, movement within the ship and use of an extensive range of OME across all classes of warships, submarines, auxiliaries and small craft; B) the mitigation of risks associated with ammunitioned warships in harbour. JSP 430 Pt3 Issue 4 Chap 8 list subjects which identifies the capabilities necessary to support this narrow area. (Duty of Care).
Maritime Safety	3480	Submarine Stability	Submarine Stability. Knowledge and experience of applying Submarine Stability policy and guidance documents including: JSP430, SSP 71 – Submarine Trimming and Inclining Experiments, MAP 01-73 – Submarine Hydromechanics, SSP 89 – Submarine Margins Policy, DEF STAN 08-102 (NES 189) – Requirements and Acceptance Criteria for Submarine Hydrodynamics. Preparation of certification plans and safety cases for submarines in the acquisition cycle. (Duty of Care).

Maritime Safety	3490	Submarine Structural Strength	Submarine Structural Strength. Knowledge and experience of applying policy and guidance documents including: JSP430, MAP 01-74 – Design of Submarine Structures, DEFSTAN 08-145 (NES 842) – Requirements for Submarine Hull Survey and Structural Safety Certification, DEFSTAN 08-163 - Design Standards for submarine Structures (Safety Factors), DEFSTAN 09-50 - Design Standards for submarine Structures (Load Factors), BS5500, ASME, Classification Society Rules or other applicable Structural Codes. The preparation of certification plans and safety cases for vessels in the acquisition cycle and conduct of audit and review criteria as detailed in JSP 430. (Duty of Care).
Maritime Safety	3500	Submarine Manoeuvring & Control	Submarine Manoeuvring and Control. Knowledge and experience of applying Safety Policy and guidance documents including JSP430, DEFSTAN 00-56 – Safety Management Requirements for Defence Systems; Specific Submarine Manoeuvring & Control policy and guidance documents including: SSP73 – Submarine Hydrodynamics, DEFSTAN 08-102 (NES189) – Requirements and Acceptance Criteria for Submarine hydromechanics, DEFSTAN 07-222 (NES369) – Requirements for Submarine Autopilots, Electronic 'RECOVER Variables Input' (RIV)/ARTEMIS Database. The preparation of certification plans and safety cases for vessels in the acquisition cycle and conduct of audit and review criteria as detailed in JSP 430. (Duty of Care).
Maritime Safety	3510	Submarine Atmosphere Control	Submarine Atmosphere Control. Knowledge and experience of applying policy and guidance documents including: JSP 430, JSP375 – MOD Health and Safety Handbook, JSP418 – MOD Environmental Manual, JSP430, JSP666 – MOD Environmental Pollution Management Handbook, Submarine Atmosphere Control Documentation including: BR 1326 Regulations for Atmosphere Control in Submarines supported by the Submarine Materials Toxicity Database (SMTD). The preparation of certification plans and safety cases for vessels in the acquisition cycle and conduct of audit and review criteria as detailed in JSP 430. (Duty of Care).
Maritime Safety	3520	Submarine Watertight Integrity	Submarine Watertight Integrity. Knowledge and experience in applying policy and guidance documents including: JSP 430, JSP418 – MOD Environmental Manual, JSP666 – MOD Environmental Pollution Management Handbook; Submarine Watertight Integrity Documentation including: SSP25 – Quality Assurance for Safety in Submarines, STGP 99 – Watertight Integrity for Submarines Design Policy and Principles, DEF Stan 02-136 – Design, Testing and Acceptance Requirements for Watertight Integrity of Submarines; Statutory Regulations including: International Maritime Organisation, Guidelines for the Design, Construction and Operation of Passenger Submersible Craft, Ref T4/3.01. The preparation of certification plans and safety cases for vessels in the acquisition cycle and conduct of audit and review criteria as detailed in JSP 430. (Duty of Care).
Maritime Safety	3530	Not used	Not used
Through Life Support	3540	Integrated Logistics Support Management.	Integrated Logistics Support Management. Provide the supportability focus within the project for development of the ILS Team structure, including manpower and skill requirements to meet the ILS tasks and objectives. Development of the projects Support Strategy and subsequent planning and fielding of the support solution. Interfacing with the logistic support stakeholders to define the resources and procedures necessary to manage the ILS programme throughout the acquisition cycle, ensuring managed delivery of the physical support solution. Responsible for ensuring that all supportability requirements are captured and delivered through the controlled development of the support solution.
Through Life Support	3550	Logistic Support Analysis Management	Logistic Support Analysis Management. Providing support to the ILSM for all matter pertaining to LSA, ensuring that LSA Strategy (and subsequently the LSA Planning) is carried out with full stakeholder engagement / endorsement. Conduct / ensure LSA Tasks (which are the Authority's responsibility) during the various stages of the project are completed and ensure that LSA task selection is appropriate to the project Management of LSA deliverables from the contractor in accordance with the ILS Plan.
Through Life Support	3560	Availability, Reliability & Maintainability Management	Availability, Reliability and Maintainability (AR&M) Management. Providing support to the ILSM for all matters pertaining to AR&M, ensuring that an effective AR&M programme is planned and delivered with full stakeholder engagement/endorsement.
Through Life Support	3570	Technical Information Management	Technical Information Management. Providing support to the ILSM for all matter pertaining to the management of the development of Technical Documentation with full stakeholder engagement/endorsement, and subsequent fielding of the physical Technical Information resources ensuring this is coherent with the projects support solution.
Through Life Support	3580	Training Management	Training Management. Providing support to the ILSM for the management of the Training Needs Analysis (TNA) process for the identification of training requirements and the most cost effective means of meeting those requirements. Development of training planning, detailing how the requirements for TNA and Training Equipment are to be met, and subsequent management of the fielding activity for the physical training resources ensuring this is coherent with the projects support solution.
Through Life Support	3590	IT Service Management	IT Service Management. Providing support to ILSM for all matter pertaining to the identification of the IT Service Management requirement and subsequent fielding of the physical IT service management solution ensuring this is coherent with the projects support solution.
Through Life Support	3600	Obsolescence Management	Obsolescence Management. Providing support to ILSM for all matter pertaining to the development of the obsolescence management system and subsequent fielding of the processes and procedures ensuring this is coherent with the projects support solution.
Through Life Support	3610	Test Equipment Management	Test Equipment Management. Provide support to the ILSM for all matters pertaining to the identification of the Support Equipment requirements that are ensuring commonality and rationalisation is encouraged. Management of subsequent fielding of the physical support equipment resources.
Through Life Support	3620	Disposal Management	Disposal Management. Provide support to the ILSM for all matters pertaining to the identification of the disposal requirements that are coherent with the projects support solution.

Through Life Support	3630	Human Factor Integration Management	Human Factor Integration Management. Providing support to the ILSM for Human Factors Integration Planning including how the Human Factors tasks are to be carried out and integrated with ILS / LSA tasks. Ensuring early Human Factors Analysis (EHFA) is used to develop a suitable Human Factors Integration (HFI) strategy which is coherent with the projects support solution.
Through Life Support	3640	Packaging Handling & Transport Management	Packaging Handling and Transport Management. Providing support to the ILSM for all matters pertaining to Packaging, Handling and Transport (PHS&T) requirements. Identifying regulations, specifications and related documents that describe and define the packaging, handling and storage requirements of the physical support resources and management of PHS&T fielding activity.
Through Life Support	3650	Integrated Supply Support Management	Integrated Supply Support Management. Providing support to ILSM for all matter pertaining to the identification of the spares requirement and subsequent fielding of the physical spares requirement ensuring this is coherent with the projects support solution.
Platforms and Weapons	3660	Warheads	Warhead Effectiveness Urban Environment. Warhead designs employing chemical energy, weapon and target interactions, attack of hard and buried targets and underwater weapon applications, the behaviour of the debris cloud, insensitive munition designs, quality assurance of warhead components, fuzing, microwave warhead fuzes, intelligent fuze systems and arming systems, solid state devices for 'safety and arming' purposes, "smart" functionality, and application of electrical, optical and other methods of initiation of propellants and charges. Compliance with Def Stan 07-85 Weapon System Design Requirements. (Duty of Care).
Platforms and Weapons	3670	Explosive Ordnance Disposal	Explosive Ordnance Disposal EO and related devices requiring disposal, including underwater EOD and land-based countermine technology, disposal systems for energetic materials and munition materials compliant with environmental legislation requirements. Compliance with Def Stan 07-85 Weapon System Design Requirements. (See also: Environmental Management capabilities, including Environmental Legislation). (Duty of Care).
Platforms and Weapons	3680	Mine Detection & Clearance	Mine Detection and Clearance. MCM systems, platform and diver signatures, diver communication, mine hunting and avoidance sonars, sweeping, UUV systems and MCM reconnaissance and disposal systems, landmine detection, neutralisation and route marking systems, and advanced hand-held landmine detection systems. Compliance with Def Stan 07-85 Weapon System Design Requirements. (Duty of Care).
Platforms and Weapons	3690	Defensive Aids Suite	Defensive Aids Suite (DAS) systems, and advanced pyrotechnic countermeasures. (For Air environment: use Airworthiness Management Broad Capability Area). (Duty of Care).
Platforms and Weapons	3700	Rocket Engines & Ramjets	Rocket Engines & Ramjets. Solid and liquid fuel ramjets, ramrockets and rockets, combustion systems, ramburner aerodynamics and reaction kinetics, throttle control systems, air intakes, nozzles, nozzleless boost systems, rocket and ramjet missile cases and associated internal insulation systems. (Duty of Care).
Platforms and Weapons	3710	Ballistic Designs	Ballistic design and related design drivers in platform and weapon systems, internal and external ballistics of projectile behaviour, gun and launcher system designs. (Duty of Care).
Platforms and Weapons	3720	Electrical & Electronic Designs	Electrical and electronic design factors and their integration in platforms and weapons systems, associated test activities and predictive modelling. (Duty of Care).
Platforms and Weapons	3730	IR Sensors – Active	IR Sensors Active. Integrated sensor suites incorporating targeting, navigation. Terrain and obstruction avoidance sensors, optics, system modelling, detectors, lasers and system design, vision systems for AFVs and WASAD, intelligent surveillance, laser detection of mines in very shallow water / surf zone, underwater target detection and laser weapon fuzing, laser rangefinders, vibration sensors, laser sources, and CLARA. (Duty of Care).
Human Factors Integration	3740	People in Systems - Requirements Specification	Human Factors Requirements Specification. User and System Requirements Specification: Tools, methods and processes to support the specification of the integration of people within complex systems. Organisational and Societal influences
Human Factors Integration	3750	People in Systems - Recruitment & selection	Human Factors Recruitment and Selection. Recruitment, selection and retention of personnel, management of equal opportunities, manpower modelling and systems complementing influence on realizing Capability. Relationships between Human Factors elements and system properties of those elements. Systems Architecture and the Human Views. Design of Distributed Work Systems. MODAF. (See also: item 0720, 2560)
Human Factors Integration	3760	People in Systems - Systems introduction	Human Factors Systems Introduction. Optimising the impact of a system's introduction into an existing sociotechnical environment. System's commissioning, support and maintenance impact on Manpower.
Human Factors Integration	3770	People in Systems - Safety hazard analysis	Human Factors element of hazard identification, hazard analysis, hazard management; plus hazard mitigation strategies including: Redesign; Warnings Cautions Alarms; Labelling etc. Human performance and resultant residual risk levels
Human Factors Integration	3780	People in Systems - Safety Case	Human Factors element of Safety Cases, support to generate and develop safety Cases, including HF Goal Structured Notation (GSN) Nodes, and associated Risk/hazard identification / quantification
Human Factors Integration	3790	People Characteristics	Human Factors People Characteristics. Psychological and Physiological characteristics: aptitude, personal qualities and physical characteristics including anthropometrics, strength, manual handling, Target Audience Descriptions
Human Factors Integration	3800	Operations	Human Factors Operations. Doctrine, Authority, Organisational influences,
Human Factors Integration	3810	Job Design, Task Analysis, Function Allocation	Human Factors Job Design, Task Analysis, Function Allocation. Workload, automation strategies, Error capture and recovery
Human Factors Integration	3820	Training - Individual & Team Training	Human Factors Training - Individual & Team Training. Skills General education, professional and technical education and physical training techniques, management of skill acquisition and skill fade, Crew Resource Management, training needs analysis, and physical fitness training, expedition, resource and initiative training.

Human Factors Integration	3830	Training - Education Solutions	Human Factors Training - Education Solutions. Training solutions for induction training, education and continuous education development, including e-learning media solutions, technology based training solutions, CBT, CAI, Part task Trainers, Full Task Trainers, emulations and simulators. Collective training solutions.
Human Factors Integration	3840	Training - Development & Support	Human Factors Training - Development and Support. Training management, TNA, instructional analysis, training options analysis.
Human Factors Integration	3850	Training - Collective Training	Human Factors Training collective performance, collective non-real-time training, after action review, metrics of collective performance.
Human Factors Integration	3860	Training & Education	Human Factors Training and Education. General education, professional and technical education and training, TNA, skills maintenance.
Human Factors Integration	3870	Displays, controls, Human Machine Interfaces	Human Factors Displays, Controls, Human Machine Interfaces. Display System - Display Technologies including helmet systems, Related display information eg symbology, text legibility. environmental factors - viewing angles, ambient light Night vision goggles, information clarity foveal fixation, clutter
Human Factors Integration	3880	Clothing, Personal Protective Equipment	Human Factors Clothing, Personal Protective Equipment. Hardware, tools and methodologies used to investigate fault tolerance/detection, atomicity and liveness; quality and reliability issues. Emerging technologies. (NOTE: May affect Duty of Care liabilities.)
Human Factors Integration	3890	Physical Protection Systems – Threat	Human Factors Physical Protection Systems – Threat. Specialist clothing and equipment to protect individuals and groups operating in threat situations, human protection and survival systems in environmental extremes including radiological, thermal, and sensory threat conditions, EOPM for bare eyes, body armour systems and related behind-armour protective clothing systems.
Human Factors Integration	3900	Physical Protection Systems – Operating Environment	Human Factors Physical Protection Systems – Operating Environment. Maintenance of physical and visual performance with effective communication in high ambient noise environments. Specialist clothing and individual equipment, safety and support systems, air conditioning for humans and equipment, internal noise control for habitability purposes. (For Air environment: use Airworthiness Management broad capability area).
Human Factors Integration	3910	Physical Protection Systems - Sea	Human Factors Physical Protection Systems - Sea. Diving systems, and submarine escape systems. protection for MCM diving. Specialist clothing and individual equipment, decompression tables, on-board oxygen generating systems, breathing regulators.
Human Factors Integration	3920	CBR & N Protection – Physical	Human Factors CBR and N Protection – Physical. Individual and collective protection equipment (IPE & COLPRO), decontamination systems, contamination management and chemical hardening, surface chemistry technology and airflow cleaning and management systems, handling of supertoxic chemicals, HFI issues associated with the design, selection and evaluation of NBC protective systems, integration of COLPRO systems onto land vehicles.
Human Factors Integration	3930	Integration Processes	Human Factors Integration processes. The process and or toolsets for determining manpower demands, including operators, support and maintenance personnel requirements for software, MOTS / COTS product or new Capability integration with proposed or existing sociotechnical systems.