

SENARAI BIDANG KEPAKARAN (FIELDS OF EXPERTISE)

<p>BIDANG KEPAKARAN (FIELDS OF EXPERTISE)</p>	<p><i>Pengalaman Bekerja Di Luar Negara (Working Experience Overseas)</i></p>
<p>1. INFORMATION AND COMMUNICATIONS TECHNOLOGY (ICT):</p> <p>1.1. COMMUNICATION:</p> <p>1.1.1 Cell planning/radio network planning 1.1.2 Operation and maintenance 1.1.3 Switching 1.1.4 Transmission 1.1.5 WAP / GPRS / EDGE / CDMW / WCDMA / DWDM technologies 1.1.6 Satellite and international carrier services 1.1.7 Wireless communication technologies 1.1.8 WLL technology/DVB standards 1.1.9 Photonics 1.1.10 Voice Encryption technology 1.1.11 Artificial Intelligence 1.1.12 Speech and Pattern recognition</p> <p>1.2. NETWORKING:</p> <p>1.1.1 ISDN 1.1.2 Content provision 1.1.3 Data management 1.1.4 Network management 1.1.5 Data Compression and Security 1.1.6 Programming C++, Visual Basic and Customer Network Operation</p> <p>1.3. SOFTWARE</p> <p>1.1.1 Simulation and modeling 1.1.2 Computer security 1.1.3 Billing system 1.1.4 Mobile network management 1.1.5 E-commerce 1.1.6 Fraud control management 1.1.7 Content 1.1.8 Risk management and financial engineering 1.1.9 Design & Technology</p>	<p>ICT:</p> <p>For 1.1 – 1.3</p> <p>Minimum two (2) years after obtaining relevant PhD; or</p> <p>Minimum four (4) years after obtaining relevant Masters degree; or</p> <p>Minimum six (6) years after obtaining relevant Bachelors degree</p>
<p>2. INDUSTRY:</p> <p>2.1 MICROELECTRONICS:</p> <p>2.1.1 Sensory technology 2.1.2 Semiconductor materials and microelectronics circuits 2.1.3 Optoelectronics 2.1.4 Avionics 2.1.5 Advanced semiconductor devices 2.1.6 Electronic Component</p> <ul style="list-style-type: none"> • Digital/Analog IC Design & Analysis • System Integration 	<p>INDUSTRY:</p> <p>For 2.1 – 2.8, 2.10</p> <p>Minimum two (2) years after obtaining relevant PhD; or</p> <p>Minimum four (4) years after obtaining relevant Masters degree; or</p>

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<ul style="list-style-type: none"> • Mixed Signal • System Integration Design and Development, Semiconductor <p>2.1.7 Micro electro mechanical systems</p> <p>2.1.8 Mechatronics Engineering</p> <p>2.1.9 Tooling Engineering</p> <p>2.1.10 Electronic Imaging & Image Processing Technology</p> <p>2.1.11 Photomasking</p> <p>2.1.12 Advanced Materials for Electronic Components Packaging and Wafer Fabrication</p> <p>2.1.13 Engineering Physics</p> <p>2.1.14 Optomechanical Design</p> <p>2.1.15 Microbiochips</p> <p>2.1.16 Wafer Fabrication Engineering Fibre Optic Technology</p> <p>2.1.17 Photonic and Nano-photonics Engineering</p> <p>2.1.18 Acoustic/Circuit Analysis and Component Evaluation</p> <p>2.1.19 Surface Mount Technology</p> <p>2.1.20 Electrical and electronic skills in Medium Voltage</p> <p>2.1.21 Electronics</p> <ul style="list-style-type: none"> • Embedded Design Technology • ASICs Design Technology • FPGAs and VHDL Technology <p>2.1.22 Display Technology Including Thin-Film Transistors Liquid Crystal Displays; (TFT-LCD); Plasma Display, LED Board Displays; Vacuum Fluorescent Displays (VFD); Organic Light Emitting Diodes (OLED); Field Emission Display (FED); Electrominiscent Displays and 3-D Displays</p> <p>2.1.23 Micro-Electromechanical devices/system (MEMS)</p>	<p>Minimum six (6) years after obtaining relevant Bachelors degree</p>
<p>2.2 ADVANCED MANUFACTURING TECHNOLOGY</p> <p>2.2.1 Flexible computer integrated manufacturing</p> <p>2.2.2 Machine intelligence and robotics</p> <p>2.2.3 Micro and nano fabrication</p> <p>2.2.4 Systems management technology</p> <p>2.2.5 Hands-on ability on Programmable Logic Controller (PLC) system and project management, instrumentation and mechanical skills, Computer Aided Design (CAD)/Computer Aided Manufacturing (CAM) and automation</p> <p>2.2.6 Total Quality Maintenance, ISO9000, Statistical Process Control (SPC), Mode and Effect Analysis (FMEA), Product Specifications, Control Management, Supply Chain, MRP, Quality Improvement Activities, Machine Trouble Shooting and Preventive Maintenance (Process Engineer)</p>	

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<p>2.2.7 Method Study, Work Measurement and Operation Layout</p> <p>2.2.8 Acoustic Product Design, electronic Product Design and Mechanic Product Design</p> <p>2.2.9 Research and Development in Digital Product Development</p> <p>2.2.10 Technical Skills and experience on cast extrusion technology and flexo-graphic printing (for printing industry)</p> <p>2.2.11 Design Engineer (Microprocessor, Network-processor, Motherboard)</p> <p>2.2.12 Nanotechnology and Precision Engineering</p> <p>2.2.13 Theoretical Physics</p> <ul style="list-style-type: none"> • Computational techniques & stochastic process in industries 	
<p>2.3 ADVANCED MATERIALS (MANUFACTURING):</p> <p>2.3.1 Composites</p> <p>2.3.2 Ceramics</p> <p>2.3.3 Semiconductor materials, Microelectronics circuits and photonic materials</p> <p>2.3.4 Materials synthesis and processing Superconductors</p> <p>2.3.5 High performance metals and alloy</p> <p>2.3.6 Fine Chemicals/Specialty Fine Chemicals Technology</p> <p>2.3.7 Polymers and Biopolymers</p> <p>2.3.8 Plastic Injection Moulding</p> <p>2.3.9 Solder Paste Technology and Application</p> <p>2.3.10 Thorough Knowledge in Explosive Material and Petrochemical Processes Tyre Designer (R&D)</p>	
<p>2.4 PHARMACEUTICAL INDUSTRY (MANUFACTURING):</p> <p>2.4.1 Molecular & cell biology studies</p> <p>2.4.2 Bio processing technology</p> <p>2.4.3 Engineering & bio information</p> <p>2.4.4 Active Ingredients / Protein Chemistry</p>	
<p>2.5 MACHINERY INDUSTRY</p> <p>2.5.1 Machinist</p> <p>2.5.2 Design engineer</p> <p>2.5.3 Metallurgist</p> <p>2.5.4 Mould/die maker</p> <p>2.5.5 Mechanical engineering</p> <p>2.5.6 Skilled welders</p> <p>2.5.7 AutoCAD, Designing Milling Machine, Programming, Specialized in Plastic Moulding (for Plastic/Rubber Industry), Metal Fabrication, R&D Automotive Components. (Structural/ Design Engineer)</p> <p>2.5.8 Assembly jig & Fixture Design, Soldering Technology and Fixture of Fabrication machine</p>	

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2.5.9 Integrated Process Control System 2.5.10 Tools and Equipment Innovation 2.5.11 Improvement including Robotic 2.5.12 Structural Design, Technical Drawing and Pneumatic 2.5.13 Test Program Development, Test Hardware Design, Measuring Equipment. (Test Engineer) 2.5.14 Designing of Milling Machine	
2.6 AUTOMOTIVE INDUSTRY: 2.6.1 Design engineer 2.6.2 R&D engineer 2.6.3 Software engineer 2.6.4 Die Engineer 2.6.5 Structural Design Engineer	
2.7 TEXTILES AND APPAREL INDUSTRY 2.7.1 Design Engineer International Textile And Apparel Merchandiser And Marketer Fashion Designer For Textile And Apparel And Leather Products 2.7.2 Computer Graphic Expert For Film & Video Industry 2.7.3 Textile Machineries, Maintenance, Calibration And Fine Tuning 2.7.4 Dyestuff And Auxiliaries	
2.8 METAL & ENGINEERING SUPPORTING INDUSTRIES: 2.8.1 Mould, Tool And Die Technologists And Designers 2.8.2 Metallurgists For The Foundry And Iron & Steel Industries	
2.9 AGRICULTURE AND PAPER INDUSTRY 2.9.1 Skills In Biotechnology Industry <ul style="list-style-type: none"> • Molecular biologist, biochemist, microbiologist and food biotechnologist • Flavourist nutritionist, food scientist <ul style="list-style-type: none"> - expertise in freshness monitoring sensor technology, analytical, toxicity and chemical synthesis - expertise in extraction and purification technology. 2.9.2 Skills in wood-based industry <ul style="list-style-type: none"> • wood <i>designer</i> • furniture <i>designer</i> 	
2.10 PRODUCTION INDUSTRY 2.10.1 Production Control and Planning / Scheduling 2.10.2 Project Management and Quality Tools 2.10.3 <i>Industrial design</i>	

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<p>3. SCIENCE AND TECHNOLOGY:</p> <p>3.1 ENVIRONMENTAL MANAGEMENT</p> <p>3.1.1 Green materials 3.1.2 Agro-based waste</p> <p>3.1.3 Pollution minimization, remediation and waste management 3.1.4 Persistent organic pollutants 3.1.5 Life cycle assessment 3.1.6 Environment forensics 3.1.7 Municipal solid wastes 3.1.8 Climate change</p> <p>3.2 ADVANCE MATERIAL (R&D)</p> <p>3.3 BIOTECHNOLOGY AND LIFE SCIENCES:</p> <p>3.3.1 Biotechnology materials and processes 3.3.2 Medical devices and diagnostics 3.3.3 Medical technology 3.3.4 Biomedical 3.3.5 Biopharmacy 3.3.6 Bioinformatics 3.3.7 Biochemistry 3.3.8 Bioprocess Engineering 3.3.9 Microbiology 3.3.10 Genetics engineering 3.3.11 Plant Biotechnology 3.3.12 Animal Biotechnology 3.3.13 <i>Protein Engineering</i> <ul style="list-style-type: none"> • <i>Expert in protein recombined and enzyme modification</i> 3.3.14 <i>Tissue Culture</i> <ul style="list-style-type: none"> • <i>Expert in protecting of organism tissue in culture medium</i> </p> <p>3.4 ENERGY</p> <p>3.4.1 Renewable 3.4.2 Conventional 3.4.3 <i>Renewable energy</i> 3.4.4 <i>Portable energy</i> 3.4.5 <i>Fuel cell technology</i> 3.4.6 <i>Energy Audit</i></p> <p>3.5 MARINE SCIENCES – RESEARCH FIELDS ONLY</p> <p>3.5.1 <i>Aquatic Ecosystem - Habitat Conservation, Coral Studies and Development</i> 3.5.2 <i>Fishing Technology</i> 3.5.3 <i>Oceanography</i> 3.5.4 <i>Stock Assessment</i></p>	<p>SCIENCE AND TECHNOLOGY:</p> <p>For 3.1 – 3.19, 3.22 - 3.23, 3.28 -3.30</p> <p>Minimum two (2) years after obtaining relevant PhD; or</p> <p>Minimum four (4) years after obtaining relevant Masters degree; or</p> <p>Minimum six (6) years after obtaining relevant Bachelors degree</p>

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BIDANG KEPAKARAN (FIELDS OF EXPERTISE)	Pengalaman Bekerja Di Luar Negara (Working Experience Overseas)
3.5.5 <i>Product Development of Under – Utilized Fish Catch</i> (*3.5.1 – 3.5.5: Contribution by MoA)	
3.6 NUCLEAR AND RADIATION PHYSICS 3.6.1 Radiology 3.6.2 Nuclear And Radiation Sources 3.6.3 Nuclear And Radiation Instrumentation	
3.7 ELECTRIC DISCHARGES AND PLASMA 3.7.1 Industrial And Space Plasmas 3.7.2 Plasma Devices And Processing Of Materials 3.7.3 Plasma Source For X-Ray And Extreme Ultra-Violet Lithography 3.7.4 Plasma Theory	
3.8 CHEMICAL SCIENCES 3.8.1 <i>Physical Chemistry</i> <ul style="list-style-type: none"> • chemical thermodynamics • chemistry of catalysis • colloid chemistry • electrochemistry • structural chemistry • surface chemistry • photo polymerization • polymer chemistry • nuclear chemistry 3.8.2 <i>Inorganic Chemistry</i> <ul style="list-style-type: none"> • bioinorganic chemistry • organometallic chemistry • solid state chemistry • transition metal chemistry 3.8.3 <i>Organic Chemistry</i> <ul style="list-style-type: none"> • organic chemical synthesis • natural polymer 3.8.4 <i>Analytical Chemistry</i> <ul style="list-style-type: none"> • chemometrics • computational chemistry • extraction Technology • instrumentation methods • Chemical and Physical Methods • Trace chemical analysis • Water treatment 3.8.5 <i>Specialty Chemicals</i> <ul style="list-style-type: none"> • radiation/radiochemistry (water, gas and solid) 	

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<ul style="list-style-type: none"> • rare metal recovery • fine chemicals • synthetic chemistry • novel chemicals • super critical fluid technologies • oleo chemicals derivatives • photochemical 	
3.8.6 <i>Geochemistry</i> <ul style="list-style-type: none"> • Isotope geochemistry • Exploration geochemistry • Inorganic geochemistry • Organic geochemistry 	
3.9 ATOM & MOLECULES, OPTICS AND PHOTONICS	
3.9.1 Nonlinear optics	
3.9.2 quantum optics <ul style="list-style-type: none"> • near field optics • laser and fibre optics • atmospheric optics 	
3.10 CONDENSED MATTER	
<ul style="list-style-type: none"> • Semiconductor and Device Physics • Thin Film Deposition/Growth and Characterization • Bio and Polymer Physics • Low-Dimension physics 	
3.11 ENVIRONMENTAL ENGINEERING / CHEMISTRY	
3.11.1 Chemical Waste Safety	
3.11.2 Remediation	
3.11.3 Water And Waste Water Treatment Tech	
3.11.4 Organic Waste Treatment	
3.11.5 Chemical Engineering	
3.11.6 Plant Design And Testing	
3.11.7 Bio Engineering	
3.11.8 Process Control	
3.11.9 Separation Process	
3.11.10 Fluidization Technology	
3.11.11 Heat/Mass Transfer Operation	
3.11.12 Soil Chemistry	
3.11.13 Food Chemistry	
3.12 FERTILIZER CHEMISTRY	
3.13 PHYTO CHEMISTRY	
3.14 FORMULATION CHEMISTRY	
3.15 CHEMICAL SYNTHESIS	
3.16 REACTION KINETICS AND MECHANICS	
3.17 CATALYSIS	

SENARAI BIDANG KEPAKARAN (*FIELDS OF EXPERTISE*)

<p>BIDANG KEPAKARAN (FIELDS OF EXPERTISE)</p>	<p><i>Pengalaman Bekerja Di Luar Negara</i> (Working Experience Overseas)</p>
<p>3.18 MOLECULAR MODELING</p>	
<p>3.19 INDUSTRIAL CHEMICAL 3.19.1 Lubricants 3.19.2 Surfactants 3.19.3 Polymer 3.19.4 healthcare</p>	
<p>3.20 RESEARCH IN MEDICAL SCIENCES RESEARCH MEDICAL OFFICERS 3.20.1 Occupational Health Physician</p>	<p>For 3.20.1 Possess MFOM U.K (professional qualification) and Minimum 5 years of working overseas after obtaining PhD in Occupational Medicine</p>
<p>3.20.2 Public Health Physician</p>	<p>For 3.20.2 Possess FPHM U.K (professional qualification) and Minimum 5 years of working overseas after obtaining PhD or Dr. PH in the field of Epidemiologist</p>
<p>3.20.3 Public Health Physician</p>	<p>For 3.20.3 Possess FPHM U.K (professional qualification) and Minimum 5 years of working overseas after obtaining PhD or Dr. PH in the field of Medical Statistics</p>
<p>3.20.4 Public Health Physician</p>	<p>For 3.20.4 Possess AFPHM (Australia & New Zealand) (professional qualification) and Minimum 5 years of working overseas after obtaining PhD or Dr. PH in the field of Epidemiologist</p>
<p>3.20.5 Public Health Physician</p>	<p>For 3.20.5 Possess AFPHM (Australia & New Zealand) (professional qualification) and Minimum 5 years of working overseas after obtaining PhD or Dr. PH in the field of Medical Statistics</p>
<p>3.21 BIOLOGICAL SCIENCES 3.21.1 Immunohistopathology 3.21.2 Molecular Immunogenetics</p>	<p>For 3.21 (13.21.1– 13.21.10) Possess a basic degree such as Medical or Science</p>

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3.21.3 Allergy 3.21.4 Chemistry (Drug Development) 3.21.5 Molecular Modelling Of (Drug Development) <ul style="list-style-type: none"> • Structure Elucidation 3.21.6 Molecular Biology <ul style="list-style-type: none"> • Cancer Biology • In Silico Biology 3.21.7 Cell Biology 3.21.8 Pharmacology <ul style="list-style-type: none"> • Clinical Pharmacology • Molecular Pharmacology 3.21.9 Toxicology <ul style="list-style-type: none"> • General Toxicology • Clinical Toxicology • Molecular Toxicology 3.21.10 Protein / Gene Microarrays	Degree and MSc / PhD / FRCS / MRCP in the related field
3.22 ZOOLOGY 3.22.1 Expert in animal's structure, characteristic, function, ecology and environment	
3.23 BOTANY 3.23.1 Expert in biology of all types of plant	
3.24 SPACE SCIENCE 3.24.1 Astronomy 3.24.2 Astrophysics 3.24.3 Astrobiology 3.24.4 Space Medicine	For 3.24 (3.24.1 – 3.24.4) <i>Minimum five (5) years relevant working experience after obtaining PhD; or</i> <i>Minimum seven (7) years relevant working experience after obtaining relevant Masters degree; or</i> <i>Minimum ten (10) years relevant working experience after obtaining relevant Bachelors degree</i>
3.25 SATELLITE ENGINEERING 3.25.1 Mission analysis <ul style="list-style-type: none"> • Astrodynamics • Trajectory analysis • Mission exploitation • Imaging and coverage 3.25.2 Spacecraft systems engineering and development 3.25.3 Altitude determination and control system 3.25.4 Guidance and navigation system 3.25.5 RF communication 3.25.6 Solar power system 3.25.7 On-board computer and flight operating system	For 3.25 (3.25.1 –3.25.12) <i>Minimum five (5) years relevant working experience after obtaining PhD; or</i> <i>Minimum seven (7) years relevant working experience after obtaining relevant Masters degree; or</i> <i>Minimum ten (10) years relevant working experience after obtaining relevant Bachelors degree</i>

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3.25.8 <i>Telemetry and telecommand</i> 3.25.9 <i>Structural/thermal/mechanical</i> 3.25.10 <i>Propulsion system</i> 3.25.11 <i>Spacecraft assembly, integration and testing</i> 3.25.12 <i>Satellite launchers</i>	
3.26 PAYLOAD DESIGN AND DEVELOPMENT 3.26.1 <i>Imaging systems</i> 3.26.2 <i>Transponder</i> <ul style="list-style-type: none"> • <i>Visible band – Multispectral & Hyperspectral</i> • <i>Thermal infrared</i> • <i>Radar</i> 3.26.3 <i>Global Navigation Satellite System</i> 3.26.4 <i>Radiation detectors</i> 3.26.5 <i>Atomic oxygen detectors</i> 3.26.6 <i>RF signal processing</i> 3.26.7 <i>Data encryption & security</i> 3.26.8 <i>On-board data compression & processing</i> 3.26.9 <i>On-board mass memory storage</i>	For 3.26 (3.26.1 –3.26.9) <i>Minimum five (5) years relevant working experience after obtaining PhD; or</i> <i>Minimum seven (7) years relevant working experience after obtaining relevant Masters degree; or</i> <i>Minimum ten (10) years relevant working experience after obtaining relevant Bachelors degree</i>
3.27 GROUND STATION DESIGN, DEVELOPMENT & MAINTENANCE 3.27.1 <i>G/S systems engineering</i> 3.27.2 <i>Antenna</i> 3.27.3 <i>RF Equipment</i> 3.27.4 <i>Mission control software</i> 3.27.5 <i>Data storage and distribution system</i> 3.27.6 <i>Mission planning and operations</i>	For 3.27 (3.27.1 –3.27.6) <i>Minimum five (5) years relevant working experience after obtaining PhD; or</i> <i>Minimum seven (7) years relevant working experience after obtaining relevant Masters degree; or</i> <i>Minimum ten (10) years relevant working experience after obtaining relevant Bachelors degree</i>
3.28 SCIENCE AND TECHNOLOGY POLICY AND MANAGEMENT 3.28.1 <i>Relevant field related to Science and Technology Policy and Management</i>	
3.29 AEROSPACE 3.29.1 <i>Any field related to Aerospace Science research</i>	
3.30 AGRICULTURAL AND FOOD SECURITIES 3.30.1 <i>Plant Bionformatics/ Genomics/ Proteomics/ Metabolomics</i> 3.30.2 <i>Natural product Chemistry</i> 3.30.3 <i>Combinatorial Chemistry</i> 3.30.4 <i>Animal transgenic technology</i> <ul style="list-style-type: none"> • <i>animal genome mapping</i> • <i>stem cell technology</i> 	

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<ul style="list-style-type: none"> • <i>molecular genetic market development</i> • <i>animal gamete in Vitro Culture and micromanipulation</i> <p>3.30.5 <i>Advance Biopharming through Livestock Transgenesis</i></p> <ul style="list-style-type: none"> • <i>Animal geneomic/ proteomic/transgenic technology</i> <p>3.30.6 <i>Feed quality development</i></p> <ul style="list-style-type: none"> • <i>microbial physiology</i> • <i>growth kinetics in solid state fermentation (SSF)</i> • <i>Genetic engineering for microbial strains improvement</i> • <i>Carbohydrates chemistry of cell wall</i> • <i>Bioprocess engineering in SSF</i> <p>3.30.7 <i>Cosmeceutical Product Development</i></p> <ul style="list-style-type: none"> • <i>bioprospecting of indigenous herbs having cosmeceuticals active ingredients</i> • <i>chemical profiling and identification of the active ingredients suitable as cosmeceuticals</i> • <i>standardization of herbs</i> <p>3.30.8 <i>Development of aromatherapy perfumery</i></p> <ul style="list-style-type: none"> • <i>bioprospecting of indigenous aromatic plants</i> • <i>sophisticated technique of extraction of essential oil</i> • <i>chemical profiling and identification of active ingredient</i> • <i>chemical standardization and computer aided technique of blending of essential oils</i> • <i>product formulation</i> <p>3.30.9 <i>Biopesticide prospecting and development</i></p> <ul style="list-style-type: none"> • <i>Bioprospecting of indigenous herbs for biopesticides</i> • <i>Formulation</i> • <i>development of delivery systems</i> <p>3.30.10 <i>Bionutrition **</i></p> <ul style="list-style-type: none"> • <i>advanced phytochemical assay and data analysis</i> • <i>bioefficacy assessment and management</i> • <i>specialised nutrition assessment</i> • <i>product formulation design and standardisation</i> <p style="text-align: center;"><i>** must have strong food science background</i></p> <p>3.30.11 <i>Food safety</i></p> <ul style="list-style-type: none"> • <i>diagnostics and method development</i> • <i>genetically modified foods (GMF)</i> • <i>theoretical and predictive microbiology</i> 	

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<ul style="list-style-type: none"> • <i>pathogenesis of food borne diseases</i> <p>3.30.12 <i>Advanced polymeric materials</i></p> <ul style="list-style-type: none"> • <i>biodegradable films</i> • <i>active packaging</i> • <i>semi degradable films</i> • <i>polymeric extrusion technology</i> <p>3.30.13 <i>Computer integrated food manufacturing and automation</i></p> <ul style="list-style-type: none"> • <i>smart sensors and field devices</i> • <i>process modelling</i> • <i>intelligent model based control strategies</i> • <i>knowledge technology</i> <p>3.30.14 <i>Flavour Chemists</i></p> <ul style="list-style-type: none"> • <i>creative flavourist</i> • <i>analytical flavour chemist</i> <p>3.30.15 <i>Crop modelling and simulations</i></p> <p>* <i>The expertise areas under the Science and Technology part are more relevant for research-based work. All candidates preferably must have done research in the mentioned fields to qualify under the fields.</i></p>	
<p>4. ARTS AND CULTURE:</p> <p>4.1 DESIGNER</p> <p>4.1.1 Sound designer 4.1.2 Lighting designer 4.1.3 Stage designer 4.1.4 Props designer 4.1.5 Scenographer</p> <p>4.2 PERFORMING ARTS MANAGEMENT</p> <p>4.2.1 Producer 4.2.2 Artistic Director 4.2.3 Production Manager 4.2.4 Choreographer 4.2.5 Stage Director 4.2.6 Theater Management</p>	<p>ARTS AND CULTURE:</p> <p>For 4.1 (4.1.1 - 4.1.5); 4.2 (4.2.1-4.2.5); 4.3 (4.3.1-4.3.2); and 4.4:</p> <p>Minimum two (2) years after obtaining relevant PhD; or</p> <p>Minimum four (4) years after obtaining relevant Masters degree; or</p> <p>Minimum six (6) years after obtaining relevant Bachelors degree; or</p> <p>Minimum ten (10) years after obtaining relevant Diploma</p> <p>For 4.2 (4.2.6):</p> <p>Minimum five (5) years after obtaining relevant diploma 1.30.15.1</p>

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BIDANG KEPAKARAN (FIELDS OF EXPERTISE)	Pengalaman Bekerja Di Luar Negara (Working Experience Overseas)
<p>Diploma in Theater</p> <p>4.3 TECHNICAL 4.3.1 Stage craft 4.3.2 Sound engineer</p> <p>4.4 THERAPIST 4.4.1 Art conservator</p> <p>4.5 PERFORMER 4.5.1 Musician 4.5.2 Diploma in Music</p>	<p>For 4.5 Minimum five (5) years after obtaining relevant diploma</p>
<p>5. FINANCE AND ACCOUNTING AND ECONOMICS:</p> <p>5.1 FINANCE & ACCOUNTING 5.1.1 Degree in Economic / Finance / Law / Syariah Law / Accounting / Islamic Finance / Fiqh Muamalah and Have obtained Certified Financial Planner and / or the Chartered Financial Consultant Certificate.</p> <p>5.2 BENCHMARK CONSTRUCTION CONSULTANTS 5.2.1 Degree in Actuarial Science / Economics / Accounting / Mathematical or Statistical related</p> <p>5.3 INVESTMENT / ASSET CONSULTANTS 5.3.1 Degree in Actuarial Science / Business</p> <p>5.4 FUND MANAGERS 5.4.1 Degree in Economics / Finance / Accounting / Business / Commerce / Law / Statistics / Islamic / Finance / Fiqh / Muamalah / Operational Research and have obtained Chartered Financial Analyst Certificate</p> <p>5.5 VENTURE CAPITALIST 5.5.1 Degree in Marketing / Business / Engineering / Information Technology / any business-related subject</p> <p>5.6 ACTUARIAL SCIENCE 5.6.1 Degree in Actuarial Science / Business</p> <p>5.7 RISK ASSESMENT MANAGERS (underwriting of classes of general business – aviation, marine, energy, liability & engineering) 5.7.1 Degree in Finance / Business / Accounting /</p>	<p>FINANCE, ACCOUNTING AND ECONOMICS:</p> <p>Minimum two (2) years after obtaining relevant PhD; or</p> <p>Minimum four (4) years after obtaining relevant Masters degree; or</p> <p>Minimum six (6) years after obtaining relevant Bachelors degree.</p>

SENARAI BIDANG KEPAKARAN (FIELDS OF EXPERTISE)

BIDANG KEPAKARAN (FIELDS OF EXPERTISE)	Pengalaman Bekerja Di Luar Negara (Working Experience Overseas)
Economics / Commerce / Actuarial Science / Statistics	
ECONOMICS: 5.8 ECONOMICS FORECASTER 5.9 SECURITIES ANALYST 5.10 COMMERCIAL CREDIT ANALYST 5.11 FINANCIAL ANALYST	
6. MEDICAL & HEALTH: 6.1 MEDICAL OFFICER 6.1.1 Medical Degree 6.1.2 Bachelor of Medicine Bachelor of Surgery (MBBS) 6.2 MEDICAL OFFICER (SPECIALIST) Possesses professional qualification such as FRCS or MRCP in the related speciality 6.2.1 Immunology 6.2.2 Molecular Biology - (Parasitic Diseases) 6.2.3 Histatology 6.2.4 Parasitology 6.2.5 Clinical Virology for Infectious Diseases 6.2.6 Environmental Toxicology 6.2.7 Psychiatry 6.2.8 Physicians 6.2.9 Anesthetists 6.2.10 Radiologist 6.2.11 Obstetric and Gynecology 6.2.12 Cardiology 6.2.13 General Surgeons 6.2.14 Pathology 6.2.15 Urology 6.2.16 Ophthalmology 6.2.17 Orthopedic Surgery 6.2.18 Gastro and Hepatology 6.2.19 Neurology 6.2.20 Dermatology 6.2.21 Endocrinology & Metabolism 6.2.22 Chest or Respiratory Medicine 6.2.23 Plastic Surgery 6.2.24 Rehabilitative Medicine 6.2.25 Rheumatology	MEDICAL & HEALTH: For 6.1.1 to 6.1.2 <i>No working experience overseas.</i> For 6.2.1 to 6.2.37 Minimum two (2) years experience from the date of passing professional examination

SENARAI BIDANG KEPAKARAN (FIELDS OF EXPERTISE)

BIDANG KEPAKARAN (FIELDS OF EXPERTISE)	Pengalaman Bekerja Di Luar Negara (Working Experience Overseas)
6.2.26 Ear, Nose and Throat 6.2.27 Nuclear Medicine 6.2.28 Haematology 6.2.29 Paediatric Surgery 6.2.30 Hand and Micro Surgery 6.2.31 Neurosurgery 6.2.32 Oncology & Radiotherapy 6.2.33 Hepatobiliary 6.2.34 Nephrology 6.2.35 Cardiothorasic Surgery 6.2.36 Forensic Pathology 6.2.37 Paediatrics	
6.3 DENTAL OFFICER	For 6.3 <i>Two years working clinical experience overseas required after obtaining basic professional qualification.</i>
6.4 DENTAL OFFICER (SPECIALISTS) Possesses professional qualification in the related field of specialty such as: - Fellow of Dental Surgery, Royal Colleges of Surgeons (FDSRCS) - <i>Membership of Faculty of Dental Surgery (MFDS) with Masters in Clinical Dentistry (M.Clin Dent) in related specialties as follows: .</i> 6.4.1 Oral surgery 6.4.2 Orthodontics 6.4.3 Periodontology 6.4.4 Pediatric dentistry 6.4.5 Restorative Dentistry 6.4.6 Oral pathology and Oral Medicine	For 6.4 <i>No working experience overseas required after obtaining professional postgraduate qualification.</i> <i>The candidate must have clinical experience to enable them to pursue professional postgraduate qualification in any related specialties as mentioned.</i> <i>The candidate must go through the process of gazettelement for a period of not less than six (6) months in Malaysia.</i>
6.5 PHARMACIST (SPECIALIST) <i>Possesses basic qualification in Pharmacy recognized by Pharmacy Board of Malaysia (PBM), and</i> <i>Having Masters/PhD in:</i> 6.5.1 Clinical Pharmacy 6.5.2 Pharmacoeconomics 6.5.3 Pharmacoepidermiology 6.5.4 Pharmacoinformatics 6.5.5 Nuclear Pharmacy 6.5.6 Pharmacognosy 6.5.7 Pharmaceutical Technology	For 6.5 Minimum two (2) years experience overseas after obtaining professional qualification

SENARAI BIDANG KEPAKARAN (FIELDS OF EXPERTISE)

BIDANG KEPAKARAN (FIELDS OF EXPERTISE)	Pengalaman Bekerja Di Luar Negara (Working Experience Overseas)
<p>6.5.8 <i>Pharmaceutical Analysis</i> 6.5.9 <i>Social and administrative Pharmacy</i> 6.5.10 <i>Pharmaceutical Legislation</i> 6.5.11 <i>Pharmaceutical Services & Medicine Control</i> 6.5.12 <i>Pharmacology/Toxicology</i> 6.5.13 <i>Medical Sciences/Public Health</i> 6.5.14 <i>Phytochemistry</i> 6.5.15 <i>Pharmacotherapy</i> 6.5.16 <i>Critical Care Pharmacy</i> 6.5.17 <i>Paediatrics Pharmacy</i> 6.5.18 <i>Infectious Diseases Pharmacy</i> 6.5.19 <i>Nutritional Support Pharmacy</i> 6.5.20 <i>Psychiatrics Pharmacy</i> 6.5.21 <i>Oncology Pharmacy</i></p>	
<p>7. MARITIME:</p> <p>7.1 EXAMINERS – DECK DEPARTMENT</p> <p>7.2 EXAMINERS – MARINE ENGINEERING DEPARTMENT</p> <p>7.3 SURVEYORS – SHIP</p>	<p>MARITIME:</p> <p>For 7.1 and 7.2:</p> <p>i. Minimum five (5) years experience as an examiner at a government or maritime training institution from a 'white list' country recognized by International Maritime Organisation (IMO). The list of 'white list' country is attached; and</p> <p>ii. At least one (1) year sea experience serving on board ship as a Master or Chief Engineer while holding a Certificate of Competency as "Master of 3000 GT or more on Unlimited Voyage" or a "Certificate of Competency as Chief Engineer of 3000 kW or more on Unlimited". ; and</p> <p>iii. Had successfully attended the IMO Model Course No. 3.12 – Training Course On Assessment, Examination and Certification of Seafarers</p>

SENARAI BIDANG KEPAKARAN (FIELDS OF EXPERTISE)

<p>BIDANG KEPAKARAN (FIELDS OF EXPERTISE)</p>	<p><i>Pengalaman Bekerja Di Luar Negara</i> (Working Experience Overseas)</p>
<p>7.3.1 Marine Engineering 7.3.2 Design</p>	<p>For 7.3: Minimum five (5) years experience as a Surveyor of Ships in Government or classification bodies recognized by IMO; and At least one (1) year sea experience serving on board ship as a Master or Chief Engineer while holding a Degree OR Diploma in Marine Engineering or Nautical Science or Naval Architecture from a university which recognized by the Government of Malaysia; and holding a certificate of Competency as “Master of 3000 GT or more on Unlimited Voyage” or a “Certificate of Competency as Chief Engineer of 3000 kW or more on Unlimited</p>
<p>7.4 AUDITORS - SHIP</p>	<p>For 7.4: Five years experience as lead auditor with a classification body after obtaining Degree in Engineering discipline or Master Mariner or Chief Engineer.</p>
<p>7.5 CASUALTY INSPECTOR – MARINE</p>	<p>For 7.5: At least five years experience in investigating maritime casualty for industrial or insurance purposes or in a government agency – must be in possession of degree or certificate of competency as Master unlimited or Chief Engineer after obtaining Master Mariner or Chief Engineer.</p>

SENARAI BIDANG KEPAKARAN (FIELDS OF EXPERTISE)

BIDANG KEPAKARAN (FIELDS OF EXPERTISE)		<i>Pengalaman Bekerja Di Luar Negara</i> (Working Experience Overseas)
7.6	SHIP NAVAL ARCHITECT	For 7.6: Five years experience with a shipyard or naval design house after obtaining Degree in Naval Architecture.
7.7	SHIP HANDING SIMULATOR INSTRUCTOR AND TRAINERS	For 7.7: Five years experience in ship handling simulator as instructors after obtaining Master Mariner.
7.8	HYDROGRAPHIC SURVEYORS	For 7.8: Five years experience in ship handling simulator as instructors after obtaining Master Mariner.
7.9	CHARTING CARTOGRAPHIC – CIS AND ECDIS	For 7.9: Five years experience in CIS and ECDIS production after qualifying as a hydrographic surveyor at IHO CAT.A. after obtaining Degree in Surveying or equivalent.
7.10	OCEANOGRAPHERS	For 7.10: Five years experience in relevant field with extensive shipboard experience and competent in computer applications after obtaining Degree in Oceanography.
8.	AEROSPACE:	AEROSPACE:
8.1	8.1.1 Aerospace Structure 8.1.2 Stress Engineer 8.1.3 Aerospace Design Engineer	For 8.1.1 to 8.1.3: Minimum eight (8) years experience after obtaining Degree in Aerospace or Aeronautical Engineering Experience in: 1) organise technical organisation or technical project 2) designing aircraft,

SENARAI BIDANG KEPAKARAN (FIELDS OF EXPERTISE)

BIDANG KEPAKARAN (FIELDS OF EXPERTISE)	Pengalaman Bekerja Di Luar Negara (Working Experience Overseas)
8.2 QUALITY ASSURANCE ENGINEER	<p>analysing aircraft structure, conducting aerodynamic test and 'computational fluid dynamic'</p> <p>For 8.2 Minimum eight (8) years experience after obtaining Degree in Aerospace or Aeronautical Engineering. Experience in: Quality Assurance in design organisation and aircraft making</p>
8.3 AIRCRAFT MAINTENANCE ENGINEER	<p>For 8.3 Minimum 12 years after obtaining recognised Aircraft Maintenance Engineer's License (AMEL) Type Rated in Mechanical and/or Avionics Category. Experience on heavy maintenance "D Check" on wide body aircraft types such as Boeing or Airbus in a foreign country.</p>
8.4 QUALITY ASSURANCE INSPECTOR	<p>For 8.4 Minimum ten (10) years experience as Quality Assurance Inspector and obtaining Aircraft Maintenance Engineer's License (AMEL) Type Rated in Mechanical and Avionics Category from recognised agency. Experience in companies, which are approved for JAR 145.</p>
8.5 ENGINEERING TRAINING INSTRUCTOR	<p>For 8.5 Minimum ten (10) years experience as Engineering Training Instructor and obtaining Aircraft Maintenance Engineer's License (AMEL) Type Rated in Mechanical and Avionics Category from recognised agency.</p>

SENARAI BIDANG KEPAKARAN (FIELDS OF EXPERTISE)

BIDANG KEPAKARAN (FIELDS OF EXPERTISE)	Pengalaman Bekerja Di Luar Negara (Working Experience Overseas)
<p>8.6 AEROSPACE INDUSTRY: 8.6.1 Aeronautical technician/engineer – design, tooling, airframe and maintenance (transferred from 2.8)</p> <p>* for 8.3, 8.4, and 8.5, degree only for additional academic qualification</p>	<p>Experience in conducting basic aeronautical engineering training and aircraft type courses for Boeing or Airbus aircraft.</p> <p>For 8.6 Minimum two (2) years after obtaining relevant PhD; or Minimum four (4) years after obtaining relevant Masters degree; or Minimum six (6) years after obtaining relevant Bachelors degree;</p>
<p>9. EDUCATION:</p> <p>9.1 LECTURER IN MEDICINE</p> <p>9.2 ENGINEERING (EXCEPT CIVIL, CONSTRUCTION OR OTHER CONSTRUCTION RELATED FIELD OF ENGINEERING)</p> <p>9.3 LECTURER IN FIELD OF ARCHITECTURE</p> <p>9.4 LECTURER IN FIELD OF DENTISTRY MEDICINE</p> <p>9.5 LECTURER IN FIELD OF PHARMACY</p> <p>9.6 LECTURER IN FIELD OF SCIENCE (BIOTECHNOLOGY)</p> <p>9.7 SPECIAL EDUCATION IN: 9.7.1 Speech Language 9.7.2 Audiologist 9.7.3 Dyslexia 9.7.4 Emotional and Behavioral Disorders in Special Education 9.7.5 Vocational Training in Special Education</p>	<p>EDUCATION:</p> <p>For 9.1, 9.3 and 9.4: Minimum ten (10) years experience working in recognized institutions whether as a practitioner / researcher / educationist / industry participant and Professional qualification recognized by relevant professional body</p> <p>For 9.2, 9.5 and 9.6: Minimum <i>nine (9)</i> years experience working in recognized institutions whether as a practitioner / researcher / educationist / industry participant and PhD and/or professional qualification recognized by relevant professional body</p> <p>For 9.7: Minimum eight (8) years experience working in special education after obtaining relevant degree;</p>

SENARAI BIDANG KEPAKARAN (FIELDS OF EXPERTISE)

BIDANG KEPAKARAN (FIELDS OF EXPERTISE)		Pengalaman Bekerja Di Luar Negara (Working Experience Overseas)
9.8	LINGUISTIC AND TESL	For 9.8: Minimum five (5) years experience working in related field after obtaining relevant PhD.
10.	AGRICULTURE:	AGRICULTURE:
10.1	AGRICULTURE FOOD	For 10.1
	10.1.1 International Marketing Agriculture Food	Minimum five (5) years
	10.1.2 Supply Management Agriculture Food	experience after obtaining
	10.1.3 Supply Chain Agriculture Food	relevant Masters degree.
	10.1.4 Agriculture Food Forecast	
	10.1.5 Agriculture and Food Securities (Contribution by MOSTI)	

Dikemaskini Pada: 29 September 2005 / (Updated on: 29 September 2005)

*Kerajaan Malaysia Berhak Meminda Senarai Bidang Kepekaran Ini
Tanpa Sebarang Notis.*

*(The Government of Malaysia Reserves the Right to Revise the Fields of Expertise
Without Prior Notice)*