



澳門特別行政區政府
 Governo da Região Administrativa Especial de Macau
 人才發展委員會
 Comissão de Desenvolvimento de Quadros Qualificados

Professions in Short Supply applicable to the Advanced Professionals Programme of the High-Tech Industry

Professional Fields	Professional Subcategory	Professions in Short Supply
Microelectronics and integrated circuit technology, in areas of design, research and application development	Design, research and application development of integrated circuit (IC) chips	<ul style="list-style-type: none"> • Specialists in integrated circuit designs • Specialists in electronic design automation (EDA) • Process engineers • Integration engineers • Fabrication engineers
	Design, research and application development of electronic components	<ul style="list-style-type: none"> • Specialists in electronic component design and technology development
Information and communication technology, in areas of research and application development	Research and application development of information technology	<ul style="list-style-type: none"> • Specialists in cloud computing technology research and application development • Specialists in Internet of things technology research and application development • Specialists in big data technology research and application development • Specialists in block chain technology research and



澳門特別行政區政府
Governo da Região Administrativa Especial de Macau
人才發展委員會
Comissão de Desenvolvimento de Quadros Qualificados

Professional Fields	Professional Subcategory	Professions in Short Supply
		<p>application development</p> <ul style="list-style-type: none">• Specialists in cyber security product development• Specialists in data security product development• Specialists in information security product development• Specialists in application system technology research and application development• Specialists in network information service research and application development• Specialists in software and system technology research and application development• Specialists in quantum computing research and application development• Specialists in brain-inspired computing research and application development



澳門特別行政區政府
 Governo da Região Administrativa Especial de Macau
 人才發展委員會
 Comissão de Desenvolvimento de Quadros Qualificados

Professional Fields	Professional Subcategory	Professions in Short Supply
		<ul style="list-style-type: none"> Specialists in system simulation technology research and application development
	Application development of metaverse technology	<ul style="list-style-type: none"> Specialists in virtual reality (VR) application development Specialists in augmented reality (AR) application development Specialists in mixed reality (MR) application development Specialists in extended reality (XR) application development
	Research and application development of communication technology	<ul style="list-style-type: none"> Specialists in communications technology research and application development Specialists in wireless access technology development Specialists in optical transmission technology development Specialists in mobile communications



澳門特別行政區政府
 Governo da Região Administrativa Especial de Macau
 人才發展委員會
 Comissão de Desenvolvimento de Quadros Qualificados

Professional Fields	Professional Subcategory	Professions in Short Supply
		technology development
Artificial intelligence technology, in areas of research and application development	Research and application development of artificial intelligence technology	<ul style="list-style-type: none"> • Specialists in artificial intelligence technology research and application development • Specialists in artificial intelligence algorithms • Specialists in artificial intelligence frameworks • Specialists in big data technology research and application development • Specialists in big data model designs • Specialists in application development of human-computer interaction designs • Specialists in application development of user experience designs • Specialists in application development of 3D model designs
Engineering technology, in areas of application	Application development of automation artificial intelligence	<ul style="list-style-type: none"> • Specialists in application development of mechanical engineering technology



澳門特別行政區政府
 Governo da Região Administrativa Especial de Macau
 人才發展委員會
 Comissão de Desenvolvimento de Quadros Qualificados

Professional Fields	Professional Subcategory	Professions in Short Supply
development		<ul style="list-style-type: none"> • Specialists in application development of automation technology • Specialists in application development of algorithm technology
Innovative materials, in areas of research and application development	Research and application development of innovative materials	<ul style="list-style-type: none"> • Specialists in innovative material research and application development
Green energy, in areas of research and application development	Research and application development of green energy	<ul style="list-style-type: none"> • Specialists in green energy research and application development
Environmental science technology, in areas of research and application development	Research and application development of environmental science technologies	<ul style="list-style-type: none"> • Specialists in environmental science technology research and application development
Design and development of operating systems, compilers and embedded software	Design and development of operating systems, compilers and embedded software	<ul style="list-style-type: none"> • Specialists in operating system development • Specialists in embedded system development • Specialists in compiler development • Specialists in integrated



澳門特別行政區政府
 Governo da Região Administrativa Especial de Macau
 人才發展委員會
 Comissão de Desenvolvimento de Quadros Qualificados

Professional Fields	Professional Subcategory	Professions in Short Supply
		development environment (IDE) <ul style="list-style-type: none"> • Specialists in performance tool chain • Specialists in embedded software design development
Ocean engineering, in areas of research and application development	Research and application development of ocean engineering	<ul style="list-style-type: none"> • Specialists in research and application development of harbour and ocean engineering • Specialists in research and application development of hydraulic engineering • Specialists in research and application development of naval architecture • Specialists in research and application development of navigation technology
Teaching and research in High-Tech, and management in scientific research	Teaching and research in High-Tech	<ul style="list-style-type: none"> • Teaching and research personnel in High-Tech • Specialists in High-Tech research and translation
	Management in scientific research	<ul style="list-style-type: none"> • Specialists in research project management • Specialists in research platform management



澳門特別行政區政府
 Governo da Região Administrativa Especial de Macau
 人才發展委員會
 Comissão de Desenvolvimento de Quadros Qualificados

Professional Fields	Professional Subcategory	Professions in Short Supply
		<ul style="list-style-type: none"> Specialists in research outcome management
Scientific research translation and product commercialisation	Scientific research translation and product commercialisation	<ul style="list-style-type: none"> Specialists in business development for science and technology institutions Specialists in processing intellectual property protection and management for science and technology institutions Specialists in investment, financing, acquisition and merger for science and technology companies Specialists in promotion and marketing of scientific products Specialists in filing technology patent applications

Disclaimer: The official Chief Executive Order is provided in Chinese and Portuguese. The English translation is intended solely for reference purposes and has no legal effect. In case of any discrepancies or differences between the official texts and the English translation, the official texts shall prevail.