



# China expands efforts to improve applied research capacity

(Information current as at 27 November 2017)

In order to strengthen China's higher education and research system, the Chinese Government has been putting incentives in place for the past decade to attract foreign and returning researchers into its universities. As part of these efforts the 111 Project was developed to attract high performing researchers from prestigious universities to China, to help develop research discipline bases in Chinese universities.

The 111 Project [高等学校学科创新引智计划 in Chinese, Pinyin: Gāoděng xuéxiào xuékē chuàngxīn yǐn zhì jìhuà] was established in 2006 by the Chinese Ministry of Education (MoE) and the State Administration of Foreign Experts Affairs (SAFEA), with the aim of developing around 100 world leading research discipline bases in Chinese universities with 1000 top talents from the world's top 100 universities to work with Chinese researchers.

According to an announcement by the MoE in February this year, 359 project bases have been established to date in 80 national-level universities, of which 136 have been established since 2012. Most of these research bases cover disciplines such as material science, engineering, chemistry and chemical engineering, energy, agriculture, biology, mathematical sciences and advanced manufacturing. The prioritisation of these disciplines reflects an emphasis on further developing China's applied research capacity to support strategic development plans such as "Made in China 2025".

Each of the approved bases is made up of at least 10 foreign research experts and 10 Chinese research experts. At least one foreign expert must be a high profile researcher under 70 years of age, with a title equivalent to Academy Fellow of science or engineering, and willing to work in China for more than one month per year (accumulative). At least five foreign experts must be mid-career researchers under 50 years of age, holding positions equivalent to associate professor or above in their home country, and willing to work in China for at least three months per year (accumulative). At least one of the five foreign experts must be willing to work in China for longer.

The 111 Project bases are reviewed on a five year basis with a mid-term assessment at the second or third year. Each base receives approximately 360,000 AUD funding per year, provided by the MoE, SAFEA and the host university. The established bases are encouraged to initiate international research cooperation and jointly deliver PhD programs.

The first bases approved in 2006 were hosted by 985 project universities. The program was expanded in 2007 to include 211 project universities and to a selection of further universities with identified disciplines of national importance in 2008 (see our [earlier policy update](#) for more information on the 985 and 211 projects). In 2016 the program was expanded further to include mid-ranked provincial universities. Bases that have satisfactory research outcomes at the end of the five year cycle are given another round of funding.

The 111 Project has gained momentum in the past few years with the introduction of the [Double First Class university initiative](#) and the increased emphasis on world-class disciplines. The fact that the 111 Project has expanded to include mid-ranked provincial universities is a sign that China is looking to encourage a greater diversity of universities to build on their competitive strengths to develop world-class disciplines.

Australian researchers looking to establish research collaborations with Chinese universities can use the lists of approved 111 Project bases as guide to priority fields of research in a broad range of Chinese universities.

For detailed information on 111 Project bases in 2017, see:

Appendix A: Approved “111 Project” bases in high-ranked, national universities

Appendix B: “111 Project” bases in mid-ranked, provincial universities

Appendix C: “111 Project” established bases with second round funding in 2017

For further enquiries, please contact the [Education and Research Section of the Australian Embassy](#) in Beijing.

**Appendix A: Approved “111 Project” bases in high-ranked, national universities - 2017 (sorted alphabetically)**

| #  | University  | Research priority of “111 Project” base  |
|----|---|--|
| 1  | Beihang University                                  | Advanced materials for air and space   |
| 2  | Beijing Institute of Technology                     | Safety and protection studies  |
| 3  | Beijing Normal University                           | Multi-scale ecological simulation and safety regulation and control technology |
| 4  | Beijing University of Posts and Telecommunications  | Establishment and integration of Information network system                    |
| 5  | Central China Normal University                     | Green pesticide and synthetic chemistry  |
| 6  | Central South University                            | Intelligent control and optimizing decision making of manufacturing process    |
| 7  | Central University of Finance and Economics         | Decision making and risk assessment of insurance                               |
| 8  | Chang’an University                                 | Sustainable development of highway engineering in special regions              |
| 9  | China Agricultural University                       | Developmental physiology and quality control of horticultural crop             |
| 10 | China Pharmaceutical University                     | Discovery of anti-tumour and anti-infective drug                               |
| 11 | China University of Geosciences (Wuhan)             | Advanced control and intelligence automation of complex system                 |
| 12 | China University of Mining and Technology           | Prevention and utilisation of underground coal fire                            |
| 13 | China University of Mining and Technology (Beijing) | Coal-based rare metal deposits   |
| 14 | China University of Petroleum (Beijing)             | Research on basics of exploitation of deep geothermic resources                |
| 15 | China University of Petroleum (East China)          | Offshore oil and gas engineering   |
| 16 | East China University of Science and Technology     | Intelligent optimization manufacturing for petroleum chemical industry         |
| 17 | Fudan University                                    | Studies of persistent infections and diseases                                  |
| 18 | Harbin Institute of Technology                      | Millimetre wave terahertz imaging technique                                    |
| 19 | HeFei University of Technology                      | Optimization and decision-making of complex product manufacturing process      |
| 20 | Hohai University                                    | River network hydrodynamic system and safety                                   |
| 21 | Hunan University                                    | Optimizing and control of smart power grids                                    |
| 22 | Jiang nan University                                | Key technology for textile ecological processing                               |
| 23 | Jilin University                                    | Multi-purpose material molecular engineering                                   |

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|----|--|---|
| 24 | Nanjing Agricultural University                          | Research on multipurpose utilization of rural Land Resources                              |
| 25 | Nanjing University                                       | Monsoon climate variation and meteorological disaster research                            |
| 26 | Nanjing University of Science and Technology             | Theory and technology of advanced photoelectric imaging                                   |
| 27 | Nankai University  | Environmental processing and risk assessment of new pollutants                            |
| 28 | Northeast Normal University                              | Research on ethics and moral of modern youth  |
| 29 | North-eastern University                                 | Deep engineering rock mass mechanics and safety   |
| 30 | Northwestern Polytechnical University                    | Complex flow and control of aircraft  |
| 31 | Peking Union Medical College                             | Study and intervention of Inflammation and major diseases                                 |
| 32 | Peking University  | High confidence software technologies   |
| 33 | Renmin University of China                               | Technology and application of social economic big data                                    |
| 34 | Shanghai Jiaotong University                             | Translational medicine  |
| 35 | Shanghai University of Finance and Economics             | Frontier theory and method of economics   |
| 36 | Sichuan University                                       | Green chemistry and technology  |
| 37 | South China University of Technology                     | Food nutrition and health   |
| 38 | Southeast University                                     | Organ chip  |
| 39 | Sun Yat-sen University                                   | Study of monsoon weather change in east and southeast Asia                                |
| 40 | Tianjin University                                       | Fibre optical sensor and communication  |
| 41 | Tongji University  | Transportation safety   |
| 42 | Tsinghua University                                      | Interdisciplinary studies of bio manufacturing and extracorporeal life system engineering |
| 43 | University of Electronic Science and Technology of China | Visual media signal and information processing  |
| 44 | University of Science & Technology Beijing               | Engineering of materials genome   |
| 45 | Wuhan University   | Modern geodesy and geodynamics  |
| 46 | Wuhan University of Technology                           | New energy vehicle science and key technologies   |
| 47 | Xiamen University  | Nano scale surface and cluster structures of energy material chemistry                    |
| 48 | Xi'an Jiaotong University                                | Electrical materials and electronic equipment   |
| 49 | Xidian University  | Science and technology of optoelectronic information sensing in complex environment       |
| 50 | Zhejiang University                                      | Crop quality and safety   |

**Appendix B: [Approved “111 Project” bases in mid-ranked, provincial universities - 2017 \(sorted alphabetically\)](#)**

| #  | University  | Research priority of “111 Project” base   |
|----|---|---|
| 1  | Beijing Information Science and Technology University | Advanced optoelectronic devices and systems   |
| 2  | Changchun University of Science and Technology        | Manipulation and manufacturing of micro-nano technology                             |
| 3  | East China University of Technology                   | Science and instrument of mass spectrometry   |
| 4  | Fuzhou University                                     | Green petrochemical engineering   |
| 5  | Guangdong University of Technology                    | Discrete manufacturing intelligence based on Internet of Things technology          |
| 6  | Guangxi Medical University                            | Clinical application and study of liver injury and repair                           |
| 7  | Guizhou Normal University                             | Ecology of South China’s karst area   |
| 8  | Hangzhou Dianzi University                            | Perception and control of cyber physics system                                      |
| 9  | Henan Normal University                               | Green chemistry and power materials   |
| 10 | Hubei University of Technology                        | Cell regulation and molecular medicine  |
| 11 | Jilin Agricultural University                         | Discovery, formulation and application of high yielding pest resistance fungi crops |
| 12 | Nanjing University of Posts and Telecommunication     | Micro-nano device and information system  |
| 13 | North-western University                              | Early life and environmental studies  |
| 14 | Qingdao University of Science and Technology          | Rubber and plastic materials and engineering  |
| 15 | Shanghai University                                   | Modern metallurgy and materials   |
| 16 | Sichuan Agricultural University                       | Animal nutrition and breeding   |
| 17 | Tianjin University of Technology                      | New energy materials  |
| 18 | University of Jinan                                   | Advanced cement-based materials   |
| 19 | Xinjiang Medical University                           | Prevention, examination and treatment of echinococcosis                             |
| 20 | Zhejiang Normal University                            | Fluorine-containing new materials   |
| 21 | Zhejiang University of Technology                     | Green pharmaceutical  |

**Appendix C: Approved “111 Project” established bases with second-round funding 2017 (sorted alphabetically)**

| #  | University   | Research priority of “111 project” base                          |
|----|--|--|
| 1  | Central South University                                 | Carcinogenesis and principal of cancer invasion                  |
| 2  | China Agricultural University                            | Crop genetic improvement and molecular breeding                  |
| 3  | China Pharmaceutical University                          | Drug biosynthesis and biotransformation                          |
| 4  | Donghua University                                       | Advanced manufacturing technology and science of fibre materials |
| 5  | Jiangnan University                                      | Applied microbiology and bio-manufacturing technology            |
| 6  | Lanzhou University                                       | Medicinal chemistry  |
| 7  | Shandong University                                      | Environmental archaeology  |
| 8  | South China University of Technology                     | Physical environment and energy efficiency of architectures      |
| 9  | Southeast University                                     | New artificial electromagnetic material (Metamaterial)           |
| 10 | Southwest Jiaotong University                            | Wireless communication and information coding                    |
| 11 | Tsinghua University                                      | Frontier issues of mathematics and their applications            |
| 12 | University of Electronic Science and Technology of China | Integrated circuit and integrated system                         |
| 13 | Wuhan University   | Advanced energy, information and medical materials               |