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ASIA EDITION

Medtech education in APAC keeping pace with innovation

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As medical devices grow smarter and more interconnected using AI, robotics and virtual reality, the need to train professionals is growing urgently. To position itself as a global powerhouse for medical technology, Asia Pacific (APAC) countries such as China, Japan, Korea, India, Singapore, Vietnam, Thailand, Taiwan are ramping up medtech education initiatives, recognising the critical role that talent pipelines, partnerships, and digital innovation play in advancing their healthcare economies. Let's take a closer look at the new initiatives being taken up by the APAC region for strengthening the medtech education sector amidst many challenges and opportunities.



From artificial intelligence (AI)-powered diagnostics in China to surgical robotics in Japan and wearable technologies emerging from South Korea, the Asia Pacific region is home to some of the world's most ambitious medical technology breakthroughs. Yet behind the scenes, an urgent challenge persists regarding a widening medtech talent gap at the academic level.

Despite world-class research institutions and strong government investment, universities in the APAC region are grappling with this challenge of how to produce enough industry-ready graduates who can navigate the increasingly interdisciplinary, globalised, and rapidly evolving medtech landscape.

Thus, solving the medtech talent gap at the university level is not just about introducing more programmes and degrees, it is also about making the medtech education system smarter and integrated, to reflect the realities of a fast-moving, tech-driven global ecosystem.

With this global ambition in mind, APAC countries are gradually carving out novel paths in the form of new medtech education courses, partnerships with the industry, support from the government, to supply talent to the global medtech industry and leading the next wave of transformation.

Key Initiatives and Trends Across Japan, China, Korea & Taiwan

In South Korea, a leader in robotics technology, universities like Pohang University of Science and Technology are offering specialised courses in robotic surgery. These programmes combine theory with hands-on training, allowing students to work with state-of-the-art robotic surgical tools. Korea University and Korea Advanced Institute of Science and Technology (KAIST) have rolled out interdisciplinary programmes that combine bioengineering with computational sciences, supported by funding from the Ministry of Science and ICT. Also, under the Digital Health Education Consortium, a collaboration between universities and leading firms like Samsung Medison and Lunit, immersive training in AI-driven imaging and wearable diagnostics is being offered.

Another leader in technology, Japan is deepening its integration of medtech into education with the government recently launching a national initiative under its Society 5.0 vision, focusing on embedding AI, robotics, and data science into medical and technical university curricula.

University of Tokyo and Osaka University have introduced interdisciplinary programmes combining biomedical engineering, computer science, and clinical exposure, in partnerships with leading medtech companies such as Hitachi, Olympus, and Canon Medical, which provide equipment, real-world case studies, and research opportunities.

Adding on, universities in China such as Tsinghua University and Peking University are leading the charge by offering AI-focused programmes tailored to the healthcare sector. ‘Agent Hospital’, an AI-powered virtual healthcare platform developed by Tsinghua University researchers, is preparing for a public pilot launching in 2025. This initiative features autonomous AI doctors trained through dynamic simulations of real-world clinical workflows.

Very recently, Hong Kong University of Science and Technology (HKUST) has launched a Digital Health and AI Innovation Lab, where students work on applications in medical imaging, predictive diagnostics, and virtual health assistants. HKUST has also partnered with Microsoft a few months ago, for pioneering innovative medical pedagogies utilising cutting-edge technology to nurture the next generation of medical talent.

“The emergence of AI has brought unprecedented changes for our future. Integration of AI and biomedicine will pioneer innovative medical education and advance cutting-edge medical research, leading to improved prevention, diagnosis, and treatment”, said **Prof. Nancy IP, President, Hong Kong University of Science and Technology.**

In China, the Ministry of Education and National Health Commission have launched a multi-tiered national framework for medtech talent development, covering vocational training, university education, and continuing professional education. In fact, as a bold move to secure its place as a global leader in artificial intelligence, China has announced mandatory AI education for all primary and secondary school students, starting September 1, 2025.

Carving out a niche in high-precision medical devices and digital health, Taiwan’s Ministry of Education and Ministry of Health and Welfare are aligning medtech education reforms with the broader Biomedical Industry Innovation Programme, aiming to make the country a global biomedtech hub by 2030. Also, National Taiwan University (NTU), Taipei Medical University (TMU), and National Cheng Kung University (NCKU) are integrating medtech into engineering and biomedical curriculums at an unprecedented pace.

South East Asia addressing talent bottleneck

As South East Asia races to embrace medical innovation and digital health transformation, one major constraint that comes into sharp focus is the growing medtech talent gap. According to ASEAN Development Outlook reports, the south east Asian region could face a shortfall of over 150,000 medtech-related professionals by 2030, spanning R&D, regulatory affairs, digital health, and advanced manufacturing.

As a result, in countries like Singapore, AI-powered diagnostic platforms are being integrated into medical curricula to teach students how AI algorithms can assist in disease detection. For example, Lee Kong Chian School of Medicine at the Nanyang Technological University (NTU) is deploying latest tech-enabled teaching tools, enriched with new courses in data science and artificial intelligence, among other enhancements, for producing doctors who will shape the landscape of healthcare delivery. The school has also teamed up with the Department of Cardiology in Tan Tock Seng Hospital (TTSH) to develop the Graduate Diploma in Cardiovascular Medicine Programme targeted at upskilling family doctors in cardiovascular medicine.

“The rapid advancement of AI is reshaping healthcare, creating new opportunities and challenges. Traditionally, medical education has focused heavily on basic sciences and clinical practice. However, as AI technology continues to evolve, it’s clear that this approach must adapt. The healthcare professionals of tomorrow will need skills that prepare them to work effectively alongside AI, using it to enhance patient outcomes and drive innovation in care delivery”, said **Professor Joseph**

Sung, Dean, Lee Kong Chian School of Medicine, Nanyang Technological University (NTU).

Striking a balance between medical education and technology, the Ministry of Education and Enterprise Singapore is launching programmes to integrate engineering, data science, and clinical exposure into medtech curricula at institutions like National University of Singapore (NUS) and NTU, to provide hands-on experience with emerging technologies such as digital therapeutics, AI diagnostics, and robotic surgery.

Further, Malaysia is positioning itself as a regional medtech hub by investing heavily in workforce upskilling and public-private partnerships. In 2024, the Ministry of Higher Education launched a nationwide initiative aimed at training over 5,000 professionals in areas such as medical device design, and digital therapeutics by 2026.

Also, Universiti Malaya is offering microcredentials and professional diplomas in medtech innovation and entrepreneurship, as telemedicine and AI-powered diagnostics have become focal points in Malaysia's national health technology education framework.

Keeping up pace with the technological advancements, the Vietnamese Ministry of Science and Technology has partnered with international agencies to develop curriculum modernisation programmes for technical universities in Hanoi and Ho Chi Minh City. These programmes emphasise AI in medical imaging, software development for health platforms, and smart hospital technologies. Vietnam is also developing a national medtech incubator in partnership with Korea and Japan, to offer embedded training components for students and professionals.

Another notable development is taking place at the Thailand Medtech Academy, a government-backed consortium offering certifications in medical device quality control and manufacturing, to ensure that graduates meet international standards, making them competitive not just locally, but globally.

Mahidol University and Chulalongkorn University, two of Thailand's leading institutions, have expanded their faculties of biomedical science and medical engineering with new curricula, supported by Thailand's Board of Investment (BOI) incentives for medtech companies to collaborate with universities.

Joining this list is Indonesia where the Ministry of Health and Ministry of Education have jointly launched the Medtech Indonesia 2024 initiative, aimed at creating 10,000 new medtech professionals by 2027. This includes revamping technical vocational education and training (TVET) centres with upgraded labs, simulation equipment, and standardised curricula developed in collaboration with Germany's Fraunhofer Society and Singapore's Agency for Science, Technology and Research (A*STAR).

India & Australia shaping up new tech skills

Government initiatives and collaborations between academia and industry in India are promoting the development of AI-focused medtech curricula. Investments in Centres of Excellence for skilling in AI, such as the one announced in India's Union Budget 2025-26, aim to enhance skill development and promote digital inclusivity in the healthcare sector.

Moreover, institutes and universities within India are announcing new partnerships and investments in the medical education sector. For instance, International Institute of Information Technology Hyderabad (IIIT-H) has launched an online course on 'AI for Medical Professionals', in collaboration with National Academy of Medical Sciences (NAMS), an autonomous organisation under the Ministry of Health & Family Welfare, Government of India, and IHub-Data. The course is directed towards equipping medical professionals and students with the requisite skills needed to understand, evaluate, and apply AI technologies in clinical settings.

On the other hand, the Centre for Biomedical Engineering (CBME) at the Indian Institute of Technology (IIT) Delhi has launched an exclusive Master of Science (Research) programme in 'Healthcare Technology', specifically designed for medical students and professionals, integrating the principles of medicine with cutting-edge engineering disciplines to foster deep-tech innovations in healthcare. Further, Tata Group is making a contribution of Rs 500 crore to support the establishment of a medical school at the Indian Institute of Science, enabling students to acquire global expertise, technical knowledge and practices.

Similar initiatives are being taken up by Australia where universities are moving away from purely academic instruction and embracing work-integrated learning models. Giving a few examples, University of Melbourne has created executive education courses in medtech commercialisation and IP strategy; University of Sydney has introduced new units combining biomedical engineering with data analytics and AI in healthcare; University of Queensland has expanded its partnerships with medtech

firms to provide semester-long internships within startups and hospital innovation units.

Closing the Gap

According **to Dr Marc D. Succi, Associate Chair of Innovation & Commercialisation, Harvard Medical School**, "Medical schools of the future must thoughtfully integrate AI technologies, using them to enhance both education and patient care. Medical education must evolve to teach students not only how to use AI tools effectively but also how to critically assess and integrate AI-generated outputs into patient care."

As APAC positions itself as the next global hub for medtech innovation, it becomes imperative for the academic sector to modernise the courses and programmes, with inputs from the industry and by keeping pace with new developments. Additionally, it requires investment in faculty development, recruitment professionals with commercial and clinical experience, and creating regional medtech academies and hubs for efficient training and practice, keeping the ethical guidelines in mind. With these steps being taken in the right direction, the APAC region will not only become a medtech talent leader, but also an exporter of medtech innovation for the world.

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