

## **Industrial Application**

### **Minerva University (USA)**

#### Integrated Learning

Minerva University's Integrated Learning (IL) aims to bridge students' academic learning with their personal and character development through five Integrated Learning Outcomes (ILOs): interpersonal engagement, intercultural competency, professional development, self-management and wellness, and civic responsibility. Over the course of four years, students develop their attitudes, values and skills in these areas, preparing them to be effective contributing members of society and to optimize the value of their education out in the world. This far transfer of learning is facilitated by providing students with diverse opportunities to demonstrate their knowledge, such as living and learning in various global cities and communities, exposure and work opportunities in various industries, and structured practice in personal growth areas, as well as a defined structure and process for self-reflection and feedback. The IL program provides a framework that bridges our students' academic learning with their personal growth and character development. It provides a defined structure and consistent process for self-reflection, using experiences as opportunities, to practice and expand knowledge.

### **Massachusetts Institute of Technology (USA)**

#### Industrial Liaison Program (ILP)

The ILP is industry's most comprehensive portal to the university, enabling companies worldwide to harness the university's resources to address current challenges and to anticipate future needs. Industry liaisons are professionals who bring together business experience with in-depth knowledge of all of the university. They help managers to define their interests and needs, articulate objectives for the university's interaction, and develop a plan of action to meet these objectives. In implementing this plan, an industry liaison will recommend, organize, and facilitate customized interactions with a university that help the company to meet the objectives. The ILP Knowledge Base offers easy access to data on approximately 1,000 the university's faculty members, over 3,000 other researchers, 7,000 research projects, and over 100 departments, labs and centers. Over 190 of the world's leading companies' partner with ILP to advance their research agendas at the university.

### **Arizona State University (USA)**

#### NASA Course Series

While instruments and components of the spacecraft are being designed and built across the country, the Psyche Mission management team, led by the university, is launching a series of free online courses called the NASA Psyche Mission Innovation Toolkit, based on the real-world

challenges and skills associated with the Psyche mission's science, engineering, technology, and teamwork. The first course, "The Process and Lifetime of a Space Mission," gives students the opportunity to follow the creation of a NASA robotic space mission, from preparation and submission of a proposal, to team-building, design, construction, modeling, testing, launching, tracking and data collection and analysis. The second course, "Inclusive Mindset: Tools for Building Positive Team Culture," takes 20 hours to complete. In this course, students learn about team culture, strategies for working in a diverse team, and techniques for developing a positive and inclusive mindset.

### **California Institute of Technology (USA)**

#### Leading Aerospace Supply Chain Certificate Program

The Leading Aerospace Supply Chains (LASC) certificate program prepares students to transition into a mid- to senior-level leadership role with end-to-end supply chain responsibilities in aerospace manufacturing and operations enterprises. In this program, students will learn the critical management choices and practices for coherence in the company's operating model, supply chain strategies, and effective execution in a complex enterprise. This distinctive program and its aerospace-experienced teaching team prepare students to be an Association of Supply Chain Management Certified Supply Chain Professional. The program consists of three modules. Module 1, 'Fundamentals of Supply Chain Management,' aims to teach students the basic concepts in managing the flow of materials through the entire chain from the initial supplier to the end-user in different operational contexts of the aerospace industry. Module 2, 'Aerospace Supply Chain Strategy, Design, and Compliance,' focuses on strategic management and leveraging insights from external factors, such as market signals, network interactions, contested arenas, and industry forces at work. Module 3, 'Leading Implementation and Operations,' prepares students for the execution expectations and hazards when operating in a unique environment with demanding stakeholders, including policymakers, regulators, military, industrial customers, and even the public consumer.

### **Incheon National University (Korea, Rep.)**

#### A project to train human resources tailored to regions and industries

Although a considerable amount of unemployed-training is conducted every year, supplier-centered operations do not reflect corporate and industry demands. Consequently, SME (small and medium-sized businesses [enterprises]) training is still low due to the lack of substitute manpower and low training demand. In order to solve these problems, the "Building a Regional and Industrial Customized Human Resources Training System" project was promoted as related organizations cooperated at the regional level to change the training method to 'demand survey-training and recruitment.' By responding to global environmental changes and providing professional education

to relatively marginalized SME employees in the bio sector, it provides opportunities to establish a lifelong vocational competency development education system for workers and leap into a mid-sized company. Currently, it is the only joint training center operated in the region that conducts professional job training in the bio-industry (biopharmaceuticals, cosmetics, food, medical devices, etc.), and there is no overlap with other government support projects.

### **Olin College of Engineering (USA)**

#### Senior Capstone Program in Engineering (SCOPE)

SCOPE is a unique industry-university collaboration, and the culminating experience of an O college student's education. Over the course of a full academic year, seniors work in multi-disciplinary teams to provide innovative solutions to a company's real-world problems. Notably, sponsors retain full rights to all intellectual property developed by the team. It typically takes place over one academic year. Each team of four to six students is "built" through the diligent efforts of both students and faculty to meet the technical challenges of each project. O college has conducted SCOPE projects for organizations around the country, including Fortune 500 corporations, government research laboratories, product development companies and small businesses and startups. SCOPE teams have worked with major companies from both the public and private sectors to: expand the potential for applications of multi-function radar arrays by improving performance, create testing equipment for microfluidic drop technology to enhance accuracy and reduce cost, develop multi-vehicle coordination algorithms for teams of unmanned surface vessels and air vehicles, and improve migration resistance in esophageal stents for biomedical product development efforts.

### **University of California, Merced (USA)**

#### CalTeach Program

CalTeach is a program for undergraduate science, technology, engineering, and mathematics (STEM) majors interested in exploring a career in education. Through our courses, students learn conceptual teaching skills and practice these methods in local K-12 classrooms. CalTeach offers the Science and Math Education minor as well as a unique opportunity for students to complete both a bachelor's degree and a California teaching credential as an undergraduate. The CalTeach program gives students majoring in science, technology, engineering and math (STEM) fields, as well as other subjects, the ability to explore teaching as a career option. Students who enroll in the program attend Natural Sciences Education (NSEd) classes that equip them with knowledge of best teaching practices and innovative learning strategies. These students also are paired with mentor teachers in area school districts. Each year, the students spend a combined 6,000 hours observing and teaching lessons in local schools.

## **University of Oxford (United Kingdom)**

### Oxford University Innovation

Since 1997, O University Innovation has been responsible for creating over 100 new technology companies based on academic research generated within and owned by the University, and has spun-out a new company every two months on average. The creation of these new companies channels millions of pounds back into University research, benefits local economic development and has created many new jobs in the region. The University Innovation is part of a strong network and infrastructure across the University which supports researchers, innovation and entrepreneurship. We all aim to work closely together, by providing various services including Support for Entrepreneurship, Research Services, Knowledge Exchange (KE), Business Development Team, Medical Science Division, and Industrial Research Partnerships Team. The University Innovation constantly offers investors the opportunity to finance new companies formed to develop and commercialize technology and intellectual property generated at the University – the biggest research-based university in the UK, with research expenditure of £542m in 2012.

## **Tsinghua University (China)**

### Service Design Institution

Founded in 2012, Service Design Institution of Tsinghua University is devoted to establishing the professional field of service design, to advertising the importance of design, to exploring the innovative mode in public service and commercial design, and to constructing an international Internet platform for design education and researches based on international cooperation and research-sharing. Targeted at the service economy in the information society, service design is the study of theories concerning how interactive design extends to service innovation and provides trans-disciplinary solutions to complicated design problems in the IT service sectors including e-commerce, e-learning, e-healthcare, and e-government. Based on the core idea of user-centeredness, service design combines design mindset, community service, and business innovation. Comprehensively considering the appeals of stakeholders, it coordinates the relationship among corporations, citizens and the government, creates virtual service experience based on the user context, and establishes value and new business bode alongside.

## **University of Cambridge (United Kingdom)**

### Institute for Manufacturing (IfM)

Manufacturing Engineering Tripos (MET) prepares students to be leaders of business and technology firms. It provides a thorough grounding in management and manufacturing technologies, together with an understanding of the full range of industrial activities: from product

design, component manufacture, industrial engineering, factory and business management through to how firms work in the economy. A core message throughout the program is to understand how firms can grow sustainably. The MPhil in Industrial Systems, Manufacture and Management (ISMM) is a one-year postgraduate program designed to equip numerate graduates, primarily from Science, Technology, Engineering or Math backgrounds, with the skills, personal development and industrial experience to be immediately effective in their early careers in industry. The program is structured around taught modules, company visits and in-company projects solving live business or technical problems. An overseas study tour offers a broader international context and the individual research dissertation allows greater depth of study in a specific area of manufacturing.

### **Cheung Kong Graduate School of Business (China)**

#### Customized Curriculum

Since our founding in November 2002, our mission has been to cultivate business leaders with a global vision, humanistic care, and an innovative mindset. The MBA core curriculum are a series of required courses intended to give students a firm grasp on business fundamentals. Joined by MBA students from world-renowned business schools outside China, our China Module offers MBA students the opportunity to gain cutting-edge insights into China's business and economy, as well as a greater understanding of the innovative business practices used in China, in addition to visiting some of the leading companies in the country. MBA students have the opportunity to participate in 3-4 month exchange programs at schools such as Cornell, Michigan among others. The EMBA Program offers the best practices and networks that you need to succeed in China and gain a competitive advantage in international business. The Programs for Individuals provide a comprehensive range of programs for executives at all career stages, whereas the Programs for Organizations provide custom-made programs for the company and its unique needs in China and worldwide.

### **Burapha University (Thailand)**

#### Unmanned aerial vehicle platform with automatic GPS control system for air quality data collection (PM2.5) via cloud system

Unmanned aerial vehicles is a non-pilot vehicle, yet it can be controlled. It is appeared in different shapes, sizes, forms and styles. Basically, an unmanned aerial vehicle is a drone which is a remotely automatic controlled aircraft. There are two controlling ways: a remote automatic control and a self-flying control using a complex computer program. It can be said that unmanned aerial vehicle is an aircraft that can fly automatically without pilots on board. A high-quality camera such as daytime cameras (electro optical) and infrared cameras (infrared sensor) may be installed into the drone. For the infrared cameras (infrared sensor), it can record images at a distance and

broadcast signals to the screen at the ground station in Near Real Time (NRT). Recently, these technologies can be accessed easily. The procurement or use is also cheaper. Therefore, the development of an unmanned aerial vehicle becomes convenient.

### **Kyoto University (Japan)**

#### Kyoto University Innovation Capital Co

The University is a comprehensive research institution dedicated to pursuing the development of science and scientific knowledge in a variety of fields including inter-disciplinary areas. As such, its 18 graduate schools and the numerous educational and research institutes and facilities (including the largest number of government-designated joint-usage research centers in Japan) serve as a platform for integrated basic and applied research in the fields of humanities as well as natural and social sciences. Two major forms of ventures are promoted in the program: 1) start-ups emerging as entrepreneurial activities where the University is the center of the start-up germination. And 2) the use of patient capital funds that address and support disruptive inventions; e.g., those taking too long to enter the market. Furthermore, K University-iCAP encourages cross-border connections among entrepreneurs and these funds in order to have those seed projects get started. As a wholly owned investment firm of the University, it mainly invests in start-ups and early-stage ventures seeking to commercialize knowledge generated by the University's researchers based on a "hands-on approach" that provides assistances in designing business and development plans.

### **University of Technology Sydney (Australia)**

#### UTS Shopfront

UTS Shopfront was the first cross-faculty community programme of its kind at an Australian university. It has built up a strong reputation and established relationships with hundreds of local and national community organisations. Being situated in central Sydney, some of these organisations have a national remit. At the end of 2017, 1078 community research projects have been completed via its student community coursework programme. In 2013, Shopfront launched a new programme, UTS SOUL Award, an extra-curricular volunteering programme for students who complete 100 hours of volunteering and training during the course of their degrees. Shopfront also jointly runs a peer-reviewed e-journal Gateways: International Journal of Community Research and Engagement concerned with the practice and processes of community engagement. Each year, insights and lessons learned are used to develop further improvements to the programme. Quality and risk managements procedures assist relationship management, ensuring that problems are can be addressed as soon as they arise. Shopfront staff also actively keep an eye on new methods of community engagement.

## **Franklin University Switzerland (Switzerland)**

### New Building Technologies and Experiential Learning

Solar power came to Franklin in November 2018. The University was working with a leading Lugano utility company (AIL), to install solar panels on top of 2 new student residences. This helped the Franklin community to reduce its carbon footprint and impact on the environment. The 150 solar panels allow Franklin to generate about 30% of the total electricity needed and are significantly reducing the dorms' energy bill. In addition to making the campus more sustainable, the solar panel project on the dormitory is an educational tool enabling students to measure the output of energy from the panels, and providing them with a better understanding of the benefits of renewable energy. Also, the new partnership with AIL offers more opportunities for students to be conscious of their actions with respect to sustainability and to think about their social and environmental responsibilities as they consider future career plans and other lifestyle choices.

## **Belgorod State National Research University (Russia)**

### Organization of high-tech production of export-oriented medical devices based on innovative structural materials with the purpose of import substitution based on the technologies developed

To develop a full-cycle project, which involves not only the development of a technology, but also the introduction of the products to the market, that is, its commercialization, BelSU is collaborating with VladMiVa Experimental Plant JSC. The project involves three technological processes of producing medical devices: 1. The technological process of producing a dental alloy based on the Co-Cr system for manufacturing overdentures and fixed dentures. 2. Technological process for producing dental drills with mounted diamond points of improved quality for treating hard dental tissues and various dental materials and products when working with dental points in clinical settings, including the technology of producing semi-finished goods and the technology of applying functional coatings (polymer coating/ chemical nickel coating). 3. The technological process of producing dental metal powder, intended for manufacturing overdentures and fixed dentures by applying the method of additive technologies.

## **University of Gothenburg (Sweden)**

### FRAM - Centre for Future Chemical Risk Assessment and Management Strategies

We are dependent on chemicals for our daily life. Industrially produced chemicals enable healthcare, food production, consumer products and infrastructure. The development goes fast, 40 new chemicals are registered every hour. The challenge is that chemicals also endanger human health and the environment. Unfortunately, no one today knows exactly how. Data on how toxic a chemical is, are in most cases missing. In addition, a mixture of chemicals is usually much more

toxic than its individual ingredients. In order to ensure sustainable development in this area, FRAM focuses on chemical risk assessment and management of the combined effect of chemicals. FRAM works to provide policy instruments for the fair sharing of the common emission space, i.e. the total load of chemicals that can be emitted without causing harm to ecosystem services. FRAM also propose policy options for accounting for chemical mixture effects.

### **Ohio State University (USA)**

#### Industry Liaison Office & Discovery Theme Initiative

The ILO promotes Ohio's university-based research activities, professors and resources to a larger industry base, making it easier for businesses to find and partner with the state's leading academics. In 2012, Ohio State committed \$500 million over 10 years to promote a novel partnership model based on multidisciplinary collaboration. The intent is to maximize mutual value in research, education, recruitment, outreach and engagement, and responsible stewardship of human and natural resources. This new model termed the "Discovery Themes" initiative, supports the growth of seven program areas that address global problems through partnerships with the public and private sectors. The initiative incentivizes cross-disciplinary collaborations across the university to remove research silos and provide superlative teams of researchers, best positioned to provide solutions to our partners. The Discovery Themes initiative represents a fundamental change in culture at Ohio State and a significant shift in the traditional university-private sector relationship.

### **Hankuk University of Foreign Studies (Korea, Rep.)**

#### Global Expansion of Korean Wave - KF-BTS Korean Language e-School

The project aims to spread the idea of Korean Wave and Korean language education across the globe by collaborating with Big Hit Entertainment (BTS). Responding to the lack of Korean professors at overseas universities caused by COVID-19, the program contributes to expansion of the educational background for Korean language acquisition through BTS textbooks and content representing the Korean Wave. The program will be using the contents of BTS representing the Korean Wave and free textbook written by researchers at Hankuk University of Foreign Studies. In the program the professors will co-teach classes with local professors to supplement the shortcomings of one-way online language education, selecting outstanding students and supporting them to study in Korean universities for one semester. The classes will be customized according to the ICT environment in each country (Real-time or VOD).

### **Tampere University (Finland)**

#### Science and Engineering - Computing and Electrical Engineering: Bachelor's and Master's degree

The Bachelor's Program in Science and Engineering is a cross-disciplinary program that gives students a solid grounding in several core fields of engineering. The major subjects available in the Computing and Electrical Engineering track are Signal Processing and Machine Learning, Software Development, Power Engineering, Communications Engineering, and Electronics and Embedded Systems. When first admitted to the Bachelor's Program in Science and Engineering students are granted the right to study towards a Bachelor's degree and a Master's degree at Tampere University. After completing the degree of Bachelor of Science in Technology, you will have multiple options to choose from among the Master's programs offered in English at Tampere University. We offer our students high-quality teaching in relatively small, multicultural study groups where teamwork is strongly supported. In addition to providing a sound theoretical basis for further studies in the field of technology, the program places special emphasis on internationality, employability and connections to industry. With this unique combination, our students are well-prepared for the international world of research and industry.

### **Sakarya University (Türkiye)**

#### University-Business World Coordination Board (UNIKUR)

The University-Business World Coordination Board was established to increase the cooperation between Sakarya University and the business world, to carry out joint projects and to provide coordination between academic staff and the business world in order to produce solutions to the problems of the business world. As the target audience of the Board, there are industrial organizations as well as companies in other sectors such as the service sector and education sector. The Board promotes the R&D and P&D capabilities of the academic staff of our university to the business world, thereby enhancing their cooperation in the business world, as well as training, seminars, etc. It also aims to promote the services they provide on these issues and to increase the cooperation between our academic staff and the business world regarding these activities.

### **Simon Fraser University (Canada)**

#### Big Data Initiative (BDI)

The Big Data Initiative's vision is to empower people to unlock data for research, education and community impact. As a university-wide core-facility (a shared research resource that, like a library, supports a wide community of users), BDI connects SFU's leading experts, breakthrough research, innovative education programs and advanced infrastructure across Faculties and disciplines together with industry, government, and communities to put data into action. In making data a strategic priority—and significantly investing in expertise and infrastructure in this field over the past decades—SFU plays a leading role in developing this sector for Canada, and beyond. SFU is leading efforts to strengthen partnerships with the government and private sector, both nationally and

internationally, given our increasing prominent position as a data science university, and in particular in response to the worldwide public health crisis. Our activities are expanding the impact of data by generating new knowledge to help solve pressing challenges including those related to Covid-19, contributing to an innovative economy and filling a critical talent shortage of big data experts. BDI brings together its industry, government and community partners, with SFU's researchers and students to deliver unexpected insights that drive business forward and that benefit society.

### **Seoul Institute of the Arts (Korea, Rep.)**

#### Didida Project – A platform to develop New-Form Arts based on Korea's traditional Arts

Founded in 1962, the Seoul Institute of the Arts (SeoulArts) has served as a bastion of the arts and art education in Korea for more than half a century. Since its inception, SeoulArts has honored its long-standing tradition, exploring new forms of creative and artistic expression and offering hands-on learning opportunities to future artists, and emerged artists as a leading force in the Korean Wave. As part of its field-oriented art education, the school works with companies to jointly host auditions for students in a variety of majors, support workshops and projects, and serves as a stepping stone for the creative activities of students and their entry into the arts industry through the A-PRO Festival at its Arts Creation Center (ACC). So far, projects have focused on realizing the school's educational goals of developing independent cultural artists, creative experimental artists, and global cultural leaders through its experience and expertise. The projects were designed to develop the school's brand for its New-Form Art content. As of 2021, projects have been upgraded to a more business model, the Didida Project, enabling discovery of New-Form Art contents and construction of arts programs with a base in the school's founding philosophy.

### **Northwestern University (USA)**

#### Innovation and New Ventures Office, INVO

INVOForward is a The University mentorship program to accelerate biomedical commercialization, such as medical devices, therapeutics, and Health IT, on both Evanston and Chicago campuses. It is designed to increase entrepreneurship by helping potential or current biomedical entrepreneurship teams focus on the customer discovery process. Through their discovery, the teams test and identify their market fit and assess the level of impact of their business proposition. INVOForward is modeled after, and will expand upon programs like the NIH I-Corps and University of Michigan's Fast Forward Medical Innovation (FFMI). INVOForward is a 4-week program that includes: a kick-off session, office hour support, 3 weekly virtual classes for team reports, and a final presentation. Core to the program will be the expectation that the teams conduct 30 interviews over the 4-week period. Teams will fine-tune their value proposition and also build a

venture pitch deck, while being trained and shepherded by subject matter experts (SMEs) in the field. The virtual classes will also focus on a variety of topics, including: Principles of Starting a New Venture; Basics on Commercializing Medical Devices; How to Conduct a Customer Discovery Interview; Business Strategy; Regulatory and Reimbursement Strategies; Competitive Analysis; Intellectual Property; and How to Pitch.

### **Griffith University (Australia)**

#### Industry Mentoring Program

For more than 25 years, our award-winning Industry Mentoring Program has connected Griffith students with industry professionals based in Southeast Queensland and beyond. Our students engage with their mentors in-person or online, leveraging our innovative mentoring platform to track their growth and progress. We support hundreds of mentoring relationships throughout the year and we'd love yours to be next. The missions are to create mentoring relationships that enable students to overcome barriers to industry engagement, to ensure quality engagement through thoughtful program structure and encouraging openness, sincerity, and appreciation in all mentoring interactions – fostering a connected community of mentorship, and to provide support and guidance through the ups and downs of the mentorship experience, supporting personal growth for mentors and mentees alike.

### **Chungwoon University (Korea, Rep.)**

#### ISSUE COLLEGE

Industrial Support System for University Education (ISSUE) College is a planning and operating of Employment-Linkage industry-academic cooperation project by using TETRIS Method. Local companies and the university jointly plan and operate the industry-academic cooperation projects (extracurricular programs and regular curriculums for on-site practical lessons) to develop new businesses and solve the problems companies have by examining companies with TETRIS Method. Students choose and participate in the Employment-Linkage industry-government-academic cooperation projects (extracurricular programs and regular curriculums for on-site practical lessons) which can maximize their capabilities like playing TETRIS game. Chungwoon university (CWU) offers specialized industrial support education which works closely together as a three-in-one set: A professor as a project manager, students as team members and companies.

### **University of Amikom Yogyakarta (Indonesia)**

#### Global Animated Film's Innovative Programs

University of Amikom Yogyakarta-MSV Studio is home to activists who have a passion for

animated films and has concerns to develop and bring the Indonesian richness of nature and culture around the world. University of Amikom Yogyakarta-MSV Studio has aimed to produce world-class quality animated films that could promote changes in preserving Indonesia's nature and cultures around the world, collaborating with the experts of Hollywood: Gilbert Adler, Executive producers of Superman Return, and Constantine; collaboration with executive producer (Manu Gargi: Silence), David Reynolds (Storywriter: Finding Nemo), director (Marco Basalmo), and visual effect (Nic Camecho: Beauty and the Beast), Michael Myerson (Disney Lawyer), Creative Artist Agency, and distributor from Hollywood.

### **Charles Darwin University (Australia)**

#### The Bachelor of Social Work

The Bachelor of Social Work is a professionally recognized course that prepares the students to pursue a career as a social worker, where the students will work with people to achieve changes to improve their lives. The students will guide and support the individual client, family, or community to meet their goals. The course is a 4 year full-time program comprised of core, common and elective units including introductory units in social work, psychology and sociology, direct practice with individuals and groups, community work and community development, theories of social work practice, legal issues, social policy and remote and regional practice. The core units include practical skill development combined with theoretical knowledge. Students will undertake two practicums undertaking contact with clients and in social policy/research roles. The BSW is offered both internally and online. As part of the requirements for completion of the degree students are mandated to attend 20 days of face to face classes, as a requirement of the professional accreditation with AASW (Australian Association of Social Workers).

### **Hanbat National University (Korea, Rep.)**

#### Glocal leader in the field of joining/welding and nondestructive engineering

Hanbat National University is Korea's only institution to produce engineers of international standardization in the field of glocal (global and local) welding and nondestructive testing. The Welding Department was established in 1997 through M&A of a welding research institute from Korea Institute of Machinery and Materials, which was selected as the only internationally certified welding and non-destructive testing training institute in Korea, as well as Korea's only certification institution by the international welding certification agency in Germany. Hanbat National University provides user-tailored education through remote visits to the areas with high demand from professional workforce such as Busan, Geoje, and Changwon and provision of educational programs in those areas. It also establishes Korean-English online contents and educational programs to overcome the limitations of the COVID-19 pandemic.

## **Kunjang University College (Korea, Rep.)**

### Fostering Foreign Technical Professionals for Root (pppuri) Industry

Kunjang University is operating 2 year's new material processing major curriculum (heat treatment and welding) for international students for a stable and systematic supply of technical manpower in the root industry. The program trains foreign technical manpower for on-site work in the field of heat treatment and welding. The training includes on-site customized practice-oriented training, understanding Korean culture by organizing Korean language acquisition and cultural experience courses, strengthening design capability through special lectures such as CAD, and NCS based curriculum that reflects the needs of the industry. The program will provide stable and systematic supply of technical manpower for the root industry through the training of foreign students.

## **Deggendorf Institute of Technology (Germany)**

### Technology Campuses - Strengthening Rural Industrial Development by Direct Knowledge Transfer

Since 2009, the Deggendorf Institute of Technology (DIT) has been establishing and running technology campuses (TCs) in structurally disadvantaged rural areas with a particular need for supporting measures. This model of technology transfer and regional collaborations meets the increasing need for research centers in rural areas outside urban centers, which, in most cases, have excellent research infrastructure at their disposal. Currently, 11 small, thematically focused research institutions are run by the DIT. The campuses focus on optical and high-frequency technology, glass melting and polymer technology as well as simulation processes, on mechatronics & cyberphysical systems, automation technology, digital production, embedded systems, geoinformatics, business data analytics & optimization, applied Artificial Intelligence, mobility and robotics as well as on health care. 10 Technology campuses and 1 health campus in different rural areas in Bavaria, each campus generates more than €1 Mio. third-party funding p. a. On average, in each campus, 6 – 8 researchers work in publicly funded research projects with local non-academic partners, do contract research and provide expert assessment. The campuses turned out to be an important driving force for the economic development of the respective rural regions.

## **Seoul School of Integrated Sciences and Technologies (Korea, Rep.)**

### First-mover in developing specialized MBA programs

Facing a fast-paced business environment, firms' demand grows rapidly for human resources that are dedicated to innovative and inter-disciplinary approaches and can demonstrate new

methods in business planning. Furthermore, with the advent of Convergence Era, sustainable business operations and management are playing a more important role. Business education has also begun to converge with other disciplines such as humanity, sociology, science and technology for synergy and sustainable growth. We have developed our specialized MBA programs by separate major based on the schools' philosophy of 4T (ethics, sTorytelling, Teamwork, and Technology) as well as its principles and vision toward being The First Mover. We have launched various new MBA programs such as Industrial Security MBA, Alternative Investment MBA, Leisure Management MBA, and AI-Strategic Management Master (former Crypto MBA), and they have been the pioneering programs in Korea's MBA education market. These MBA programs were first developed to satisfy firms' demand in the changing business environment.

### **Cebu Technological University (Philippines)**

#### Food Product Development for Food Security and Poverty Alleviation Program

CTU has Food Innovation Centers (FICs) and food-related Research, Development, and Extension (RDE) Centers/Institutes across different campuses in Cebu and its neighboring islands. These FICs and RDE Centers/Institutes strengthens the program and serve as a linkage between the food innovator and the technology adopter (community and industry) and as a hub for efficient and modern processing equipment to help the food innovator and technology adopter enhance their skills, product quality, and speed up their production cost-effectively. The content of the program includes all the food technology developed by the institution and the transfer of the technology to the community (through training). The collaboration between the Institution, the Local Government Units (LGU), and the Local communities was documented through the Memorandum of Agreement (MOA). It also contains the approval of the technology by the IPOPhil through the issuance of Patent and Utility Model accreditation. Lastly, the documentation of the product developed, the training conducted, and the marketing of the product.

### **Mariano Marcos State University (Philippines)**

#### National BioEnergy Research, Development & Extension Program for Sustainable Development

The National Bioenergy Research and Innovation Center (NBERIC) is a newly established Center of the Mariano Marcos State University (MMSU) in 2019, though its roots can be traced back to a zero-funded project since 2008. It was originally established to respond to the need for alternative energy feedstock for bioethanol production mandated by the Republic Act 9367 or the Biofuels Act of 2006. The Center focuses on bioenergy research. It has a 3000 sq. meter floor area housing state-of-the-art laboratories, auditorium, conference halls, and accommodation. The NBERIC aims to become a national hub for bioenergy research, training, technology incubation, and technopreneurship. It houses several laboratory facilities such as Biomass Characterization Lab,

Techno Demo Lab for bioethanol production, Bioseparation and Biorefinery Lab, Materials Handling and Fabrication Lab, Biotechnology Lab, Bioprocessing and Value-added Product Lab, Tissue Culture Lab, and Electrical Engineering Lab. These labs are synergistically operational to develop technologies that are both adaptable and adoptable in the village level. Driven with the desire to vertically integrate farmers/fisherfolks in the mainstream bioethanol industry.

### **National University of Management (Cambodia)**

#### Using Internet of Things to improve productivities and reduce human efforts in the agriculture field

Cambodia has a large number of people who are engaged in agriculture; this requires people to have the higher technical skills to grow vegetables. The demand and supply are not balanced; it is the main reason why our country imports many kinds of vegetables from neighboring countries. There is strong market demand for local, high-quality, safe and fresh vegetables; however, the vegetable sector in Cambodia currently supplies less than half of the domestic demand. The method of growing plants without the use of soil and using mineral nutrient solutions in a water solvent must be our solution. This is what we can call the hydroponics system. On the other hand, developments in the Internet of Things are propelling the phenomenon of what is called Smart Farming. Monitoring and controlling agricultural production and feed by using advanced sensor systems are further applications of Internet of Things. Collecting and analyzing the data circulating the environment is where the real power of IoT resides. And applications utilize machine learning and data-mining techniques to extract knowledge and to make smarter decisions.

### **Fatima Jinnah Women University (Pakistan)**

#### Smart wearable for Autism

Autism has remained a mystery for researchers, neurologists and psychiatrists for centuries. Autism Spectrum Disorder (ASD) is known to be a set of neurodevelopmental disorders that typically effect the functionality of brain. When 350,000 people of Pakistan, nearly 4 million people of developed countries are living in autism and study show that by the year of 2020, total number of autistic people will increase by 7 million then it is reasonable to propose a system for, developing abilities, early intervention and improving social communication of children with ASD. To address core deficiencies, there are interventions and medical treatment to make their livings possible. As a known fact autistic adults and children have spontaneous attraction for technology and they pay more attention to objects then to people, therefore there is need of assistive technology to serve as intervention for the range of spectrum disorder with the aim of improving quality of life. In this project, we have proposed an assistive smart ecosystem comprises: smart wearable sensing device for predicting, detecting and gathering quantified data, cloud infrastructure for data storage and processing using deep learning techniques Our smart sensing wearable device will generate alerts

at real-time for the imminent emotional, behavioral and physical abnormalities.

### **National Chi Nan University (Taiwan, China)**

#### Local Industry Revitalization and Sustainable Development – Deep-Root Project for Nantou Rural Tourism

This project aims to connect local industries and rural tourism in the Shuishalian area. The main sectors are tourism and agriculture. Our project intends to promote the integration of local industries and tourism. Via the means of agricultural production and tourism services, it seeks industry transformation to take place, allowing the operating model of local industries to become more diversified and refined. The development of international tourism may also ensue. Our project will also seek to cultivate more local talents with global mobility and revitalize local industries. We used to conduct our interactions via large-scale activities and forums. Due to the pandemic, we changed the format to online interactions to reduce the cost imposed on the environment by the activities and increase the number of participants. Online interactions void space and time restrictions, giving our project a new model and allowing our influence to reach further.

### **ICFAI University (India)**

#### GRADUATION IN COMMERCE (HONS.)

IBS Dehradun (Faculty of Management Studies), a constituent of The ICFAI University, Dehradun recognized by UGC under section 2(f) of the UGC Act. IBS Dehradun provides high quality, value based, and career-oriented management education. It facilitates students in understanding, developing, integrating and applying both core and specialized concepts and practices. Ranked first in Uttarakhand state of India among the top B-Schools of Eminence by CSR-GHRDC B-School Survey 2020. The mission of the program is to nurture the future business leaders through imparting high-quality case-based teaching, research and practical based training that meets industry expectations. To foster a passion for innovative thinking and applied research using modern means of technology and ethical standards. To prepare management professionals with global mindset have high professional competence, outstanding leadership qualities and impeccable personal integrity resulting in holistic development of the state and the nation.

### **University of Pretoria (South Africa)**

#### New high-tech business incubator – TuksNovation and Wingu Academy

TuksNovation is a non-profit technology incubator and accelerator that is located at the University. It provides start-ups with specialised product and business development support throughout their start-up growth journeys by assisting entrepreneurs to refine technologies and

validate business models for the relevant markets. Our programmes enable start-ups to commercialise innovative technology into new sustainable enterprises with social and economic impact. We create an ecosystem that fosters innovation by connecting science and technology innovators with corporates, academics and government. TuksNovation offers world-class technology development and commercial support through the technology and business development life cycles. It provides technology development and entrepreneurship support from prototype to commercialisation growth stages, to ensure that the technology is fully developed and addresses a relevant market need. A virtual incubation programme focuses on technology and techno-entrepreneurship skills, while an acceleration programme focuses on commercialisation and business growth.

### **Samar State University (Philippines)**

#### Design and Generation of Hybrid Alternative Energy Source for Remote and Rural Areas

Initiated in 2018 through CHED's DARE-TO Program, Samar State University in collaboration with other agencies and institutions launched an outreach project entitled "Design and Generation of Hybrid Alternative Energy Source" with the aim of establishing a renewable energy generating outpost in remote areas in Samar Island. The project area is within the river network of the Municipality of Gandara and elevated mountain regions of Samar. The project primarily aims to design and establish a hybrid power generation facility in remote areas in the Philippines where it is suitable, and in this case, the Municipality of Matuguinao. The project is undertaken to address the power shortage of the country by responding to the local rural electrification program and to spur economic growth in rural areas. Specifically, the project aims to: 1. Design and establish a hybrid power generation system from solar and water source with an estimated capacity of 40kW, and 2. Design and develop a wireless control system using artificial neural networks for the established power generation facility.

### **Brighton and Sussex Medical School (United Kingdom)**

#### Innovative Program for Industrial Application

The school is fully committed to the principles of Outcomes for Graduates; we endorse the value of medical education in a multi-professional context and promote the highest possible standards in our teaching, clinical practice, and research (both fundamental and applied). The innovative teaching and learning in the undergraduate courses are provided, where 'Modern Facilities and Supportive Teaching: Anatomy' allows the students to put theory into practice through full-body cadaveric dissection to understand the human body, through fully interactive, hands-on sessions. In 'Technology to Support Students' Learning,' the sound application of digital technologies are provided to support the full spectrum of teaching and learning: enhancing large group

teaching with interactive tools (eg, instant audience voting); reinforcing skills development (eg, on-demand clinical skills videos); facilitating application of knowledge through formative assessment tools (eg, the CAPSULE clinical cases quiz app); supporting self-directed learning (comprehensive online access to library resources, including our bespoke e-tutorial collection).

### **Lac Hong University (Vietnam)**

#### Technology transfers: Antiseptic mouthwash with Nano-Silver particles to prevent the spread of Coronavirus

Nano-silver particles have very effective antibacterial activity; thus, it is highly considered as a potential solution to many problems of biological infections, including antibiotic-resistant bacteria. Due to its strong antibacterial properties, nano-silver particles have been widely used in surface coatings, wound dressings, silver-coated medical equipment, medical masks, anti-poison masks, cosmetics, and dietary supplements, etc. The combination of nano-silver particles with antibacterial active ingredients increases the bactericidal ability to get rid of the Coronavirus. The antiseptic mouthwash with nano-silver particles actually combines the fast bactericidal activity of high alcohol with the effective antibacterial and antiviral activity of nano-silver particles. With immediate and long-lasting effects, our products are effective in helping the community to prevent the spread of Coronavirus. It is friendly to the living environment. Antiseptic mouthwash with nano-silver particles also exploits natural essential oil ingredients and herbal extracts to effectively prevent the attack of bacteria and viruses from the pharynx to the lungs, preventing coughs, and dealing with severe cases.

### **World University of Bangladesh (Bangladesh)**

#### Design and Construction of IOT Based Smart Grid System Using Arduino

A smart grid is an electricity network enabling a two-way flow of electricity and data with digital communications technology enabling to detect, react and pro-act to changes in usage and multiple issues. Smart grids have self-healing capabilities and enable electricity customers to become active participants. A smart grid entails technology applications that will allow an easier integration and higher penetration of renewable energy. The main purpose of this project is to discuss about the significance and a detailed feasibility study of practical implementation of Reliability of National Power grid and Smart Grid in Bangladesh. Smart grid refers to an electric power system that enhances grid reliability and efficiency by automatically responding to system disturbances. Power crisis is a major problem for a developing country like Bangladesh. Efficient transmission and distribution of electricity with essential energy resources is a fundamental requirement to provide citizens and economies. The paper analyzes the characteristics of Smart Grid and a comparative analysis with conventional grid system. It also discusses about the efficient transmission and

distribution process which will integrate power system with renewable energy and information system.

### **Telkom University (Indonesia)**

#### PATRIOT-Net

Prevention and recovery networks for Indonesia natural disasters based on the Internet-of-Things (IoT) is a mobile cognitive radio base station (MCRBS) to recover 2G, 3G, 4G and 5G network post-disaster. PATRIOT-Net totally proposes Indonesia's Internet-of-Things (IoT) network for national disasters that: (a) serves communication between dozens / hundreds of monitoring devices, (b) supports diverse (heterogeneous) traffic, from low speeds, such as sensors, to high speeds such as video monitoring, and (c) provide fast recovery with graph-based routing and cognitive radio for MCRBS post-disaster network recovery which will be one of the leading outcomes in this project. IoT is the main topic of the PATRIOT-Net project because this IoT technology will come together with 5G technology in 2020, using machine-to-machine (M2M) communications, which will impact 2/3 of the global economy (estimated at 3.9 - 11.1 trillion USD). This IoT application includes transportation (connected vehicle), smart city (security, traffic congestion), energy and its utilization (management, electricity, gas, water), retail (smart vending machine), logistics (tracking and recording of goods), health (telemedicine), manufacturing (remote manufacturing), wearable (smart watch), to financial services (usage-base insurance).

### **University of Liberal Arts Bangladesh (Bangladesh)**

#### ULAB TV: Producing the Next Breed of Broadcasters through Campus TV

ULAB TV, an apprenticeship programme under the Department of Media Studies and Journalism of ULAB, is the first-ever campus-based television in Bangladesh. This television station is run by its members who are the current students of ULAB. It provides them with the opportunity to learn by doing, and thus it facilitates peer teaching and active learning, which is the main essence of journalism education. ULAB TV is the breeding ground of twenty-first century media professionals who, on completion of their graduation, will be ready to enter the job market with multi-skills and a rich portfolio. The Vision of ULAB TV is to decolonize minds through media education and innovation, the Mission is to redefine journalism education, and the Goal is to produce multi-skilled professionals for the fast-changing media market through hands-on training and active learning.

### **Abdullah Gul University (Türkiye)**

#### Kayseri Model Factory Project

Kayseri Model Factory Project includes the establishment of a MF (supported by UNDP and

KfW) within the university to contribute to the achievement of UN Sustainable Development Goals. KMF is directly related to Sustainable Development goals of 4,8,9,11,12 and 17. As for SDG 17 (Strengthen the means of implementation and revitalize the global partnership for sustainable development), KMF has many local, national, and international partners. In order to contribute to SDG 12 (Responsible consumption and production), KMF provides non-profit applied training and consultancy services to SMEs on lean transformation (aimed at increasing operational efficiency) and digital transformation (aiming at the implementation of Industry 4.0 principles). The main purpose of KMF is planned in line with SDG 9 (Build resilient infrastructure, promote inclusive and sustainable industrialization, and foster innovation). AGU students and academics are included in KMF activities with activities such as training, projects, and graduation theses. Students gain practical experience and academics work on novel and innovative projects in this field. These activities of KMF are directly matched with SDG 4: Quality education. The KMF project also contributes significantly to the reduction of unemployment, particularly youth unemployment, through its activities.