

# WORLD'S BEST PRACTICE GUIDE

## IN PROFESSIONAL AND TECHNICAL EDUCATION AND TRAINING



**WFCP**

World Federation of  
Colleges and Polytechnics

# TABLE OF CONTENTS

## INTRODUCTION

THE 2018 WORLD CONGRESS IN AUSTRALIA .....	3
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## 1 ACCESS TO LEARNING AND EMPLOYMENT

GOLD - AUSTRALIA PACIFIC TRAINING COALITION (APTC) .....	5
SILVER - NORTHERN COLLEGE OF APPLIED ARTS AND TECHNOLOGY .....	7
BRONZE (TIE) - LEE D. LAMBERT AND RICARDO CASTRO-SALAZAR .....	9
BRONZE (TIE) - QINGDAO TECHNICAL COLLEGE .....	11

## 2 APPLIED RESEARCH AND INNOVATION

GOLD - RESEARCH & INNOVATION DIVISION, NIAGARA COLLEGE .....	14
SILVER - RED RIVER COLLEGE .....	16
BRONZE - MOHAWK COLLEGE IDEAWORKS .....	19

## 3 ENTREPRENEURSHIP

GOLD - CRAIG ELIAS .....	22
SILVER - RIZHAO POLYTECHNIC .....	24
BRONZE - TAISHAN POLYTECHNIC .....	26

## 4 GREEN COLLEGES

GOLD - USURBILGO LANBIDE ESKOLA .....	29
SILVER -TAFE NSW .....	32
BRONZE - BOX HILL INSTITUTE .....	34

## 5 HIGHER TECHNICAL SKILLS

GOLD -ZHEJIANG INSTITUTE OF MECHANICAL AND ELECTRICAL ENGINEERING .....	37
SILVER -WUHAN RAILWAY VOCATIONAL COLLEGE OF TECHNOLOGY .....	39
BRONZE -CHENGDU AERONAUTIC POLYTECHNIC .....	41

## 6 LEADERSHIP DEVELOPMENT

GOLD - CENTENNIAL COLLEGE .....	44
SILVER - NAQI HYDER .....	46
BRONZE - ANNE SADO/GEORGE BROWN COLLEGE/POLYTECHNICS CANADA .....	48

## 7 STUDENT SUPPORT SERVICES

GOLD - HOLMESGLEN INSTITUTE .....	51
SILVER - WUHAN RAILWAY VOCATIONAL COLLEGE OF TECHNOLOGY .....	53
BRONZE - QINGDAO VOCATIONAL AND TECHNICAL COLLEGE OF HOTEL MANAGEMENT (QVTCHM) .....	55

## ABOUT THE WFCP

The World Federation of Colleges and Polytechnics (WFCP) is a member-based international network of colleges, polytechnics, university colleges, institutions and individuals of professional and technical education and training. The Federation provides leadership in delivering workforce education for the global economy.

The WFCP began as an informal network borne out of a desire to have a forum for the almost 4,000 professional and technical education and training institutions around the world to meet regularly, learn from each other, and share experiences. The first meeting was held in 1999 in Quebec City, Canada along with the first World Congress of the WFCP and officially formalized as a network in 2002 with the 2nd World Congress held in Melbourne, Australia.

Today, the Federation represents colleges, institutes, and polytechnics, united by the mandate to prepare students for complex professional roles in a changing society so that they can emerge as leaders and innovators in their chosen careers.

Acting as the united voice for its members, the Federation enables the:

- promotion of its members to their communities;
- influence on the development of policy;
- access to information and experiences that allow each to learn from each other;
- sharing best practices;
- offering of an online community;
- promotion of partnerships to improve staff and student mobility;
- development of partnerships to deliver international contracts;
- organization of the bi-annual World Congress to enable knowledge exchange; and,
- positioning of its members on crucial issues such as inclusiveness, expectations of excellence in professional and technical education and training.

To learn more about the WFCP and how to become a member, please visit [wfcfp.org](http://wfcfp.org).



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# INTRODUCTION

The World Federation of Colleges and Polytechnics is pleased to present the *Second World's Best Practice Guide in Professional and Technical Education and Training*. As with the first edition, the second edition features award winning institutions, individuals and programs engaged in professional and technical education and training (PTET) from around the world.

The entries are provided by the 2018 recipients of the WFCP's Awards of Excellence, in seven categories: access to learning and employment, applied research and innovation, entrepreneurship, green colleges, higher technical skills, leadership development, and student support services. The Guide demonstrates the responsiveness, innovation, and focus of Federation members; it is designed to offer guidance to other actors in PTET as they embark on their own projects to enhance the education they offer and the learning their students receive.

Students are central to the Guide's entries. Underneath the project descriptions, and the logistical know-how is the implicit idea that those being recognized have embarked on their projects to enhance the lives of their students and their learning opportunities. Projects are developed to ensure equal access to education in a region, community, or group with much need. Industry and international partnerships are actively pursued to ensure that graduates can meet the demands of a changing world.

Common among this year's entries is a sense of change around the world and its impact on PTET. Cutting-edge technology is embraced in projects and classrooms to ensure that students are prepared to weather the storm of a globally changing marketplace. Institutions are engaging in applied research, in an effort for students to gain valuable skills, as well as contribute to the local and global economy. Entrepreneurship and innovation is imbedded into curricula, as demand for soft skills to complement higher technical skills grows.

The entries of the *Second World's Best Practice Guide in Professional and Technical Education and Training* brim with inspiration and innovation. We trust that as you or your institution or organization embark on similar projects, adopt similar models, or develop similar individuals, these entries will offer guidance and real know-how to ensure your own success.

## THE WORLD FEDERATION OF COLLEGES AND POLYTECHNICS: AWARDS OF EXCELLENCE

**The Awards of Excellence are handed out for the following:**

**Access to Learning and Employment -**

awarded to an individual, institution or institutional association that has developed effective channels to increase access to learning and employment for students.

**Applied Research -** awarded to an individual, institution or institutional association that has demonstrated excellence in addressing real-world challenges through applied research

**Entrepreneurship -** awarded to an individual, institution or institutional association that has demonstrated excellence in integrating entrepreneurship into academic curriculum and/or implemented innovative entrepreneurial activities.

**Green Colleges -** awarded to an individual, institution or institutional association that has demonstrated excellence in advancing environmental sustainability through knowledge, tools, practices and technologies

**Higher Technical Skills -** awarded to an individual, institution or institutional association that has demonstrated excellence in partnering with industry to improve access to jobs and meet the skills needs of the 21st century workforce

**Leadership Development -** awarded to an individual, institution or institutional association that has demonstrated excellence in developing the next generation of college leaders

**Student Support Services -** awarded to an individual, institution or institutional association that has demonstrated excellence provision of services that support students throughout their college experience.

# ACCESS TO LEARNING AND EMPLOYMENT





## GOLD: ACCESS TO LEARNING AND EMPLOYMENT

Project name: Australia Pacific Training Coalition (APTC)  
Country: Australia- Pacific

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women in trades in response to ongoing demand for skilled tradespeople and assists graduates to start small businesses of their own. In 2017, APTC delivered a Certificate IV in New Small Business program to female small business entrepreneurs in Fiji.

APTC runs a program to support people with additional learning needs to develop foundation skills and prepare for the workforce or further studies. Students are placed with host employers to gain hands-on experience and industry knowledge with the aim of securing sustained employment. APTC is changing stereotypes in local communities by supporting inclusion.

The Pacific Region is vulnerable to natural disaster and climate change impacts. APTC has consistently responded innovatively to these challenges, especially natural disaster, through reskilling individuals and supporting local communities to rebuild. APTC's use of live work projects to rebuild communities is an exemplary educational practice that is replicable to other parts of the world that experience such events.

Building Pacific networks takes time, with a broad range of stakeholders now seeking out APTC to contribute to national and regional TVET skills development. The growing commitment from both government and industry to support APTC student learning by offering work placements has been a significant element to APTC's success. Consistently high student and employer satisfaction is evidence of APTC relevance in the Region. APTC has moved from a "donor/recipient" model to a genuine partnership model, underpinned with a capacity building and sustainability strategy that is agreed by all parties, with closely managed outcomes.

### RESULTS AND ACCOMPLISHMENTS

From APTC's first graduation of eight students in Vanuatu in 2007 to just under 13,000 in 2018, APTC now delivers 43 Australian internationally recognised courses to students from 14 Pacific Island countries, with a dedicated team of over

### INTRODUCTION

Established in 2007 as the Australia-Pacific Technical College, APTC provides access to learning and employment for some of the most vulnerable and geographically remote people in the world. Its goal is to contribute to a more skilled, inclusive and productive workforce that enhances Pacific prosperity. For over 11 years APTC, managed by TAFE Queensland, has successfully delivered the largest Australian Government funded education aid and development project in the Pacific Region, delivering skills and Australian qualifications to people from 14 Pacific Island countries. To date, APTC has celebrated 12,887 graduates.

Providing access to quality training in support of regional economic growth is the key focus of APTC. APTC's qualified and highly experienced trainers collaborate with local training institutions and employers to deliver qualifications that are matched to employment opportunities regionally and internationally. APTC graduates have strong technical skills, knowledge and 'soft skills' which contribute to their improved employment outcomes, social and cultural prosperity.

### AWARD WINNING PROJECT/ PROGRAM/INSTITUTION

A skilled, qualified and flexible workforce is critical to the Pacific Islands becoming more self-reliant. Operating in a developing region, APTC provides leadership in the Pacific TVET sector through flexibility and responsiveness to the changing needs for skills development.

The Technical, Vocational Education and Training (TVET) aid and development program provides a blueprint for increasing access to learning and employment for Pacific Island Citizens.

APTC is highly valued across the region for the transformative effect it has had on lives and communities in diverse and remote locations. At the very heart of APTC's work is providing access to quality training to develop skills that enable citizens to enter the paid workforce.

The program is recognised for its holistic and practical approach to meeting the access challenge in the Pacific Region. APTC has embraced a partnering approach, working with governments,

TVET institutions, private sector and NGOs to ensure that training meets labour market demands and produces job-ready graduates. APTC works closely with other Pacific educational institutions and training providers, building on the region's existing strengths. APTC have TVET partners in Fiji, Papua New Guinea, Samoa, Vanuatu, Solomon Islands, Tonga and Kiribati.

A key emphasis of APTC is to establish and maintain close links with industry to ensure that training is relevant. APTC actively supports local employers, industry groups and associations. APTC has successfully engaged local employers committed to the training of their staff. APTC has been able to work with employers to realise strong gains from a highly skilled workforce. Some examples of these relationships are Solomon Power (SI), Fiji Water (Fiji), Curtin Bros and Coral Seas Hotels (PNG) and the Ministry of Education (Vanuatu and Samoa).

Participants benefit from equitable access for women (as students and trainers) and for people living with disabilities via APTC's inclusive approach and numerous equity-based programs. APTC promotes



200 staff, with 80% being Pacific Island Citizens. Of the graduates' to-date, 41% are women. APTC operates across the Region with qualifications offered in sectors demanding skilled workers including automotive, manufacturing, construction, electrical, tourism, hospitality, education, management, and health and community services.

APTC encompasses a number of activities to support Pacific Island men and women to obtain skilled work in the paid economy and to support the development of the TVET sector in the Pacific. APTC achieves this by:

- undertaking labour market analysis and linking skills and qualifications to labour requirements of Pacific Island countries, and increasingly, Australia and New Zealand
- issuing internationally recognised Australian vocational qualifications
- undertaking a targeted program of professional development and training to support the capability and capacity of APTC staff
- supporting Pacific Island TVET regulatory and qualifications frameworks and quality processes
- working with local industries and employers to obtain labour market advice and to develop their workforce productivity through training

Through partnering with national TVET institutions, APTC is working to improving the quality of training. As a result, there is a better regional understanding of sound TVET practice including industry liaison, competency-based curriculum - teaching and learning, training resources, management and policy, and successful transfer of skills to Pacific Island national trainers.

## INTERNATIONAL VALUE

APTC represents a unique aid-approach, placing Technical, Vocational Education and Training at the heart of development and reform in the Pacific.

The learning and success of this world-first development project, management and outcomes will inform best-practice implementation of future TVET-based aid projects at the international level for many years to come. APTC is a replicable, sustainable, applied-education model that can be implemented to the long-term benefit of individuals, countries and regions across the globe.

The APTC experience offers an international case study for supporting regional economic growth through improved access to TVET. It is a working example of how partnerships and collaboration are the key to providing sustainable access to training for financially disadvantaged and geographically remote communities. Regular requests from governments, TVET bi-lateral and other donor programs, regional providers and Skills Authorities to work collaboratively, confirm the value placed on APTC's expertise and the outcomes achieved.

## WORDS OF WISDOM

Advice? Create an environment where people can do their best work!

APTC's success can be attributed in no small way to its own staff. The APTC team share a tangible 'head and heart' alignment with the purpose of APTC and the people of the Pacific Region.

APTC has made a strong commitment to the nationalisation of its workforce, that is, to appoint and support the development of Pacific Island Citizens wherever possible. At the commencement of APTC the training workforce was entirely expatriate; now made up of over 80% Pacific Islanders: skilled, experienced and qualified to deliver Australian qualifications.

With the firm belief that paid work is a right not a privilege, APTC relentlessly promotes TVET as the first choice for those wishing to gain access to employment. It is through skills, qualifications and employment that Pacific Island Citizens support themselves, their families and communities and the economic prosperity of their country.

## NEXT STEPS

The Australian Government has committed to another eight years of funding to APTC - now renamed the **Australian Pacific Training Coalition**. APTC will work collaboratively with Pacific governments, Pacific TVET systems and institutions, and industries/enterprises to facilitate TVET reform.

Being mindful of the need to continue to deliver high quality and relevant skills and qualifications, 1 July 2018 signals key shifts in the direction of APTC;

1. Embedding APTC in Pacific TVET Systems. APTC will continue to form partnerships and coalitions with selected TVET institutions and systems to support improved quality, relevance and cost-effectiveness of TVET provision by local providers.
2. Gradual introduction of co-investment. The willingness to contribute to the cost of training will reduce reliance on Australian aid and promote prospects for the long-term sustainability of benefits.
3. Renewed emphasis on labour mobility. Students will have the opportunity to nominate for a domestic or labour mobility track without causing 'brain drain'. These initiatives will support Australian and Pacific Island labour mobility policy objectives.

Coalitions of reform will ensure that APTC continues to create skills for life for the people of the Pacific.

<https://www.aptc.edu.au>



## SILVER: ACCESS TO LEARNING AND EMPLOYMENT

Project name: Virtual Reality Enhanced Education

Name of recipient/institution/association:  
Northern College of Applied Arts and Technology

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### CONTACT

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### INTRODUCTION

Northern College of Applied Arts and Technology is Ontario, Canada's smallest college institution. It also happens to have the largest catchment area in the province, over 150,200 square kilometers. This catchment area is greater in size than 162 of the world's countries. Northern serves more than 65 communities in this region, and out of necessity, it has evolved as a pioneer of and expert in distance education methods, technology, and pedagogy. Northern College had the engagement of Will Durocher, Professor, who had a vision and the technological expertise to bring this vision to life. Working with both full-time programs and the contract training division, the story of how this came into being is a credit to Will's innovation.

### AWARD WINNING PROJECT/ PROGRAM/INSTITUTION

Each new technology brings with it the potential for enhancing the human condition and making our lives better. With the advent of modern virtual reality technology there is an opportunity to enhance education in ways never before thought possible. Virtual Reality (VR) allows educators to transcend the limitations of physical space and time. They can engage learners with the information, knowledge and skills not only to excel in their careers, but also to gain a broader understanding and appreciation of the world. Through a series of well executed projects Northern College has invented, from scratch, new pedagogy that works with the emerging technology of VR. At the core of these projects were fundamental questions pertaining to the very nature of teaching and learning. Our success in this area is not related to any one project but rather to an open-minded risk-taking approach and a willingness to experiment.

Our exploration of the virtual began largely before commercial VR technologies were available, as such, we used the development kits for the Oculus Rift DK1 and DK2. In order to create filmed experiences, we constructed our own

virtual reality camera which was composed of an array of six, and later fourteen GoPro Cameras. The camera array allowed us to film VR experiences stereoscopically in a 360-degree sphere. This technology was used to create the world's first post secondary course delivered through the medium of VR. The course highlighted the lived experience, culture, and teachings of various Indigenous peoples throughout Canada, all through a first-person experiential perspective. For example, learners were engaged by putting on a VR headset and learning directly from Indigenous storytellers and elders.

After this initial success Northern College was funded to create detailed VR training for tradespeople. With this project we designed a truly world class VR Studio Classroom facility along with mobile equipment that could be deployed off site and a 4D effects simulator, which added real world effects like wind and temperature control to the VR experience. Designing learning infrastructure with as-yet unreleased technology was a challenge and required our team to anticipate upcoming changes and requirements. As part of the VR for Trades project we created not only a new learning facility but also five filmed VR experiences including underground mine, and processing facility

tours. Five interactive simulations were programed which allowed the students to, figuratively, get their hands dirty. For example, the interactive simulation built for our electrician apprentices allowed them to install an 220A electrical service to a house. They used hand controllers to manipulate objects, drill holes, run wire and install panels. Our automotive mechanic students were, in VR, shrunk down to molecular size to explore the fuel and exhaust systems of a car from the inside out. This experience truly highlights the potential of the technology, which is to teach in new ways. This simulation was an experience which has no analogue in base reality.

More recently, social virtual reality has been emerging and becoming more popular. Social VR allows those with VR equipment to interact with avatars in virtual spaces in ways that are very compelling, natural and realistic. Our team has been using social VR from its early days most notably on SVR platforms like AltSpace VR, VR Chat, Janus VR, Facebook Spaces, and High Fidelity. We have used social virtual reality to take students on virtual field trips. For example, a teacher and students, all with avatars were able to jointly explore a virtual field trip, which had been recently filmed. The teacher guided the tour and offered students the experience of going underground in a mine, an experience many would not be fortunate enough to experience. Social VR was also used by two professors to teach a course on entrepreneurship. The professors created the VR equivalent of a podcast, which they called a VRodcast. Over the course of a fourteen-week semester they did VRodcasts in both virtual spaces and physical spaces using live 360 broadcasting.



## RESULTS AND ACCOMPLISHMENTS

The objective of our virtual reality projects and initiatives was nothing less than inventing new pedagogy for an emerging medium. We met this objective by pioneering the world's first course delivered in VR and by laying the foundation of effective post-secondary teaching with filmed VR experiences, interactive VR simulations, and teaching in social VR. The projects resulted in benefits to the community in terms of better awareness of Indigenous cultures across Canada. The response from our school's Indigenous partners to the course was overwhelmingly positive. The project created a bridge between the Indigenous culture and the Western learner. The projects also benefited our trades students by allowing them to take virtual tours of locations they would not otherwise get to visit as part of their traditional training. The benefit of our social VR work is allowing students across vast distances to have a shared face-to-face learning experience, which is an excellent complement to conventional distance delivery.

## INTERNATIONAL VALUE

The lessons learned from Northern College's innovation in VR education are widely transferable to all nations of the world. One of the primary benefits of virtual reality technologies, especially social virtual reality is its barrier dissolving effect. Much like on the internet the boundaries of countries and cultures are not overt and as such it opens new opportunities for an inter-connected world. Specifically, institutions around the world can collaborate to create compelling VR training and students from institutions worldwide can be brought together through the medium of social VR, to learn together in new ways. Faculty around the world can have face-to-face discussions of best practices without leaving their offices, and senior management can foster new collaborations and networks all around virtual tables. Conceivably, educational conferences could be hosted in social VR reducing harmful greenhouse gas emissions from international travel. Additionally, robust VR equipment is now cheaper than overseas international travel, furthering its potential.

## WORDS OF WISDOM

It is clear to us after these projects and through watching the technology evolve closely that virtual reality is likely to become a phenomenon as powerful as the internet in the coming decades. This prediction is based upon the fact that modern VR technology uses the exact same technology as smart phones, as such there is a forcing function for rapid and continued improvement of the technology. Institutions that want to develop capacity in virtual reality should try to do so while the field is emerging in order to have a formative impact. Institutions should also try to foster cross-border collaboration with other interested parties and also with industry. Not all institutions will have an interest in developing these capabilities but with a few engaged parties, rapid advances in education can be made. Finally, above all institutions need a culture of exploration and a toleration of risk to try new things, and even occasionally

fail. The same ethos of fearlessly trying new things, which has created most of our technological wealth today, is exactly what is needed to develop VR as a modern standard in post-secondary teaching.

## NEXT STEPS

Northern College has ambitious goals for further development of virtual reality expertise and capabilities. The next phase of development involves creating the world's first "virtual" school. Virtual reality is now a "place" you can go to. The virtual reality campus of Northern College will be hosted in social virtual reality. Both short training courses and full credit courses will be taught to this emerging technological market. Northern College will then be the first institution in the world to have offerings delivered routinely in VR. As the democratization of the technology continues it will allow Northern to serve its large dispersed population with the highest quality of education.





## BRONZE (TIE): ACCESS TO LEARNING AND EMPLOYMENT

Project name:  
GLOBAL LEARNING AND INCLUSION WITHOUT BORDERS

Name of recipient/institution/association:  
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involves strengthening Mexican-American identity and culture by acknowledging the Mexican roots of the Tucson community and the deep historical links between the United States and Mexico. Thus, they have established relationships with numerous Mexican institutions, including colleges and universities, national and state governments, and the business & industry sectors with the objective of developing (bi)cultural pride and strengthening ties among binational communities. As part of their strategy, they also have developed strategic relationships with numerous community organizations that engage with Mexican-origin populations, including the Mexican Consulate, Tucson City Government, Pima County Government, Tucson-Mexico Sister Cities Association, Fundación México, Tucson Hispanic Chamber of Commerce (THCC), the League of United Latin American Citizens (LULAC), Portable Practical Education Preparation (PPEP), Amistades, and many others. This approach has resulted in global learning opportunities for PCC students and for Mexican-origin minorities on both sides of the border. Furthermore, Chancellor Lambert strongly supported the creation of PCC's award-winning Mexico Project during politically challenging times, helping hundreds of minority students to date. At the same time, VP Castro-Salazar has served as External Advisor to the Mexican Government and has developed support for immigrant and DACA students.

Thanks to this binational collaborative approach, PCC is one of three community colleges in the US selected by Mexico's Ministry of Education to host students from the prestigious SEP- Bécals-Santander (SBS) program, where underprivileged Mexican students receive government support to study STEM courses and advanced ESL in the U.S. In the past three years, PCC has hosted over 250 SBS students who have earned short-term certificates that are recognized in

### INTRODUCTION



**Lee Lambert** is Chancellor and CEO of Pima Community College. He was born in South Korea and has lived on three continents. He is the 2017 CEO of the Year of the Association of Community College Trustees (ACCT). He has been on the board of the American Association of Community Colleges (AACCC) and has promoted community colleges around the world. His vision for a more interconnected binational region has been praised by major international actors like the US Institute for International Education (IIE), the Arizona-Mexico Commission, and the Mexican Government. Under his leadership, PCC has received numerous national and international recognitions.



**Ricardo Castro-Salazar** is Vice President for International Development at PCC. He is also an Associate Researcher at the University of Arizona Center for Latin American Studies. He has been External Advisor to the Mexican Government through the Institute for Mexicans Abroad and a Fulbright Administrative Scholar in Russia. He has graduate degrees from England, Holland, Mexico, and USA. He has published in English and Spanish in various international journals and edited volumes and has received recognitions in the U.S. and the U.K. for his

research on undocumented students. He also has received the University of Arizona Global Education Excellence Award.

### AWARD WINNING PROJECT/ PROGRAM/INSTITUTION

Chancellor Lee Lambert and Vice President for International Development Ricardo Castro-Salazar have implemented a new vision for international education at PCC. Their premise is that all students should have access to global learning, and international education must not be only the privilege of those with financial and academic means. Dr. Lambert, a worldly-wise leader of Korean descent, and Dr. Castro-Salazar, a Mexican immigrant who has studied and taught in a number of nations, orchestrated a new approach to international education for the public community college. As part of PCC's mission to focus on student success, they have created structures, international

relationships, and a vision to provide access to global learning to minorities and historically marginalized populations, especially Mexican-origin minorities.

In the United States, 48% of Hispanics in higher education attend community colleges and more than 4 in 10 residents in Tucson, where PCC is located, are Hispanic. Mexican-origin Americans represent 89% of all Hispanics in Tucson and they are, by far, PCC's largest minority enrollment. Nevertheless, a large sector of their population remains marginalized and their college dropout rate is higher than for other minorities. Therefore, Chancellor Lambert and VP Castro-Salazar have concentrated their efforts on the achievement of equity, social justice and inclusion for Mexican-American communities. Their action plan

Mexico and make them more competitive in the labor market. Additionally, Mexican students now represent the largest number of international students at PCC, so we have developed structured learning experiences involving local and international students where they achieve deeper intercultural understanding. PCC students also have traveled to Mexico to participate in various study abroad programs.

## RESULTS AND ACCOMPLISHMENTS

The objectives of providing educational access to historically marginalized minorities and making the relationship with Mexico a priority for global learning have produced powerful multiplying effects. Chancellor Lambert and VP Castro-Salazar have been recognized by the Mexican government, the City of Tucson, and local community for their service to Mexican-origin populations. PCC has partnered with the Mexican Consulate on many initiatives, including the Education Orientation Window at the Consulate, where Mexican nationals and Mexican-Americans can learn about education opportunities in Tucson and Mexico. PCC's efforts to serve Mexican-origin communities have received national recognition by the Institute for International Education (IIE). Individually, Chancellor Lambert received the 2016 Victoria Foundation's Edith Auslander Outstanding Support of Hispanic Issues in Higher Education recognition. He also was recognized with the 2017 Tucson Hispanic Chamber La Estrella Award for his commitment to improving educational standards and his commitment to diversity and inclusion. VP Castro-Salazar's work with Mexican-American students and immigrants was recognized with the 2015 League of United Latin American Citizens (LULAC) National Convention Humanitarian Award. He has provided over 440 scholarships to Mexican-origin and Hispanic students with support from the Mexican Ministry of Foreign Relations. In 2017, the Ambassador of Mexico to the US visited Tucson and honored PCC with an \$80,000 grant for scholarships. PCC's Office of International Development has worked with community organizations like JobPath to select scholarship beneficiaries in strategic areas like Aviation Technologies, Sustainable Technology, Automotive, Logistics, and

others. Additionally, PCC has developed educational exchange programs with Mexican institutions that have benefitted faculty and students on both sides of the border. Chancellor Lambert and VP Castro-Salazar have been invited by the Mayor of Tucson to accompany him on friendship and business missions to Mexico, where they have met with top government officials and a former Mexican President

## INTERNATIONAL VALUE

The premise of "Global Learning and Inclusion without Borders" is international by design. Making Mexico a strategic partner has produced new educational programs based on innovative binational collaboration. The goal of global education and inclusion for all has evolved in partnerships with US and Mexican institutions beyond expectations. This year, for the first time, a government institution in Mexico has partnered with an American college to offer financial credit at 0% interest to Mexican students wishing to study in the US. The Institute of Educational Credit of the State of Sonora partnered with Pima to offer such opportunity to Mexican students who enrolled in PCC during summer 2018. Another example of binational collaboration was a partnership with the Technological Institute of Hermosillo (ITH) to implement a Sustainable Energy Exchange Program where six students and a professor from each institution worked on Building Construction Technology projects on both sides of the border. The program was selected as one of the 100,000 Strong in the Americas Innovation Fund grant recipients. These are only two of many examples that illustrate the success of learning without borders.

## WORDS OF WISDOM

The concept of "Global Learning and Inclusion without Borders" can be applied among different international partners and educational dimensions. Many educators support the concept, but execution can encounter political opposition and misunderstanding. One of the key lessons at PCC, and the best way to face challenges, is by

being loyal to principles and working in partnership with the community. Chancellor Lambert and VP Castro-Salazar have been passionate and deeply committed to the principles of inclusiveness and equity beyond frontiers. Under Chancellor Lambert, PCC is one of the top community colleges for graduating Hispanic minorities and he has repeatedly stated to the College community that "we are a social justice organization." VP Castro-Salazar's book, *Navigating Borders*, has been designated by the UC Davis Mellon Social Justice Initiative as a reference on how to conduct research in service of social justice movements. Thus, at PCC, the foundation of access to learning and student success without borders is the embedded principle of global social justice. The lesson for any other institution is to listen to the community and let their principles lead.

## NEXT STEPS

Pima's ambition is to become Northwest Mexico's preferred College in the United States. Mexican students already constitute the largest population of international enrollments and Pima is planning to work with the new government of Mexico and its educational institutions to continue providing access to global learning to underprivileged students on both sides of the border. At the same time, PCC has formally established an international education program that will continue to work with organizations in Mexico and the US to develop opportunities for Mexican-American and Hispanic students in the community. PCC is also working with the National Institute of Technology of Mexico (the largest network of technological universities in the nation) on short-term STEM programs, with the Technological Institute of Sonora (ITSON) on the development of binational certificates, and with the Ministries of Education and Foreign Relations of Mexico on programs for Mexican-origin populations and immigrants. One of PCC's main goals is to expand study abroad programs and to continue expanding opportunities for underprivileged populations.



## BRONZE (TIE): ACCESS TO LEARNING AND EMPLOYMENT

Name of recipient/institution/association:  
Qingdao Technical College  
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### INTRODUCTION

Qingdao Technical College (QTC) is, in China, one of the first national exemplary vocational colleges; one of the Chinese advanced vocational education institutes; one of employment competitiveness exemplary colleges, among vocational colleges; and, one of the modern apprenticeship pilot higher vocational colleges. QTC also takes the leading role in the "Student Support Services" Affinity Group of WFCP.

QTC maintains partnerships with 83 institutions and organizations from 25 countries and regions around the world. Teacher training bases were set up in partner institutions and organizations in 8 countries and regions. Three International Symposia on Higher Vocational Education were hosted by QTC. In 2013, the vocational education cooperation project between the Chinese and New Zealand governments were settled at QTC. QTC has won many honorary titles, such as the 2016 WFCP Awards of Excellence Gold Award in "Student Support Services, and the most popular university president among Chinese universities and colleges.

### AWARD WINNING PROJECT/ PROGRAM/INSTITUTION

Quality management is improved by setting the goal of "letting students become their best self," and innovatively putting forward a "learning, teaching and doing in one" talent training mode, which is based on "learning" and promoting the integration of production and education. Every year, professional training programs are revised dynamically according to business and students' needs. QTC offers "support and service" to our students through various channels such as general education, academic consultation, career planning and psychological support. Students who are frustrated by their poor academic performance on the entrance exam will be trained to be a new, professional and reliable industry support.

Under the task-oriented and project-driven paths, the initiative of each major is given back to students and students' creativities are respected. The teaching concepts turn from "hand by hand" to "let go;" from "learning first and then doing" to "doing first and then learning;" and, from "teaching for teaching" to "teaching for

learning." Students raise questions through the learning processes, which is an inquiry-based learning style. Whereas teachers at QTC aim at addressing students' questions in their teaching practices and in this way, students are able to master the concepts in the learning process and enjoy the joy brought by creativity. In addition, students

develop their own learning pathways, through doing projects they internalize skills, and, therefore, achieve abilities that are sustainable. After graduation, about 70% students stay working in Qingdao; in contrast, before registration, only 30% students come from Qingdao.

### RESULTS AND ACCOMPLISHMENTS

Embracing a "student-centred" philosophy based on enterprises' and students' needs, teaching reform is carried out at QTC. To improve the performance criteria of holistic development, to provide students with more opportunities, and to improve competitive advantages for students the "learning, teaching and doing in one" talent training mode was innovated, a broad-field curriculum system of higher vocational education constructed, and "many teachers collaborate in one class" and "project-based teaching" methods were implemented. The employment rate remains over 97 percent.





In other majors, there are similar learning processes. Not only that, QTC creates opportunities for students to establish student-centered positions, improve their learning potential, and develop their learning abilities through creating “job-like courses” such as “Honours Program”, “Humanistic Quality General Course”, “Labour Education Class”, “Creative Design Course,” and “Student Assistant.”

Students’ learning motivation is stimulated, and their overall quality and creativity improved. QTC students, who not only have strong professional skills, but also have a noble professional moral spirit, have won many prizes in skill competitions at home and abroad. QTC students also obtain sustainable development capability, and the employment rate remains over 97 percent. There are 166 QTC students employed abroad, while another 124 students started their own business while at school.

## INTERNATIONAL VALUE

Adhering to an international college concept, QTC continuously explores in terms of curriculum reform, academic exchanges, teachers’ exchange, students’ overseas study and employment and new mechanisms and modes of international cooperation and exchange. QTC ranks top 50 in terms of international influence among China’s higher vocational colleges. In 2017, QTC, together with Qingdao Construction Group, set up a training base in Kenya to recruit and train Kenyan employees. In the same period, a Chinese tourism training base was set up in Dubai to train local tourist guides.

Internationalization of Curriculum Development, of the teachers’ team, and of talent training is promoted at QTC.

## WORDS OF WISDOM

- Initiate the talent cultivation mode of “Learning, Teaching and Doing in One”
- Construct the three dimensional “Broad-Field Curriculum” system
- Improve teaching strategies and methods
- Strengthen guidance and education for entrepreneurship and employment
- Strengthen international cooperation and exchange
- Implement multiple evaluations

## NEXT STEPS

QTC will adhere to the “international education” route and penetrate internationalization of talent cultivation into professional level. Furthermore, facing internationalization and industrialization, QTC will construct the professional talent training of “1+N+1” cooperative mode, as in, each specialty relies on “one industry organization” and “N (more than one) related enterprises” to connect with “one foreign vocational education institution,” to provide our students with opportunities to study abroad, paid internships abroad, and employment.

# APPLIED RESEARCH





## GOLD: APPLIED RESEARCH

Project name:  
Niagara College Research & Innovation Excellence

Name of recipient/institution/association:  
Research & Innovation Division, Niagara College

Email address: mnantel@niagaracollege.ca

Country: Canada

## CONTACT

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## INTRODUCTION

Niagara College's (NC) Research & Innovation (R&I) Division provides real-world solutions for business, key industry sectors, and the community through applied research and knowledge transfer activities. We conduct projects that provide innovative solutions, such as producing and testing prototypes, evaluating new technologies, and developing new or improved products or processes for small- and medium-sized businesses. With funding support from various regional, provincial and federal agencies, students and graduates are hired to work alongside faculty researchers to assist industry partners leap forward in the marketplace. Niagara College is focused on three Innovation Centres: the Walker Advanced Manufacturing Innovation Centre (WAMIC); the Canadian Food & Wine Institute Innovation Centre (CFWI IC); and the Agriculture & Environmental Technologies Innovation Centre (AETIC). Operating on the key values of teamwork, honesty, ethics, respect and excellence, NC's R&I division has earned the Canadian Top 50 Research Colleges standing of No. 7 for the past 2 years (2016, 2017).

## AWARD WINNING PROJECT/ PROGRAM/INSTITUTION

Through its Research & Innovation division, Niagara College is committed to pursuing research and development activities that:

- Take a leadership role in revitalizing the Niagara regional economy, while supporting community and economic development in Niagara, Ontario, and Canada
- Enhance the productivity and increase the competitiveness of our local small- and medium-sized enterprises (SMEs)
- Support the creation of new jobs through successful applied research and commercialization activities
- Enhance the quality of our academic programs and professional development of college personnel
- Support the development of applied research skills of our students

To support industry sectors that are most relevant to Niagara, NC has been successful in building strong institutional capacity by achieving success in obtaining long-term, renewable grants. To support its research Centres, NC has secured funding for two buildings (WAMIC, CFWI IC); held 2 multi-million-dollar capacity-building grants (CFWI IC, AETIC); has recently renewed its Industrial Research Chair for Colleges (AETIC) in Precision Agriculture & Environmental Technologies; secured multiple small and large project-focused Ontario grants (all Centres); received multiple small (\$30,000 to \$150,000) and large (> \$1,000,000) equipment grants; and, currently holds two Technology Access Centre (TAC) grants (WAMIC, CFWI IC). The Innovation Centres are further supported by our Digital Media & Web Solutions and Business & Commercialization Solutions. The two Solutions are an enabling layer for the Centre-based projects, and improve the commercialization prospects we help our industry partners to develop; they are supported through the major activities and funding of the Centres.

The achievements of R&I are really the achievements of the industry partners with whom we work. Here are specific examples (many more can be found on our website: <https://www.ncinnovation.ca/our-projects>).

WAMIC: Airbus Helicopters reached out for help improving its processes around the trimming of large composite pieces (<https://www.ncinnovation.ca/blog/portfolio/airbus-helicopters-canada>).

The research team conducted a thorough analysis of Airbus' current practice, culminating in a final comprehensive report. Currently, Airbus and I-Cubed, a local automation solutions provider in Stoney Creek, are working together to move forward with the recommended solution. Overall, the solution will reduce the work-cell scrappage rates by 90% and decrease the time to process each part on average by 80%.

CFWI IC: Broya, a Toronto-based food company that produces high-quality, innovative meat products, approached the Centre with an idea to develop a new product line of shelf stable, bite-sized meat snacks, which would meet their exceptional standards of nutrition and health benefits (<https://www.ncinnovation.ca/blog/portfolio/broya>). The research team conducted a product development project that resulted in three new meat snacks, which combine natural sweetness, mild spices, real fruits, and ethically sourced meat. The products, which have now been commercialized for health-food stores, and soon major retail chains, are also paleo-friendly, gluten-free, nitrite-free, and completely free of all other allergens.

AETIC: The team solves sector-wide challenges in agriculture, with recent work including: collaborating with Sarapoint Global to develop weather analytics

for tender fruit growers, and drone-to-rover communications to support precision agriculture and semi-automated farming; and using precision agriculture applications research, sharing that research with 28,000 grain farmers across the province to support the profitable and environmentally sustainable usage of precision agriculture variable-rate techniques on their fields.

## RESULTS AND ACCOMPLISHMENTS

There is no applied research project conducted at Niagara College without at least one student involved. Niagara College recently released a 2017-2021 strategic plan that points NC toward a future as “Canada’s leader in applied, experiential learning” and in which experiential learning is highlighted as one of three key strategic directions (<http://www.niagaracollege.ca/about/administration/plans-reports/strategic-plan/>). The R&I Division has placed experiential student learning at its core since our inception through course-based research (hands-on training occurs as part of the course learning objectives), funded research, and technical service offerings. In the latter two examples, students are hired by R&I as Research Assistants (part-time and co-op options), and Research Associates (one-year contracts for graduates). NC R&I has made possible close to 10,000 student research experiences since July 2011, with ~350 of these as paid research positions, and ~9,500 as course-based project participations. Our students on applied research projects learn project management, presentation skills, intellectual property, report writing, and all the soft skills required to interact with industry partners and project colleagues. In many cases, they are hired on by the industry partner after their project completion, and graduation. For example, James Turner worked as a Research Assistant with WAMIC, was hired upon graduation from the Mechanical Engineering Technologist program, to be a Manufacturing Process Engineer at Airbus Helicopters, a subsidiary of global aerospace company, Airbus. Based on his work as an NC student, including partner

projects with Airbus, the company saw his potential to oversee aerospace component production and ensure the production lines are operational.

## INTERNATIONAL VALUE

Because of our success building capacity and operations at NC, R&I has been involved in many International projects aimed at increasing research capacity in other institutions. For example, Vietnam’s Vinh Long Community College (VLCC) has been working closely with NC to develop their capacity in food technology and laboratory management in partnership with Global Affairs Canada and Agriteam Canada. In the program, VLCC was trained to deliver performance-based, demand-driven, student-centred curriculum with new methodologies, equipment and delivery approaches. NC’s School of Horticulture has also taken our applied research knowledge and expertise to the Dominican Republic, building pumps to improve irrigation in the greenhouses and introducing aquaponics, a self-contained system combining aquaculture and hydroponics. And finally, NC recently hosted delegations from Excelsior Community College, Jamaica, through the CARICOM Education For Employment Program (C-EFE), and Brazil’s Ministry of Education, through the CICan Canada-Brazil Collaboration, to share with them best practices in the administration of applied research in the college environment.

## WORDS OF WISDOM

Niagara College Research & Innovation operations and Innovation Centres are split between two campuses in the Niagara Region, so it is sometimes difficult for our teams of students, graduates and faculty to get to know the administrative team, and each other, and to feel connected to the greater mission of training students while engaging with industry. Therefore, we implemented an annual Research & Innovation professional development day, in which all staff, graduates and students spend the day together, anchored by a lunchtime barbecue. We spend the first half of our day at our Welland campus, and the second half at the Niagara-on-the-Lake

campus, touring all our research labs, and allowing each student an opportunity to present on their team’s progress on recent projects. This allows a friendly setting in which students may further develop presentation and business skills. With the success of these days, we now plan events similar to ‘break bread’ together throughout the year.

## NEXT STEPS

To build on our success, we must continue to seek long-term, renewable funding opportunities, while persisting in our efforts to recruit industry partners who will benefit from interactions with our Innovation Centres. Colleges in Canada are fortunate to be supported in their applied research efforts by strong programs at several levels of government. Nevertheless, college research is critically underfunded compared to that of universities. There is much more that could be accomplished with the right level of support, so Niagara College intends to be a strong player in the advocacy work of its provincial (Colleges Ontario) and federal (Colleges & Institutes Canada) associations. By securing funding for its Innovation Centres, Niagara College furthers its own cause, but by contributing through advocacy to raising the overall level of funding for college applied research in Canada, we also aspire to help our whole sector, including students and industry partners who benefit from it.





## SILVER: APPLIED RESEARCH

Project name:  
The Research Enterprise at Red River College  
Name of recipient/institution/association:  
Red River College  
Email address: RHoemsen@rrc.ca  
Country: Canada

## CONTACT

Ray Hoemsen  
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## INTRODUCTION

Manitoba is in geographic centre of North America and the longitudinal centre of Canada; and has great strength due to its wealth of hydroelectric power, diverse manufacturing base, rich mineral resources and fertile soil. Manitoba's people retain the values of community and responsibility that built the Province, while shaping a future through innovation, productivity and risk-taking.

Close to 62 per cent of Manitoba's population of 1,300,000 live within Winnipeg's census metropolitan area. Winnipeg has always been economically strong and diverse, with a robust workforce that is skilled, talented and productive.

Red River College of Applied Arts, Science and Technology is headquartered in Winnipeg and offers a polytechnic model of education to 22,000 unique students, in more than 200 programs, across nine campuses across Manitoba.

Applied research and innovation at the College is driven by community needs – especially for manufacturing, construction and transportation; as well, as health sciences and community services.

## AWARD WINNING PROJECT/ PROGRAM/INSTITUTION

Applied Research & Innovation at the College is now in its 15th year of formal operation; and is led by Research Partnerships & Innovation (RPI). Applied Research is driven by community need (i.e. market pull and not technology push) and supports community-based economic development. With respect to Intellectual Property, research partners are granted royalty-free commercial rights – thereby enabling commercialization of the resultant products, processes and services by business and industry; the College retains rights for further education and research purposes.

Applied Research is concentrated on four major focus areas: Advanced Design & Manufacturing, Clean Technology, Digital Technology, and Health, Nutrition & Social Sciences. Applied Research (including Knowledge Translation) projects and programs support many sectors – including

aerospace, business, construction, heavy vehicles, health and community services, information and communications technology, manufacturing, transportation and value-added agriculture.

Investment by business, community and industry partners, as well as funding agencies, not only provide support for research operating costs, but also funding for research equipment and infrastructure which is also used for education and training. Over 200,000 square feet of new buildings and facilities is currently in various phases of development – ranging from design to construction to commissioning; this includes the Innovation Centre, Culinary Research Kitchen, Smart Factory/Centre for Aerospace Technology & Training (Phase 3), MotiveLab™, and the Skilled Trades & Technology Centre.

Approximately \$82,500,000 in external investment has been received or awarded to the College, over the last decade-and-a-half, to support research-related equipment and infrastructure. In addition

to being used for research, these resources are used for student-focussed education and training in nearly 60 courses, by over 170 faculty and more than 1,800 students.

The College has been independently ranked (based on total research income) by ReSearch Infosource<sup>2</sup>, as a Top 10 Research College in Canada four of the last five years (the rankings started in 2013). The College is currently the #1 Research College in Western Canada (with \$6,172,000 in research income).

Partners and clientele include multi-nationals, public sector organizations, universities and colleges, foundations, and scores of small- and medium-sized enterprises with specific needs related to applied research and innovation, technical services, training and knowledge transfer. This is in addition to internal clients – such as faculty and students.

Since FY2004, total support for the research enterprise is nearly \$86,000,000 – including just over \$7,000,000 in College based funding to support the Research Partnerships & Innovation office. Over this period, nearly \$1,000,000 has been invested, by RPI, in the College Applied Research Development Fund – enabling nearly 120 faculty to undertake applied research projects.

Annually, over 25 “capstone” (or final year research-focussed project) courses engage more than 700 students; while over 600 students in business-focussed programs pursue entrepreneurial ideas and social innovations through practicums and projects such as the “ACE Project Space”.

The College's approach to applied and work-integrated learning translates to a graduate employment rate that consistently exceeds 94%, providing an estimated \$357,000,000 benefit to Manitoba's economy in 2016-17 (based on a cost-benefit formula developed by Colleges and Institutes Canada).



## RESULTS AND ACCOMPLISHMENTS

The Vision is to be recognized globally for excellence in applied learning, research and innovation.

Students, faculty, and staff have been formally recognized by nearly 15 organizations for excellence in applied research, innovation, leadership, long-term achievement, partnership, public engagement and advocacy, spirit, sustainability, and synergy.

Recent accomplishments include:

- Opening the ACE Project Space, where students in the Applied Computer Education can interact and work with industry leaders, entrepreneurs, and community organizations on new products and services.
- Receiving the prestigious Synergy Award for Innovation (from the Natural Sciences and Engineering Research Council), recognizing the partnership with Manitoba Hydro on sustainable building and transportation technology.
- Recognizing the Science of Early Childhood Development program as a global leader in the training of early child educators across Canada and in over 40 nations abroad, in partnership with organizations such as World Bank and Aga Khan University.
- Welcoming more than 600 visitors to the first-ever Applied Research & Innovation Day which showcased the research capabilities of the College, its students and industry partners.
- Finalizing construction of MotiveLab™ (\$10,000,000), an extreme- temperature climatic test facility for evaluation of the performance of on- and off-highway vehicles.
- Breaking ground on the Smart Factory/ expansion of the Centre for Aerospace Technology & Training (\$10,000,000).
- Initiating construction of the Innovation Centre (\$95,000,000) to bring together students, faculty, researchers, industry, and the community; and, to support commercialization projects for start-ups and SMEs, enabling social enterprise and Indigenous entrepreneurship.
- Being ranked as a top 10 Canadian Research College, and #1 in Western Canada.

## INTERNATIONAL VALUE

The College's 1,400 international students (from 60+ countries), like their domestic counterparts, have the opportunity to take part in applied research. Domestic students also can participate in projects abroad.

Over the past five years, the College's ~550 partnerships with Canadian and/or international organizations (SMEs, large companies and community organizations), have resulted in new or improved products, processes, and/or services.

Accomplishments include:

- Development of an all-electric transit bus now being sold across North America.
- Delivery of the Science of Early Child Education (a globally recognized, successful research and resource tool) in 43 countries.
- Engagement of International Business students (from more than 30 countries) to produce Business and Market Intelligence reports for Canadian SMEs – used to develop (and make sales in) new export markets.
- International awards for partners – such as the Best Tall Building Americas Award to Manitoba Hydro.
- Developing and delivering applied research training to over 20 Indonesian polytechnic research directors.

## WORDS OF WISDOM

After nearly 15 years of experience, it is important to:

- Build from, and connect to, existing applied research expertise and facilities.
- Respond to local/regional need and relevance.
- Understand that the College can't be everything to everybody – so Focus-Focus-Focus!
- Support and enhance regional clusters to enable knowledge and technology transfer.

- Support Small- and Medium-sized Enterprises – they are vital to the local economy.
- Ensure students and faculty are engaged in a meaningful manner.
- Remember: applied research and innovation supports community economic development.

And, with respect to partnerships:

- Build on/leverage existing personal and/or institutional relationships.
- Find a common need.
- Add value – be incremental to existing activities.
- Be aware of cultural and business practises.
- Build relationships – the best partnerships are based on good personal relationships.
- Be patient.
- Be selective.
- Communicate.
- Collaborate.

In closing, while one may wish to strive for perfection, it is often more important to just get started!

## NEXT STEPS

The College- and Polytechnic-based Applied Research Ecosystem in Canada (and globally) is less than 20 years old; and many institutions are at various phases in their development.

Key considerations to ensure the sustainability of the research enterprise are to understand that:

- Executive support needs to be evident and real to achieve success.
- Anecdotes and success stories are essential to politicians, bureaucrats, partners and the institution.
- Relationships are essential to successful partnerships – and need to be maintained.

- Consultation and cooperation (both externally and internally) is the norm – there are many moving parts.
- Intellectual Property must not be an impediment!
- Funding will have peaks and valleys – need to plan for both.
- Growth will lead to rankings (this is both good and bad).
- Patience & Persistence Pays.

In closing, share your knowledge and expertise with others – there is enough work to go around, and success by other institutions will benefit the entire ecosystem.



## BRONZE: APPLIED RESEARCH

Project name:  
mHealth & eHealth Development and Innovation Centre (MEDIC)

Name of recipient/institution/association:  
Mohawk College IDEAWORKS

Email address: medic@mohawkcollege.ca

Country: Canada

### CONTACT

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### INTRODUCTION

Mohawk College has a strategic mandate to lead its community in applied research through IDEAWORKS, its centre for applied research. Mohawk's IDEAWORKS is home to the mHealth and eHealth Development and Innovation Centre (MEDIC). MEDIC is an internationally recognized leader in digital health with a reputation for expertise in interoperability, and mobile and electronic healthcare solutions. MEDIC is composed of a combination of students, faculty, and staff, who work with small- and medium-sized enterprises (SMEs), community and government partners, and large associations to develop and commercialize health IT innovations while improving existing products, processes, and services. MEDIC is also Canada's only Technology Access Centre (TAC) focusing on digital health and interoperability. In this capacity, MEDIC has provided testing, teaming, tooling, and training services to more than 150 SMEs in Canada. MEDIC is also working with international partners to improve access to health care for people in the developing world.

### AWARD WINNING PROJECT/ PROGRAM/INSTITUTION

Mohawk College is ranked second in Canada for industry research intensity, and also leads among Canadian colleges in industry partnerships. MEDIC is a significant driver of Mohawk IDEAWORKS' mandate to support its community through research partnerships and innovation as a recognized leader in digital health with an impressive portfolio of projects. MEDIC's projects span the globe and involve a diverse range of partners at the local, regional, provincial, national, and international levels.

MEDIC was founded in 2007 as the Mohawk Applied Research Centre in Health Informatics. Two years later, the centre received a \$2.3 million grant from Canada's National Science and Research Council (NSERC) to create the prototype for a nation-wide health records database. Now operating under the IDEAWORKS mission to mobilize applied research and innovation at Mohawk, MEDIC works with numerous community and industry partners to build software applications that provide healthcare practitioners access to patient data in a secure environment.

MEDIC has been recognized on many platforms for its important work in healthcare IT. In 2010, Canada Health Infoway awarded the centre a Team Peer Award for its outstanding achievements in the advancement of information standards in Canada and its work creating a prototype for a nation-wide health records database. In 2016, MEDIC was awarded a \$1.75 million grant from NSERC to establish Canada's only Technology Access Centre focused on digital health and interoperability. In 2018, MEDIC's Director, Duane Bender, was recognized with Colleges & Institutes Canada's bronze award for faculty leadership.

A recent example of MEDIC's work is a product called ICON, which the centre developed for Ontario's Ministry of Health and Long-Term Care in partnership with Canada Health Infoway. ICON is a cloud based immunization management system that will replace the province's current yellow-printed card system for Ontario's nearly 14 million residents. ICON will be rolled out to all 36 public health units in Ontario and will be the first and largest consumer-facing, cloud oriented project to be deployed by the Ontario public sector.

More than a dozen college students have been involved in the ICON project, leading it to solve an important real-world problem in Ontario. The ICON project is a strong example of IDEAWORKS' vision of providing "research, solutions, and everything in between" to its partners, and MEDIC's lasting impact on the healthcare IT ecosystem.

Another notable example of MEDIC's wide reach is the national immunization database created for Tanzania. The MEDIC team has developed a digital immunization system that will help clinicians better keep track of vaccinations and manage medical inventory within clinics in the developing world. The system, which was built from scratch by MEDIC team of developers, programmers, and students, works in the most rural corners of the African country where online connectivity is sporadic and unreliable. To date, the system has support nearly half a million patients in 1,158 clinics.

Other notable successes include SMARt VIEW CoVeRed, a remote monitoring and self-management tool for patients recovering from Cardiac and Vascular surgery.

### RESULTS AND ACCOMPLISHMENTS

Since its inception in 2007, MEDIC was worked with over 600 students, fulfilling IDEAWORKS mission to provide real-life research and development opportunities to Mohawk College students. Each MEDIC projects aims to provide skill-building opportunities for Mohawk students, while also impacting the lives of end-users. The immunization project in Tanzania mentioned above is a great example of project results impacting real lives. The project has supported vaccination records for hundreds of thousands of patients in the African

country, doing away with a cumbersome system of clinicians spending hours at a time sifting through complex records to determine who is due for vaccinations.

Closer to home, the ICON project led by MEDIC has been implemented in numerous public health units in Ontario, making immunization tracking more user-friendly and accurate in our own backyard.

MEDIC has partnered with Save the Children, an international charity network, and Myanmar's Ministry of Health and Sports to create a unified patient record system that will enable the country's most vulnerable patients to access health care.

Each year, MEDIC hosts an information-sharing conference called Apps for Health. This annual event has become a cornerstone in the local healthcare innovation ecosystem and galvanizes healthcare innovators, bringing together researchers, start-ups, large organizations, and government officials to discuss the latest innovations in the field, share best practices, and engage with new solutions to emerging problems. The event attracts hundreds of local, national and international colleagues and exemplifies IDEAWORKS' collaborative spirit and its mission to have a lasting impact on the community.

## INTERNATIONAL VALUE

MEDIC is very active on the international stage. In Tanzania, MEDIC is working in partnership with PATH.org and the Tanzanian Ministry of Health on the Better

Immunization Data (BID) initiative, funded by the Bill and Melinda Gates Foundation. MEDIC led the design and development of the cloud and mobile based immunization solution, which works both with and without internet access.

MEDIC's leadership also included creating in-country partnerships and leading engagement efforts at the national level. The work on the BID initiative has also aided MEDIC's involvement in supporting and developing several universal standards that protect consumer safety and public health. In 2011, Kwazulu-natal University in South Africa adopted Mohawk College's informatics model.

## WORDS OF WISDOM

The success of IDEAWORKS at Mohawk College is due in large part to an inspired and engaged student workforce. IDEAWORKS centres, MEDIC included, operate within Mohawk's normal academic schedule to support students involved in the centres' work. More than 600 students have worked with MEDIC since it was founded in 2007. The students' educational background and experience varies. MEDIC strives to keep the students for multiple terms to train and expose them to real-world projects. Students do not necessarily have to have a lot of experience but must be passionate and willing to learn. Students work directly with industry-leading vendors, small- to medium-enterprises in digital health and start-ups, international aid organizations,

and governments and government agencies at all levels. Once assigned to a project, students are involved in all aspects of the project life cycle and are treated as employees. Students may also work as entrepreneurs and pitch ideas that, if approved, can be used to obtain credits in their program of study. Student projects are often featured at conferences and events and pitched to MEDIC's existing partners. This approach allows all IDEAWORKS students to transition to the workforce as experienced professionals, giving them an edge on the competition and preparing them for success in their careers.

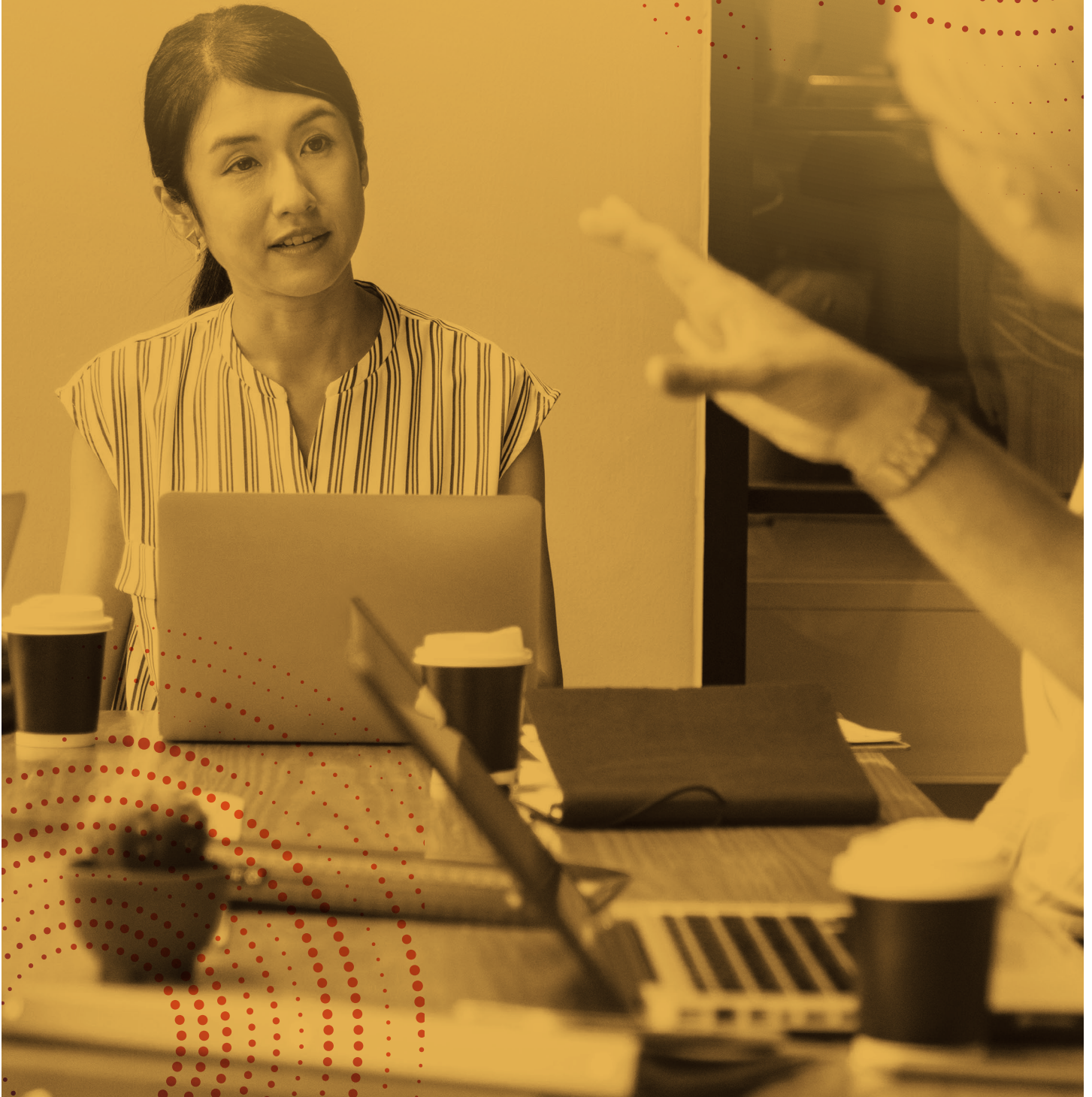
## NEXT STEPS

As IDEAWORKS grows its reach, and as applied research becomes increasingly recognized at the College level, MEDIC will be accelerating in response. The centre plans to build upon its current strengths and expand the reach of its services and innovations. MEDIC's goals for the foreseeable future include:

1. Enable better healthcare decision making through digital solutions.
2. Train digital health professionals.
3. Engage regionally, nationally and globally in key health initiatives, institutions & communities.
4. Extend our support of partners to improve health of individuals & populations by expanding coverage and improving equity (4Ts - Testing, Tooling, Training, Teaming)



# ENTREPRENEURSHIP





## GOLD: ENTREPRENEURSHIP

Project name: Community Based Entrepreneurship

Name of recipient/institution/association: Craig Elias, Bow Valley College, Calgary, Alberta, Canada

Email address: CElias@BowValleyCollege.ca

Country: Canada

## CONTACT

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Entrepreneur-in-Residence  
&

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## INTRODUCTION

Chosen as Canada's #1 B2B Sales Expert by LinkedIn, Craig Elias is an award-winning entrepreneur, author, and a sought-after business advisor. Craig's first business went from an idea to being funded by a Tier 1 US-based Venture Capitalist in less than 12 months and went on to be twice named by Dow Jones as one of the 50 most promising companies in North America.

Craig has been a National Growth Advisor for the Goldman Sachs 10,000 Small Business Program created by Babson College in Boston, is on the advisory board for Nudge.ai (a software company started by a founder of Eloqua, which was sold to Oracle for \$957 Million US), and is a mentor for the GrowthX Academy in San Francisco.

He is currently the Entrepreneur-in-Residence at Bow Valley College (BVC) in downtown Calgary and runs three different student pitch competitions - VentureQuest, INVENTURE\$, and 150 Startups.



## AWARD WINNING PROJECT/ PROGRAM/INSTITUTION

Since February 2014, Craig Elias has spearheaded BVC's sustained efforts to provide experiential learning opportunities and activities for aspiring Entrepreneurs for College learners. In 2016, Craig began sharing his resources and opportunities across the province by creating a five-day Innovation Rodeo. In 2017, he created a province-wide initiative called 150 Startups that works with 25 of the provinces 26 colleges and universities to help additional post-secondary school students become first-time entrepreneurs.

Craig's engagement with BVC began with a conversation with the Dean of BVC's Chiu Business School about how he could help students not to just 'think like' entrepreneurs, but to 'act like' entrepreneurs. This conversation resulted in a short-term contract that led to Craig joining BVC in early 2014. Once on campus, Craig began not with the question, "can Entrepreneurship be taught?", but "can Entrepreneurship be learnt?" Craig's first initiative was a Business Idea Competition called 'VentureQuest' - a social

entrepreneurship learning opportunity that provides learners the chance to innovate, collaborate, network, develop their business ideas, and receive the support they need to launch their business plans successfully. In 2015, BVC created the position of Entrepreneur-In-Residence with a mandate to work with learners, instructors, and industry to develop and implement the social entrepreneurship initiatives that assist BVC students and alumni who want to launch or grow a social entrepreneurship venture. Craig accepted that position and that year helped launch an Entrepreneurship Club on campus and began a regular bi-weekly series of lunch-and-learn sessions called 'WannaB Wednesdays'. This activity enabled students to learn from successful entrepreneurs and then apply what they learned to an early stage or struggling social entrepreneur using an Innovation Challenge model that was created to combine design thinking with the business case model.

This year, Craig is running the college and university track of a large provincially funded Innovation event called 'Inventure\$', being held in Calgary between June 6-8. Not satisfied to just help college and

university-aged students and recent graduates, Craig developed a student startup symposium for high school and junior high students, teachers, and parents. The event leverages the out-of-town speakers that Craig secured to present at the 'Inventure\$' Student Track. The intent of this Student Startup Symposium is to educate and inspire students, while at the same time help teachers and parents prepare students for non-traditional careers, with entrepreneurship being a primary example of a non-traditional career.

The central objective Craig addresses is how to help college students get on the path of entrepreneurship at an earlier age by giving them the confidence and competence to pursue Entrepreneurship as a potential career.

The activities arranged have been supported by and developed in partnership with funders such as banks and family foundations, government agencies, public school boards, almost all of the post-secondary institutions in the province, local entrepreneurs, early stage investors and many of the incubators and accelerators in both urban and rural Alberta.

## RESULTS AND ACCOMPLISHMENTS

The objective of encouraging students and new graduates to become entrepreneurs are evident within BVC. Benefits to international students are seen throughout the entrepreneurial activities Craig has created. These activities are open to all learners and BVC has seen a disproportionately high number of international learners participate, 65% overall. This has translated into significant success for international learners. For example, of the last forty finalists for VentureQuest, thirteen were international learners, thirteen were permanent residents educated outside of Canada. The three winners for 2017 were international learners from Romania, Venezuela, and Mexico. These initiatives involve and promote cross-cultural and community collaboration, enabling learners to create their own linkages and networks among participants and importantly with the private sector and industry. This allows learners to integrate into Canadian society and create their own connections that can assist them in their careers.

All of the activities created at BVC to enable entrepreneurship as a career choice were designed for students to develop their skills in a range of areas such as curiosity; initiative; creativity; leadership; adaptability; collaboration; critical thinking; risk assessment; problem solving; persistence/grit; communication; ethics and integrity. Typically, these are developed through the development of tool sets (money, templates/frameworks, and relationships), skill sets (networking, opportunity analysis, and problem solving), and mindsets (confidence, role models, and risk aversion).

## INTERNATIONAL VALUE

The domestic achievements of BVC's entrepreneurship activities are already having an impact at the international level. For example, BVC and Craig have engaged on two projects with international partners. One was a 6-partner Collaborative Capacity Building initiative led by BVC, featuring multi-day workshops on issues in education with each partner having a half day to present on their specific example. Here, Craig's component was Entrepreneurship in TVET. This featured partners from Canada, Jamaica, Barbados, and Grenada, and was enabled through BVC's membership of UENSCO-UNEVOC. The second, ongoing project, is a 7-partner initiative where BVC's contribution (via Craig) is Community Development through an Entrepreneurship lens. This involves partners from Canada, Brazil, Senegal, the Philippines, Tunisia, and Grenada, and is also a UNESCO-UNEVOC centre collaboration. In both projects, BVC is sharing knowledge and best practises in the area of entrepreneurship, with capacity building exercises and network building key components to promote sustainability. Additionally, Craig has created an online database of entrepreneurship materials and resources which can be accessed by both students and teachers wherever they are. This is at [150startups.com](http://150startups.com).

## WORDS OF WISDOM

The most important words of wisdom I would like to share are around three things:

- a) There are three stages to developing programs:
  - 1) Prove people want it,
  - 2) Demonstrate you can deliver it
  - 3) Finding funders who support it
 AND they have to be done in that order.

Leverage an Act-Learn-Act model similar to the Lean Startup Methodology and run experiments so you move from saying "I think" or "I believe" to "I know". This also requires a willingness to view mistakes as a learning opportunity and to make mistakes early in the process, so you get on the right path.

- b) The other important aspect to think about is what currently prevents aspiring entrepreneurs from becoming first-time entrepreneurs and first remove the barriers that prevent those interested in becoming entrepreneurs from taking actions that make that a reality.
- c) There is a significant difference between competence and confidence so find a way to help people act like entrepreneurs not just think like entrepreneurs.

## NEXT STEPS

Future goals include working with local and provincial governments to recognize the economic impact of students becoming entrepreneurs at 23 instead of 43 – the average age of a first-time entrepreneur in North America. This effort will include securing multi-year funding from supporters and additional sponsors and donors which will enable a sustainable approach to the activities.

Additionally, my focus will be on removing additional barriers to students become entrepreneurs. These include: minimizing the impact student debt has on aspiring first-time entrepreneur by potentially allowing students to maintain their interest free status on student loans for an additional three years after graduating by creating and running an incorporated company – with the potential for some of their student debt to be forgiven for each full-time employee they hire within three years of incorporating.





## SILVER: ENTREPRENEURSHIP

Project name:  
Setting up an Entrepreneurship Platform Oriented to Industry  
and Educating Innovative Talents by Relying on Specialty

Name of recipient/institution/association: Rizhao Polytechnic

Email address: hezuoban@126.com

Country: China

### CONTACT

Ms.Lili Yu

Email: hezuoban@126.com

Phone: 0086-633-7987235

### INTRODUCTION

Rizhao Polytechnic(RZPT) is the first higher vocational school in Shandong Province. It covers an area of around 830,000 square meters, with a 168 million-yuan facilities and instruments. It has an enrollment of over 15,000 students and over 900 faculty and staff. It has ten subordinate schools with 42 specialties, including aquaculture, food processing, architectural engineering, mechanical and electrical engineering, automobile, general aviation, information engineering, accounting, business, tourism and design. In 2008, it was identified by the Ministry of Education as a national model higher vocational college. In 2012, recognized as a national model college in graduate employment by the Ministry of Education. In 2014, it was awarded a bronze Award of Excellence in College-Industry Partnerships by the WFCP. In 2015, it was named one of the first national pilots for modern apprenticeship by the Ministry of Education. In 2017, it was awarded a national education reform model college in innovation and entrepreneurship.

### AWARD WINNING PROJECT/ PROGRAM/INSTITUTION

RZPT has established partnership with 73 institutions from 17 countries or regions. More than 150 teachers have been sent to the United States, Australia, Denmark, Germany, Austria, South Korea, Japan and other countries for study and training. RZPT has established a vehicle inspection and maintenance joint program with Shinsung University of South Korea and an architectural engineering joint program with Infrastructure University Kuala Lumpur of Malaysia. It also jointly trains highly skilled Automobile Mechanical and Electrical Professionals qualified international standards with GIZ, and the five German car manufacturers: Audi, Volkswagen, Mercedes-Benz, BMW, and Porsche. With South Korea Hyundai Motor Group, Rizhao established the School of Hyundai Auto, which became the largest talent-training base of Hyundai Group in China. Asia Symbol (Shandong) Pulp & Paper Co. Ltd. participates in RZPT's whole process of integrated education and has cumulatively invested RMB 15-million Yuan. With HP Group, it jointly set up HP (Jining) International Software Talent and Industrial Base to develop the major of HP

Software Testing with the enrollment of 200 students each year.

RZPT has carried out a pilot project of modern apprenticeship, taking the lead nationwide in exploring the innovative mechanism of school-industry integration. Rizhao also taken the lead in implementing innovation and entrepreneurship credit system reform. In 2017, the Shandong cultural industry "golden seed" program incubators and National Entrepreneur, Innovation and Mass Entrepreneurship Space, supported by Torch Program Center of Ministry of Science and Technology were built. The two engineering technology research and development centers of Intelligent Manufacturing and Innovation and Smart City are regarded as provincial centers of Shandong institutions of higher education, due to their cultivation of innovative talents. Rizhao will host the Modern Electrical Control System Installation and Debugging Competition which is the branch of 2018 the Belt and Road and BRICS Countries Competition of Skill Development and Technological Innovation. RZPT has won the honors of the national model college in graduate employment among institutions of higher education and the Shandong

Excellent Organization in graduate employment; the Excellent Organization of Innovation and Entrepreneurship in national higher vocational colleges; and the excellent Organization Award of Shandong students' Innovation and Entrepreneurship Competition.

### RESULTS AND ACCOMPLISHMENTS

In the past five years, the employment rate of graduates remained above 98%, and the entrepreneurship rate reached 7.6%. Graduates of RZPT have established more than 300 enterprises and driven a large number of undergraduates into employment and entrepreneurship. More than 1,000 students have won over 600 prizes in the National Mathematical Contest in Modeling, English Writing Competition, "Challenge Cup" and various competitions at all levels. Among them, 28 national awards and 72 provincial awards were won in the national and provincial vocational college skills competition. 41 students have won seven awards in the national and Shandong provincial "Challenge Cup" innovation and entrepreneurship competition. RZPT leads China's higher vocational colleges in total number of awards, in a variety of competitions. More than 4,000 high-quality technical skills talents, who are well received by the employers, have been provided to regional economy and social development. From 2011-2017, 52 patents were applied by RZPT's students; 11 enterprises set up by graduates have annual output value of more than RMB 5-million Yuan. 729 graduates work as senior executives, and 3,622 middle-level managers accounting, for 2.43% and 12.07% of the number of graduates respectively.

## INTERNATIONAL VALUE

1. Top-level design: Constructing an institutional mechanism for international innovation and entrepreneurship education, and building a new curriculum model, which combines the theoretical and practice teaching of the work field, work situations, and customer work order.
2. Deepen reform: Establish a Ladder Courses system of innovation and entrepreneurship which combines professional knowledge and entrepreneurship. Carry out the teaching mode of virtual simulation teaching, alternation of work and study, integration of practice and learning, task driven, and combination of teaching and competition.
3. Participate in the construction of the “Belt and Road” and practice the concept of “education first” in innovation and entrepreneurship: Through hosting the Modern Electrical Control System Installation and Debugging Competition ---- the branch of 2018 the Belt and Road and BRICS Countries Competition of Skill Development and technological Innovation ---- to help the school's “mass entrepreneurship and innovation” international project landing.

Under the impetus of globalization of the world economy and trade liberalization, education from all countries exchanges and competes with each other. The mechanism of education internationalization has strong reference and demonstration.



## WORDS OF WISDOM

1. Setting up the innovation and entrepreneurship training platform through professional training. RZPT has built a four-step practice system of “simulation-training-incubation-transformation”. The VBSE- innovation and entrepreneurship training platform is built to provide students with a comprehensive simulation of a real modern business environment.
2. Building an innovation and entrepreneurship practice platform by the college—enterprise collaboration. RZPT has 497 collaborative enterprises; six joint subordinate schools with enterprises, like School of Hyundai Auto; 13 joint majors with enterprises, like Mobile Communication Technology; 37 made-to-order classes with enterprises, such as FAW-Volkswagen; 15 off-campus incubators; six on-campus industrial parks; and, seven alumni business incubators with GE, HP and more. With the enterprises, 64 talents cultivation plan were jointly made, 191 courses were developed, 144 curriculum standards made, 246 text books edited, and 270 R&D programs carried out. The fund and equipment invested by the collaborative enterprise has reached RMB 85.96-million Yuan.

## NEXT STEPS

To comply with the “going out” development strategy of the country and improve the international competitiveness of talent training in vocational education, RZPT has chosen the path of “internationalization” and determined the development goal of “building a first-class vocational college”. We will accelerate the pace of reform of innovation and entrepreneurship education and attach importance to the construction of on- and off-campus innovative and entrepreneurial education platforms. We will focus on cultivating students' entrepreneurial spirit and improving teachers' teaching ability in innovation and entrepreneurship education. It is also our goal to take advantage of domestic and foreign resources to enrich the form and connotation of teaching reform in higher vocational education to achieve continuous development.



## BRONZE: ENTREPRENEURSHIP

Project name:  
Award of Excellence for Innovation and Entrepreneurship  
Name of recipient/institution/association: Taishan Polytechnic  
Email address: yinlingyan2004@163.com  
Country: China

### CONTACT

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Phone: (+86)15166480749

## INTRODUCTION

Established in 1955, Taishan Polytechnic (TP, Chinese: 泰山科技职业学院), is the unique comprehensive public vocational college of Tai'an City, Shandong Province of China. Named after Mount Tai, the most famous of China's five great mountains, the world Natural and Cultural Heritage Site placed by UNESCO, TP is situated at the foot of the mountain and was appraised as the National Charming College. TP successively obtained the "National Employment Competitiveness Demonstration School," "National Innovation and Entrepreneurship Demonstration School of Higher Vocational Colleges," "Champion of the first National Maker Challenge Competition," "Shandong Celebrated School with Skilled Characteristics," and other honorary titles. Adhering to the spirit of Mount Tai and emphasizing the value orientation of "service," TP has constructed the "4332" education project of innovation and entrepreneurship and the distinctive Mount Tai entrepreneurial culture of "innovation, dedication, inclusiveness and responsibility."

## AWARD WINNING PROJECT/ PROGRAM/INSTITUTION

In recent years, the college has actively promoted innovation and entrepreneurship education reform in response to problems, such as lagging innovation and entrepreneurship education concepts, insufficient faculty capacity, and shortage of practical platforms.

TP insists on integrating innovation and entrepreneurship education into the whole process of education. Training objectives, curriculum standards, education teaching process, experiment training, student activities, campus culture, and appraisal and assessment are integrated into innovation and entrepreneurship education.

TP actively organizes and participates in innovation and entrepreneurship competitions. We promote innovation through competition and actively guide the college's students to develop their talents at innovation and entrepreneurship competitions.

TP strengthens scientific and technological research and development to enhance the scientific and technological innovation ability of college students and encourages

college students to participate in science and technology innovation programs.

TP integrates social resources to build an incubation platform for college students' innovation and entrepreneurship training. We have built innovation and entrepreneurship parks through school-enterprise cooperation to help college students create new businesses. The new park innovation and entrepreneurship, and famous enterprises such as xinhuanet.com, Blantyre era, Huazhong CNC (Computerized Numerical Control), and Oracle provide a real-world environment for students' experience of innovation and entrepreneurship to build a business, 3D printing, and industrial robot innovation lab. The college integrates professional training teachers in the fields of mechanical and electrical engineering, finance, architecture, automobile electronics, arts and crafts, biology, tourism, information technology and more, and arranges internships, practical training, and practical resources for college students' education, training and incubation service of entrepreneurship.

TP Creates a cultural atmosphere of innovative entrepreneurship:

- to encourage college students to start their own business, TP has taken out funds and venues and made policies to support students at school.
- to support student participation in the innovative entrepreneurship competitions enthusiastically. TP adheres to pioneering by competition, supporting students to participate in innovative entrepreneurship competitions at all levels, such as the "Challenge Cup," "Youth," "Internet plus," "Huang Yanpei Occupational Education Award," and "Maker challenge of xinhuanet..
- to support a number of college students' innovative associations
- to support scientific and technological innovation of college students, TP has taken out funds for the specific subjects, and encouraged students to do researches in scientific and technological innovation.
- to build a business incubator- Maojiu (A cat with nine lives) cafe' which is full of the entrepreneurial culture with TP characteristics.

The implementation of these measures has benefited 13,000 college students at TP. The quality of college students' innovation and entrepreneurship has been greatly improved, as has their employability.

## RESULTS AND ACCOMPLISHMENTS

It is the goal of education to improve the quality of innovation and entrepreneurship of college students, create employment upgrading opportunities, and serve local economic development. In the past three years, there have been 102 scientific and technological innovation projects and 15 invention patents for college students, 379 awards in innovation and entrepreneurship skills contest, including 12 national first prizes. The college student maker training camp was held 12 times. There are 260 innovation and entrepreneurship projects for college students which have obtained 20-million yuan of Angel Investment from eight financing institutions. A number of entrepreneurial models have emerged, including Maojiu Campus, Mengyou Campus and Ji Le Xian Sheng workplace. The rate of students' independent entrepreneurship has reached 10%, and the high-quality employment rate of graduates has been stable at 80%.

TP held community entrepreneurship training for 52,000 people, sunshine professional farmers training for 13,000 people, micro-, small- and medium-enterprises business elite class six times, career manager senior seminar three times, and hotel tourism management training 18 times. All of TP's community entrepreneurship training programs have made positive contributions to regional economy in Tai'an.

Innovation and entrepreneurship education has injected vitality into 38 majors and enhanced their core competitiveness. Entrepreneurship training has been expanded year by year. Entrepreneurship activities have been rising every year.



## INTERNATIONAL VALUE

The college is a member of One Belt and One Road, and the international alliance for skill development of BRIC countries, opening up space for transnational innovation and entrepreneurship education, school-enterprise cooperation, and social services. TP establishes close friendly cooperation and exchanges with 30 institutions from ten countries (regions) including Australia, Canada, Taiwan, Thailand and the BRIC countries. Innovation and entrepreneurship education is included in the whole process of international exchange professionals training, which improves the competitiveness of international education. International exchange students actively participate in the entrepreneurship competition, which reflects the positive significance of innovation and entrepreneurship education's integration into international education. Innovation and entrepreneurship education has universal reference value and can be transferred and applied.

## WORDS OF WISDOM

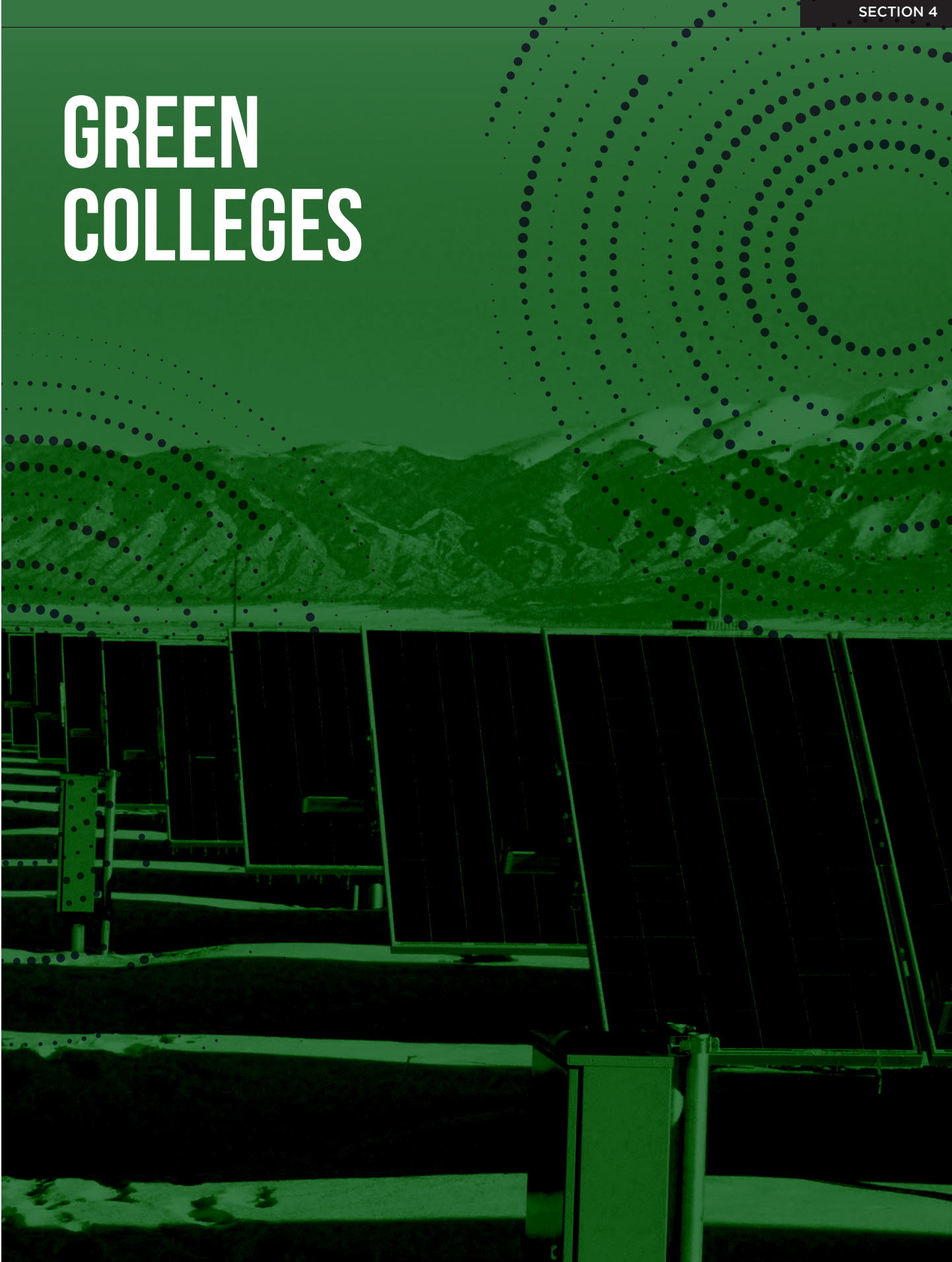
We will implement four projects to achieve continuous development, namely, "high-tech professional cultivating," "employment and entrepreneurship guidance courses optimizing," "innovation and entrepreneurship mentors progressive cultivating," and "innovation laboratory continuous improving." We will carry out three projects, namely, the construction of entrepreneurship culture, the construction

of education quality control and guarantee system, and the construction of an innovation and entrepreneurship project base to achieve distinctive development. Setting up three platforms including professional quality education, innovation and entrepreneurship mentor training, and employment and entrepreneurship service to achieve coordinated development. We established school-enterprise cooperation innovation and entrepreneurship system and mechanism and built the incubation base for innovation and entrepreneurship to achieve platform innovation and entrepreneurship development.

## NEXT STEPS

We will continue to take innovation and entrepreneurship education as the breakthrough for comprehensive education reform, focusing on the two major projects of talent training mode reform and infrastructure capacity building for innovation and entrepreneurship education. In the next five years, talent training quality will be significantly increased, students' innovative entrepreneurial ability will be significantly enhanced, and the number of students in entrepreneurial practice will be significantly grown. The college is striving for a national innovation and entrepreneurship education demonstration base and actively participating in international innovation and entrepreneurship education, to make a positive contribution to the world of vocational education.

# GREEN COLLEGES





## GOLD: GREEN COLLEGES

Project name:  
BIOCLIMATIC AUTONOMOUS BUILDING

Name of recipient/institution/association:  
USURBILGO LANBIDE ESKOLA

Email address: eskola@lhusurbil.eus

Country: Basque Country

### CONTACT

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## INTRODUCTION

In Usurbilgo Lanbide Eskola, we have developed a green building project called ENEGUR (from Basque, where ENERGIJA means energy and EGURRA means wood).

ENEGUR is a PASSIVHAUS (passive house) style building. It was designed in collaboration with the Basque Wood Cluster ([www.clusterhabic.com](http://www.clusterhabic.com)) and was mounted, based on pre-built module philosophy, by the brand EGOIN ([www.ego.in.com](http://www.ego.in.com)), in December of 2016.

ENEGUR is a building made with Basque pinewood frames, and it has thick continuous insulated walls, therefore it obtains a heat transmission value of 0.23 W/m<sup>2</sup>.°C. Windows are double-glass, wooden made, with argon gas in the inside layer in order to improve insulation.

A time-lapse video of the mounting process is available: <https://youtu.be/U8Q0w88gb8Q>

Usurbilgo Lanbide Eskola has mounted renewable installations over it, developed by projects between teachers and students, for renewable electricity supply, heating, cooling, ventilation and lighting.

## AWARD WINNING PROJECT/ PROGRAM/INSTITUTION

Usurbilgo Lanbide Eskola is a public Vocational Training school operated by the Basque Country government. It is the reference Vocational Education Training Centre of Basque Country in Energy subjects, specifically installation design and maintenance, electricity, energy efficiency and renewable energies. Manufacturing and business and administration are also taught. The school has many work agreements with companies, organisations and schools.

Usurbilgo Lanbide Eskola is related to TKNIKA ([www.tknika.eus](http://www.tknika.eus)) in aspects such as technology, methodology, and internationalisation.

For more info about the school see:  
[www.lhusurbil.eus](http://www.lhusurbil.eus) and:  
[https://www.youtube.com/watch?v=5gyxt\\_J9sOY](https://www.youtube.com/watch?v=5gyxt_J9sOY)

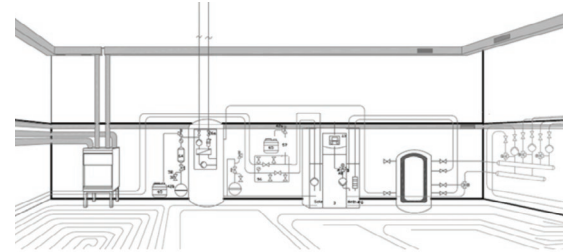
## RESULTS AND ACCOMPLISHMENTS

The Basque Country Vocational Education System is mainly practical, necessitating tools for installing and testing what we teach. In relation to renewable energy supply and balance, energy efficiency and thermal installations, we needed to combine them in a referential building. Therefore, after the mounting process had been finished, and in order to develop different skills of the school's specialties, we proceeded to mount four different installations, coordinating student work-teams:

### 1. THERMAL INSTALLATION:

The heating and cooling system of ENEGUR is based on solar thermal energy, so it has two vacuum-based solar panels on the roof that heat a 300-litre water deposit. This heat is moved, depending on the need, into the building at three different temperature levels, in order to feed a radiating floor, two fan-coils and five radiators. The needed temperature of each circuit is obtained by mixing the return water from each circuit with hot water. Each circuit has a high efficiency GRUNDFOS pump that consumes as low

as three Watts, and the water temperature of each circuit is calculated by a controller, depending on the temperature request and the external temperature at any time.



*Thermal and vent installation schema*

### 2. LED ILLUMINATION

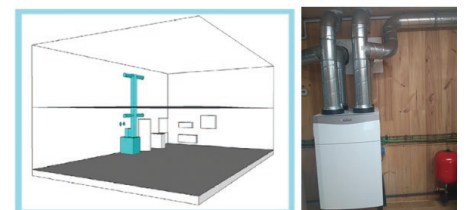
Inside illumination of the building has been calculated and mounted by Electricity Medium Level students and is based on high efficiency LED lights of different brands, combined with DALI technology and remote controlled.



*A photo that shows a student mounting DALI based LED illumination.*

### 3. VENTILATION

We also mounted a Vaillant continuous mechanical ventilation system. This high efficiency installation has a cross flow exchanger, so it crosses the inlet air with the air that goes out, transferring the heat from one another.





Also, the air inlet has been connected to a REHAU Canadian well; basically, the air that comes inside the building passes through a 200-millimetre diameter specific pipe that has been buried 2 metres under the soil. Therefore, the inlet air is pre-heated in winter, and pre-cooled and de-humidified in summer, at no cost. We are now mounting a monitoring system based on a Raspberry pi and Openhab technology. By measuring external air temperature and inlet air temperature and air-flow, we will be able to calculate the amount of energy that we take from or leave in the ground (in winter or summer, respectively), the energy we save, and the Return of Investment of the Canadian well.



Canadian well installation

#### 4. RENEWABLE-BASED ELECTRIC MICRO-GRID

We also mounted an electrical micro-grid that supplies electricity to ENEGUR using three renewable generators:

- a 3-kW peak photovoltaic installation located on ENEGUR roof.
- a 6.5-kW peak photovoltaic installation located on a neighbouring building.
- a 3-kW peak WINDERA S wind turbine, from the brand ENNERA (<http://www.ennera.com/en/windera-s>).

This autonomous three-phase AC micro-grid is based on SMA technology and has a 120 kWh PB-Zn battery storage. It feeds the ENEGUR building and the bioclimatic building of Usurbilgo Lanbide Eskola with electricity, and also charges our Nissan Leaf electric car.

This micro-grid is also connected to the grid, so in the case that we have consumption and no wind or sun, and the batteries reach 30% storage, we automatically get electricity from the net. Also, whenever we have a lot of sun or/and wind, low consumption and full batteries, the controllers stop energy generators by raising the internal frequency of the micro-

grid from 50 to 52 Hz. In cases where extra energy is generated, we are not yet able to sell the extra energy, due to domestic law. But, we expect that it will soon change, thanks to the new European Winter Package Law; hopefully, we will be able to sell our renewable energy excess.

We mounted a monitoring SCADA based on CIRCUTOR technology which will be described below.

Students will benefit having a building itself developed efficiently, using local wood so we impart a circular economy, based on a high insulation standard, and provided with real efficient installations and a renewable micro-grid. Also, the whole project has been developed by our teachers in collaboration with students and brands, so the know-how remains with the school and can be spread to near-by SME-s, thanks to the TKGUNE program.

Also, students from our school, as well as those on national or international placements, can benefit from the opportunity of checking in real time the energy generation and consumption values of the building and the attached one, thanks to the previously mentioned SCADA:



The main view of the monitoring SCADA

Thanks to this monitoring tool, which anyone can access thanks to the link <http://scada.lhusurbil.eus:1025/html5/> real-time solar photovoltaic and eolic generation data to the micro-grid can be observed. Also, battery level and electrical consumption of the lighting, vent system and thermal installation can be observed, and so the electricity that any time the grid buys from the main grid.

The SCADA has many different screens where the user can observe real data, the stored info, and easily observed using graphics of the history of generation or consumption used in previous months.

## INTERNATIONAL VALUE

ENEGUR building will be used in POCTEFA-INTERREG projects together with French colleges, in order to recognise best practices (POCTEFA-INTERREG is the EU's cooperation programme between Spain - France-Andorra.) We also have international training programs in renewables, i.e. for Chile and EEUU, and have applied for related European KA1 and KA2 (European Commission's Key Activities funding).

For this, the mentioned micro-grid has been monitored using CIRCUTOR technology by school teachers, aiming to convert it to an international micro-grid reference, so it can be consulted in real time from anywhere in the world:

<http://scada.lhusurbil.eus:1025/html5/>.

The link to this scada is available at

our web page ([www.lhusurbil.eus](http://www.lhusurbil.eus)), allowing anyone anywhere in the world access to the monitoring scada and the instantaneous values of generation and consumption of the micro-grid and the thermal and vent installation. This is interesting not only for our local and international (i.e. Chile, EEUU) students, but also anyone who wants to get this information from anywhere in the world.

A KA2 Erasmus+ is also being applied to develop teaching material related to distributed electrical generation micro-grids. We strongly believe that this generation model, mainly based on photovoltaic, will be widely used soon all over the world.

We strongly believe in a micro-grid based distributed generation electrical grid model for the future, based mainly on photovoltaic renewable generation, so we will continuously improve our micro-grid.

Usurbilgo Lanbide Eskola trains in energy efficiency and renewables to students of the Basque Country and other countries from all over the world, i.e. Chile and EEUU.

See more: [http://www.lhusurbil.eus/web/es\\_eficiencia\\_energetica\\_y\\_energia\\_solar\\_termica.aspx](http://www.lhusurbil.eus/web/es_eficiencia_energetica_y_energia_solar_termica.aspx) and [http://www.lhusurbil.com/web/es\\_alumnos\\_de\\_eeuu\\_en\\_usurbilgo\\_lanbide\\_eskola.aspx](http://www.lhusurbil.com/web/es_alumnos_de_eeuu_en_usurbilgo_lanbide_eskola.aspx)

At the regional level, we train technicians that in the future will manage micro-grids: electricians, installation designers, installers and maintainers, building efficiency technicians, automation and robotics specialists.

We also train students from Basque second grade schools in energy efficiency and renewables; internationally we train students through Erasmus+ projects, and the local community through training agreements with local and regional council in the same.

This is the ENEGUR Project presentation to society in a public event promoted by Gipuzkoa Regional Council:

<https://www.youtube.com/watch?v=pTQ6Tfp1iIQ>

Usurbilgo Lanbide Eskola also gives technological services named TKGUNE, see these references:

[www.tkgune.eus](http://www.tkgune.eus)

This is a sample of a developed urban photovoltaic tree developed by the school in Tkgune:

<https://www.youtube.com/watch?v=gF8AQjWummY>

A previous project on efficiency using a multi-energy heating chamber, developed with different brands and the council in 2015, received a prize from the Spanish Education Board:

<https://www.youtube.com/watch?v=DT479OMoejM>

These new installations are totally necessary for the positive development of this huge training effort.

The building project has created new bridges between educational institutions, students and brands, and has promoted collaboration with companies; see the video of the inauguration day promoted by KURSAAL GREEN company: <https://www.youtube.com/watch?v=BDWXUXLA67A>

## WORDS OF WISDOM

The main obstacle has been finding funding (we founded it thanks mainly to Chilean student training courses and given TKGUNE services), and coordinating different teams of teachers, students and collaborators on the same time. Technical problems had been solved thanks to teachers' involvement and suppliers technological help.

Main advice would be to define well the purpose of the project, do detailed planning, and evaluate obtainable resources. Also find collaborations with brands and companies to have technical support

## NEXT STEPS

ENEGUR is a project that aims to develop collaboration with international schools, companies and institutions, in order to test the latest technologies and combinations in the future. ENEGUR is a laboratory open to new ideas, where technologies to be used in future buildings will be tested.





## SILVER: GREEN COLLEGES

Project name: TAFE NSW National Environmental Centre  
 Name of recipient/institution/association: TAFE NSW  
 Email address: rob.fenton@tafensw.edu.au  
 Country: Australia

### CONTACT

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## INTRODUCTION

TAFE NSW is Australia's leading provider of Vocational Education and Training (VET) and delivers in metropolitan, regional and remote areas of New South Wales (NSW), interstate and overseas, including online by distance education and in the workplace.

The one-of-a-kind National Environment Centre (NEC) is one of TAFE NSW's specialist campuses. Located in Albury, NSW, the NEC was founded in 1996 to deliver environmental courses across Australia and internationally. The operation of the campus reflects the key environmental ideals in its day-to-day processes through the values demonstrated by its dedicated staff. The courses delivered include diploma and certificates in permaculture, diploma in organic farming, diploma in sustainable practice, diploma and certificates in conservation and land management.

## AWARD WINNING PROJECT/ PROGRAM/INSTITUTION

In the late 1980s, it was apparent there would be a growing need for vocational level training in environmentally sensitive food production systems as well as in conservation, sustainability and environmental land management. The industry and the environmental community saw this lack of training as a blocker to development, and that training was central to developing industry and community capability.

At this time, there was no accredited training for organic farming at all. Permaculture was a relatively new approach and there was very little VET training in conservation and land management and none in NSW. From here, a series of community and industry consultations confirmed there was a growing future need for this training. This confirmed it was important the training was not only available, but the campus was a leader in these fields and demonstrated this in its day-to-day operation. This would provide a context for training, opportunity to explore new approaches but also 'street cred' in the industry/community with a different worldview to mainstream at the time.

With this in mind, the aim was set to develop a campus that took a national and international approach to its programs and provide training to whoever needed it. In addition, the NEC would clearly demonstrate by its words, actions and structures the same environmental/ sustainability concepts and ideals that were central in its teaching.

The NEC main campus buildings are solar-passive designed rammed-earth buildings, with earth source cooling and effluent system to close the nutrient cycle. The buildings are set on a 200-hectare certified organic farm that sells its produce to the local community from an on-farm shop. The farm is managed to support local endangered species and is connected by a number of environmental corridors to surrounding land managed for the environment in the catchment.

The community engagement strategy allows for the campus and its staff to play central roles in the industries and communities supported by the training programs. The staff work within industry groups, national peak bodies and international groups to ensure the training needs are clearly met, but also that the organisation is well connected to its widely scattered community. The campus has

become a local hub for environmental-focused industry and community groups and these connections support the development of training courses to support capability development in these areas.

It was recognised that the participants in the courses would often be widely geographically spread and maybe even be socially isolated. In addition, students would be working in different bioregions and production systems that meant individual contextualisation of courses was critical. For example, an organic coconut farmer in Fiji has different priorities and needs to a sheep farmer in the Riverina region of New South Wales, and yet they would be studying the same organic farming course. Therefore, the course delivery strategies were developed to allow significant contextualisation of the students learning.

## RESULTS AND ACCOMPLISHMENTS

NEC has filled this training need and has continued to meet the needs of community and industry through this dedicated environmental campus, set in an operating organic farm that not only provides contextualised training opportunities but is a long-term action research project on developing complex agroecology systems.

Having an environmentally dedicated campus has given impetus to VET level environmentally sustainable training across Australia. The team at the NEC have worked with industry to develop the only accredited permaculture course in the world and are the only provider of the online Diploma of Sustainability training in Australia. The NEC staff have delivered organic farming training in every state of Australia, and are in the process of developing a Bachelor's Degree in Agroecology which will be available to students around the world. NEC students are working in conservation and land management, permaculture and organic farming across Australia and the world.



The NEC supports a number of local, regional and national bodies, these include the local Landcare groups, Albury Conservation Company, Albury City Council Sustainability Advisory Council, Organic and Regenerative Investment Cooperative, Organic Federation of Australia and Permaculture Australia.

Greengate Organic Farm welcomes over a thousand visitors through farm tours each year; these include farmer groups, Landcare groups, schools and universities. The farm has been recognised by the United Nations Food and Agriculture Organization as one of the leading agroecology farms in the world.

## INTERNATIONAL VALUE

All of the courses provided by NEC are available as distance courses and are accessed by students across the world. Our teaching staff have international experience and can contextualise the courses to suit various international situations. The example of the coconut grower in Fiji and the Woolgrower in Australia's Riverina region doing the same course illustrate this.

Staff from NEC are actively involved with peak industry organisations at the national and international level. They are currently working with Permaculture International to support the development of the world's first accredited permaculture training.

Each country needs a NEC. However, given the bioregional nature of most of the courses we do, a network of NEC's would be ideal. Land managers, food producers, permaculture designers and sustainability officers, are by the nature of the role working within bioregional conditions and issues.

Imagine an international bioregional network of campuses working together to provide bioregionally contextualised courses. Imagine the supporting networks for change.

## WORDS OF WISDOM

Our courses are about the future. Often whether they wanted to or not, our students are seen as 'change agents'. In fact, many of our students do these courses for that reason. This means that although our courses are about management and the application of science, the 'soft skills' of relationships and communication are important to our students as well and are developed through our course delivery.

A dedicated centre, such as the NEC, develops an energy that generates outcomes. The majority of the courses developed through the NEC may not exist at all in Australia without the existence of such a centre.

The need for environmentally sustainable courses is increasing. Our communities' understanding is driving this and they

are, for example, looking at how to feed a growing population without destroying the environment, mitigating and adapting to climate change, protecting and enhancing biodiversity and eliminating plastics from the oceans. All these things require capability development in the practice of 'doing'. The skills and knowledge people need to deal with these issues are required across the board and are being used in all industries and communities today.

Although you may not see a job ad for a 'permaculturalist' there will be people using their permaculture skills in many jobs and communities across Australia.

## NEXT STEPS

To ensure sustainability we need to be clear on what capability development our industries and communities are going to need into the future and meet these needs. For example, it is clear that urban farming is growing within our communities and we are in the process of developing courses to support this growth.

As mentioned, it is apparent to us that bioregionalism is a key part of what we do. Developing networks and links to existing organisations with similar aims is a way for us to acknowledge this and further support our students. We will also look at taking the next step and support other organisations involvement in the network.

It is apparent that our industries and communities are going to face even greater environmental challenges in the future; our role is for our programs to be ready when needed.





## BRONZE: GREEN COLLEGES

Project name: Sustainability in Building Design Education  
 Name of recipient/institution/association: Box Hill Institute  
 Email address: susan.morris@boxhill.edu.au  
 Country: Australia

### CONTACT

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### INTRODUCTION

Box Hill Institute is a leading TAFE Institute in Melbourne, Australia, dedicated to sustainability initiatives within our Building Design department. As such we are introducing new sustainability practices into the Australian building landscape by familiarizing our students with the latest technologies and building materials. For example, although Passive House buildings have been around internationally for 25 years, uptake in Australia has been slow due to a lack of local training and certification. As a result, Box Hill Institute introduced Passive House Training and Certification into Australia. The Institute is also incorporating other innovative, sustainable building technologies into our training. For example, the Institute's Advanced Diploma of Building Design students completed a project in conjunction with a local city council to design an apartment building using cross-laminated timber, a cutting-edge environmentally-friendly technology gaining recognition worldwide as an alternative to steel construction.

### AWARD WINNING PROJECT/ PROGRAM/INSTITUTION

Box Hill Institute has introduced several cutting-edge sustainability practices to its students which has improved their employability and also increased the availability and access to sustainable building practices throughout Australia. For example, the Institute introduced Passive House training into the country. Passive House is a building standard that places strict limits on energy consumption and air tightness while also requiring very high levels of thermal comfort. Up until 2014, it was necessary to leave Australia for specialist training in Passive House principles, software training, and to learn tradesperson skills which meant at that time there was only one completed Passive House in the country. To introduce the training into Australia, Box Hill Institute initially flew in an international expert from the Passive House Academy in Ireland to deliver training at the Institute. Then in 2016, two Box Hill Institute trainers travelled to Germany to become certified trainers.

By working with the Australian Passive House Association, the Institute assessed the need for an interdisciplinary approach

with both designers and builders trained in Passive House methods. As a result, the Institute developed two courses: the Certified Passive House Designer and the Certified Passive House Tradesperson.

The Institute is delivering the Passive House courses via an intensive delivery mode so that participants can fly in from interstate to complete their training in one extended trip. The Certified Passive House Designer and Tradesperson courses provide graduates with the skills to implement real-world Passive House projects and to directly affect the environmental sustainability of the cities they live and work in.

To further promote the concept and awareness of Passive House, Box Hill Institute has also developed a Passive House Masterclass. The initial Masterclass was a live event run by industry experts on the Passive House building standards. The video has now been incorporated in a free online course, which is available to the public and also used within the Advanced Diploma of Building studies.

The Institute has used the learnings from the Passive House training in Australia to embark on introducing other cutting-

edge sustainable practices to its students. The Advance Diploma of Building Design students have also worked with industry expert on a cross-laminated timber project, and the Institute is also offering training in this new, highly sustainable building material to current building designers and architects wanting to upskill.

### RESULTS AND ACCOMPLISHMENTS

The first objective to the introduction of sustainable building technologies into the Building Design area was to position students into the jobs of the future. This objective was met with 100% of our Advanced Diploma of Building Design students who completed the initial cross-laminated timber project successfully finding employment with weeks of finishing their course.

The second objective was to increase the popularity of these technologies in the built environment and to assist in the development of a more sustainable building industry in Australia. Due to the introduction of this training, there are now over 200 builders and building designers who are able to offer certified Passive House solutions to clients with its associated energy, health and social benefits. The initiative has also led to a rise in interest and development in other sustainable building solutions and technology.

The initiative has also gone beyond our initial objectives in the recognition we've received in numerous local and national awards, and in our increased reputation in the sustainability field.



## INTERNATIONAL VALUE

The Institute provides an example to other international colleges on the process for successfully introducing new sustainability technologies into a country. Previously, one of the barriers to uptake of sustainable building practices in Australia was the absence of local trainers certified to teach these building methods. Box Hill Institute has met this challenge by sending our trainers overseas to become certified while also collaborating with local industry to ensure these skills are localized for the Australian environment. So, while the Institute has looked abroad for latest sustainable building methods and gained international expertise they have also ensured that the technology is adapted to the unique Australian environment and local building codes. By

partnering with local industry experts we have ensured we are meeting the needs of industry and guaranteeing the high employability of our students.

## WORDS OF WISDOM

With Box Hill Institute's introduction of sustainability technologies to its students such as Passive House and cross-laminated timber, the Institute provides an example to other international colleges on the process for successfully introducing new sustainability technologies into a country. The high employability rate of the Institute's Building Design students is an example of how being a 'step ahead' of industry rather than waiting for industry to catch up with overseas developments creates a push-through effect to sustainable methods.

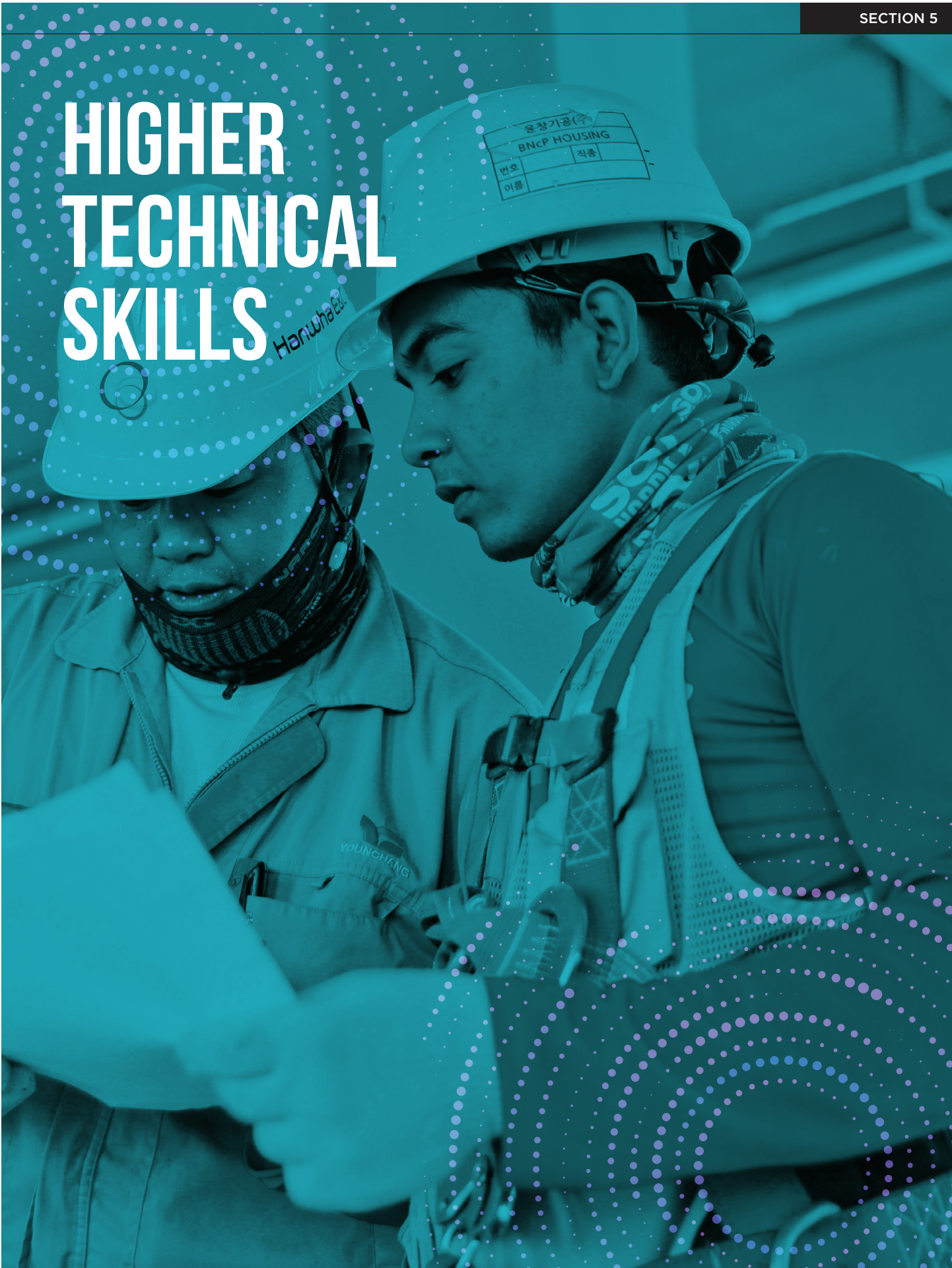
## NEXT STEPS

In the future, the main challenge for our sustainable building initiatives will be meeting the employer demand for these skills. By continuing to work collaboratively with an expanding range of sustainable-industry partners, Box Hill Institute is ensuring that training for new sustainability technologies (not just Passive House and CLT), and associated business processes are addressed. We are also researching and anticipating future sustainability initiatives and ensuring we are able to deliver training for those in a proactive way.

As new sustainability technologies are developed, Box Hill Institute will be prepared, engaged with industry needs and at the forefront of education into those technologies supplying the workforce for the future.



# HIGHER TECHNICAL SKILLS





## GOLD: HIGHER TECHNICAL SKILLS

Project name:  
Cultivate Technical and Skilled Talents  
to Serve the Community Manufacturing Industry

Name of recipient/institution/association:  
Zhejiang Institute of Mechanical and Electrical Engineering

Country: China

### INTRODUCTION

Founded by the provincial government in 1952, Zhejiang Institute of Mechanical & Electrical Engineering (ZIME) was the first higher education institute in Zhejiang Province specialized in the areas of machinery and electronics. In the early years, due to the eager demand for technicians from the provincial industrial partners, ZIME focused its efforts on the education and training of technicians for machinery and electronic industries since its foundation, and thus, formed its distinctive characteristics. Overall, more than 60,000 highly competent technicians have graduated and emerged a group of entrepreneurs, technical professionals and highly skilled technicians from then to now, well serving the manufacturing areas of Zhejiang Province and contributing to local economic development. To serve the plan of 'Made in Zhejiang,' ZIME was selected in 2010 as one of the 53 "national highly skilled and much-needed talents cultivation project" of the Ministry of Education.

### AWARD WINNING PROJECT/ PROGRAM/INSTITUTION

ZIME has received various honorary titles of national and provincial levels: "National exemplary higher vocational college," "National 13th five-year planned project construction academy for the fusion development of production and teaching," "National key vocational education faculty cultivation and training base," "First batch of modern apprenticeship pilot academy of the ministry of education," "State-level highly skilled talents training base," "National skilled talents cultivation contribution award," "Key higher vocational academy of Zhejiang province," "Four-year higher vocational speciality pilot academy of Zhejiang province," "International characteristic academy of Zhejiang province," and more.

Various issues we have met during the program, and we took follows strategies to address them.

1. Actively adjusting specialty structure and enhancing specialty fundamentals with focus on "intelligent manufacturing."

ZIME has developed a course system focusing on practice. The specialties

were divided into three orientations of new technology, complex abilities, and unique skills. Thus, it can well serve the purpose of "intelligent manufacturing" and cultivation of higher technical and skilled talents. In the process of talent cultivation, ZIME highlights "refined, special and excellent" skill development and talent cultivation feasibly evolves from traditional manufacturing to intelligent manufacturing.

2. Carrying out modern apprenticeship pilot program

In August 2015, ZIME was selected by the Ministry of Education as one of the first batch of national modern apprenticeship pilot institutions. ZIME actively relies on its industrial advantage and fully mobilizes its industrial association and key enterprises to deepen the fusion between production and teaching. It manages to refine a talent cultivation mechanism linking schools and enterprises, and establishes a "dual-subject" talent cultivation mode jointly carried out by the two parties. It also improves corresponding management systems and constructs a dual faculty of professionals from the school

and enterprises. With the modern apprenticeship education mode with electromechanical features, ZIME has explored a new route for cultivating high-quality technical and skilled talents

3. Building a faculty with three levels of skills in order to cultivate higher technical and skilled talents

Special efforts were made to promote the teaching ability of the whole faculty. Teachers capable of theory class courses, student practice training, and cooperative research with enterprise were encouraged.

4. Building high-level practical training base to serve "Made in China 2025"

ZIME built jointly an "Intelligent Manufacturing" provincial-level practical training base with FESTO, SAP and other German companies, which is centered on "Industry 4.0" development. The college has built an intelligent manufacturing digital workshop, an industrial robot application practical training base, an intelligent manufacturing production line control technology practical training base, and a 3D printing technology practical training base.

5. Focusing on burgeoning industries to boost local corporate transformation and upgrading

In accordance with professional technical advantages, ZIME further implements the construction of "1 center and 14 teams" and R&D/Technical service platform "Coordinated Innovation Center for SME Workshop Applied Technologies". Focusing on intelligent manufacturing, green manufacturing, IT and other strategic industries, ZIME carries out research of applied technologies based on market demand and project objectives, aiming to help local medium-, small- and micro-sized enterprises achievement transformation and products upgrading.

## RESULTS AND ACCOMPLISHMENTS

The objectives of ZIME are cultivating highly technical and skilled talents, and serving the community manufacturing industry, based on “Reference, Absorb and Innovate”.

1. Benefit to community: ZIME has cultivated more than 60,000 highly competent technicians for the manufacturing industry of Zhejiang, and regional economic development. Also, ZIME is extensively involved in helping small to middle sized industries overcome their technical bottlenecks and successfully achieve industrial transformation.
2. Benefit to faculty: ZIME is the only college of the province confirmed as a national key Vocational Education Teacher Cultivation and Training Base (23 such colleges exist in China). The cooperation in building training bases between ZIME and multinational companies facilitate the plan to send teachers to the parent companies, such as FANUG and OMRON, to receive professional training and thereby improve their engineering competence. Teachers with international vision, capable of theory class courses, student practice training, and cooperative research with enterprise were encouraged.
3. Benefit to students: ZIME is a national key Highly Skilled Talents Training Base. ZIME has 212 million CNY worth of teaching instruments, research equipment and training bases inside the institute, including an intelligent manufacturing digital workshop, and an industrial robot application training base. ZIME also has built 136 external practice bases through collaboration with famous enterprises such as Zhejiang Supcon Tech Co. Ltd. and Shanghai Volkswagen Co. The internal training and external practice bases better help students and trainees adapt to the new professional environment and the modern manufacturing industry

4. Benefit to professional and technical education: ZIME is the only college to continuously win the first or second prize in National-Level Teaching Award on high technical talents cultivation, for years. ZIME has explored a new route for cultivating high-quality technical and skilled talents with the modern apprenticeship education mode with electromechanical features.

## INTERNATIONAL VALUE

With the development of China's economy, more and more Chinese enterprises go abroad. According to the actual needs of enterprise, ZIME has cultivated urgently needed technical and highly skilled talents to realize vocational education with Chinese enterprises go abroad, hand in hand. ZIME is exploring a new model of international integration of industry and education to serve international cooperation on production capacity and improve the professional education output system covering everything from technical skills training to educational background education.

In 2016, in response to the “Made-in-China 2025 Zhejiang Action Plan” avocation, ZIME built jointly an “Intelligent Manufacturing” provincial-level practical training base with FESTO, SAP and other German companies, which is centered on “Industry 4.0” development. The college has built an intelligent manufacturing digital workshop, an industrial robot application practical training base, an intelligent manufacturing production line control technology practical training base, and a 3D printing technology practical training base. ZIME signed agreements with Zhejiang Technical Market, Zhejiang Electromechanical Design Research Institution and SIASUN to explore a joint enterprise innovation park. Furthermore, this has opened a new channel for teachers in fostering their research capability for applied technologies and their ability to serve society. ZIME also teams up with companies to solve technical problems of partners, cultivate higher technical and skilled talents, promote partnership, and enable joint development.

## WORDS OF WISDOM

First step, strengthen international cooperation, learn the advanced educational philosophy, and build an international faculty team. To promote international interaction and cooperation for teachers, ZIME cooperated with seven countries, including United States, Germany, Australia and Japan, focusing on the enhancement of our teachers' professional competence.

Second step adopt international standards to develop international ‘mutual recognition’ courses and develop a ‘localization’ course jointly with the overseas experts.

Third step strengthen enterprise-college integration. We combined technologies and talents together, by cooperating with Siemens, Volkswagen, Mitsubishi, GE, Ford and so on. On one hand, we could adopt the high tech from enterprise; on the other hand, we could provide internships for our students.

## NEXT STEPS

The vision of ZIME is to achieve a level of Mechatronic, Domestic-Leading and International Influential college in the following years, and especially, emphasize international education. The following steps will be accomplished to meet this goal.

- 1 Aligning with international vocational education standard and developing “localization” of teaching resources
- 2 Constructing overseas exchange platform for students and cultivating international talents
- 3 Building an international teaching team and promoting international influence
- 4 Serving the “Belt and Road Initiative” and providing education program for overseas students. ZIME recruited overseas students with a diploma, as well as short-term exchange students and trainees.

Through these years of efforts, ZIME has made certain achievements in international cooperation and training technical and highly skilled talents. We hope that other schools can draw lessons from it and achieve win-win results.



## SILVER: HIGHER TECHNICAL SKILLS

Name of institution:  
Wuhan Railway Vocational College of Technology  
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Country: China

### CONTACT

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### INTRODUCTION

Wuhan Railway Vocational College of Technology (hereafter referred to as WRC), located in Wuhan City, Hubei Province, P. R. China, was founded in 1956. WRC has an enrollment of 12,800 full-time students nationwide, and delivers a wide range of applied and technology-related programs such as: Rail Transport Operation, Applied Electronic Technology, Maintenance Technology of EMU, Railway Locomotives & Vehicles, Communication and Information Technology, High-speed Railway Engineering Technology, Electrical Automation Technology, and Accounting Computerization. In recent years, WRC has also extended to new sectors including Nursing, Rehabilitation Techniques, and E-Commerce. These growing initiatives have provided ongoing support of many significant organizations and small- and medium-sized enterprises.

WRC has established strategic partnerships with many significant enterprises, such as Wuhan Railway Bureau and Wuhan Metro Group, and has worked out a modern apprenticeship training model to ensure that all the students acquire 21st century technical skills.

### AWARD WINNING INSTITUTION

Closely following the national initiatives "The Belt and Road," "Made in China 2025," and "The Yangtze River Economic Belt," WRC keeps focused on the reform of vocational education while adapting to industrial transformation and upgrading. WRC has gained rich experience in industry-education integration and worked closely with enterprises to develop students' professional spirit and higher technical skills.

From 2015 to 2017, WRC offered more than 3,000 high skilled graduates for the railway transport industry and local economy each year, especially for the large-scale enterprises/institutions such as Wuhan Railway Bureau, Shanghai Railway Bureau, Guangzhou Railway Bureau, Chengdu Metro Co. Ltd, Nanjing Metro Group Co. Ltd, Zhengzhou Rail Transit Co. Ltd., and so on. Besides, WRC provided workforce for the manufacturing industry, telecommunications industry, health care industry, and small- and medium-sized enterprises each year.

WRC is the practical training base for many large enterprises. From 2015 to 2017, WRC offered first aid and emergency treatment training for 1,300 new employees, health rescue training for 330 station chiefs, and training for 191 train drivers from Wuhan Metro Group; WRC offered training in high-speed railway technology for staff members from rail transport enterprises including China Railway Corporation, Wuhan Railway Bureau, Lanzhou Railway Bureau. The number of trainees reached 22,983.

WRC offered support and services for society, communities and poverty-stricken villages.

During summer vacation and winter vacation each year, especially the peak time of Chinese Spring Festival when millions of migrants go back to their hometown to get together with their families and relatives, more than 1,000 of our students served and helped millions of passengers in the three railway stations in Wuhan. The students took on responsibilities, including selling and inspecting tickets, security check and guiding the passengers to the trains, which was most welcomed and highly praised by railway stations and passengers.

Our teachers and students visited nearby communities and nursing homes on weekends to provide professional health care for the elderly and physically challenged.

Our teachers and students held lectures and classes in poverty-stricken villages such as Peng Jiawan, a village in Yunxi County, and taught mobile Internet and E-business operation technologies to the young villagers there. Through constructing an E-business platform and developing E-business operational skills, they realized online sales of the local special products, such as red peach and turquoise, and the monthly sales reached 100,000 RMB yuan. This encouraged hundreds of young people to come back home from cities and start business there, improving greatly the average living conditions.

### RESULTS AND ACCOMPLISHMENTS

WRC deeply integrated and cooperated with many large enterprises such as Wuhan Railway Bureau and Wuhan Metro Group. Together with them, it carries out order-type programs to cultivate high-skilled technicians. Students have benefited directly by school-enterprise integration in each of their programs. WRC came up with a slogan of "taking responsibility for each graduate;" this means strengthening guidance and providing service for their employment. Outstanding graduates with 21st century higher technical skills were ready to take up technical positions soon after graduation and became technical experts in enterprises. When Wuhan Metro Line 3 started operation, all the first 60 chiefs of stations along the line came from the college; 80% of front-line employees of Wuhan High-speed Railway Station and Wuhan Bullet Train Section, 60% of front-line employees of Wuhan Metro Line 1, 2, 4 are all recent graduates of the college.





WRC holds regular and vastly attended events to help students develop technical skills. A variety of innovation and entrepreneurship competitions each year provide students with platforms to show their creative ideas. On May 12th Nurses Day each year, nursing specialists from cooperating hospitals share best practice in skills development.

Our apprenticeship mode promotes school-enterprise integration. Students study at college for two and a half years and complete an internship for half a year in enterprises before they graduate. They receive their salary, gain on-site experience, and demonstrate their learning in real and meaningful ways in their workplaces.

## INTERNATIONAL VALUE

WRC has rolled out an innovative way of joint training of high skilled technicians with other countries. Since April 2016, four batches of 103 Thai students from 33 Thai technical colleges in 20 provinces of Thailand studied at WRC. From January to March 2017, our faculty trained local technicians in Nairobi, Kenya for the Mombasa-Nairobi Standard Gauge Railway which started operation on May 31st, 2017. In April 2018, WRC and the Cambodian Ministry of Foreign Affairs and International Cooperation discussed joint cultivation of railway talents and a memorandum of

understanding was signed. In May 2018, WRC and the Institute of Engineering of Tribhuvan University, Nepal worked together on the development of railway engineering courses in Nepal and the training program for 25 Nepal civil engineers. In June 2018, the Office of Vocational Education Commission of the Thai Ministry of Education sent ten Thai teachers to receive training on high-speed railway technology in WRC.

## WORDS OF WISDOM

Based on its unique railway programs and utilizing both domestic and international exchange and cooperation platforms, WRC seized opportunities and initiated in offering four high-speed railway programs. WRC then extended and developed a series of programs, including Rail Transport Operation Management, Railway Signal Automatic Control, Electromechanical Equipment Maintenance, Urban Rail Transport Engineering Technology as well as Applied Electronic Technology, E-commerce, Logistics Management, Nursing, Tourism Management, and so on. WRC has gained rich experience in school-enterprise integration and developed a modern apprenticeship education system with regional characteristics.

WRC places a strategic emphasis on establishing a bilateral or multilateral win-

win partnership with foreign government departments, colleges and universities, and industries from countries along the Belt and Road. Together with them, WRC pioneered the innovative road of exporting high-speed railway technology training and became the window for the world to know China's higher vocational education in the high-speed railway field.

## NEXT STEPS

In line with the structural reform of the supply side, WRC plans to match its programs with industrial chain of rail transit and the newly emerging industries of strategic importance in Hubei province, with an aim to better serve economic and social development. WRC tries to take full advantage of its rich education resources to contribute itself to lifelong learning, community education, and poverty alleviation. WRC strives to cultivate high-skilled technicians through deepening open education and developing international programs and become a world-class railway institute which is comparable with the world-class high-speed railway technology.



## BRONZE: HIGHER TECHNICAL SKILLS

Project name:  
High-quality technical talents training based on "Five-togetherness" school-enterprise dual subject collaborative education mode.

Name of recipient/institution/association:  
Chengdu Aeronautic Polytechnic

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Country: China

### CONTACT

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## INTRODUCTION

Chengdu Aeronautic Polytechnic (CAP), founded in 1965, is one of the first 14 national higher vocational institutions and one of the first 28 National Demonstration Vocational Colleges in China. Covering 148 acres, CAP has over 750 faculty members. Among them are seven national and provincial distinguished teachers. It has also set up an academician workstation. CAP has nearly 12,000 full-time students enrolled in 32 majors of nine schools. Focussed on serving the aviation industry and regional economic development, CAP is the first national pilot college on the "Production-Education Integration Project," the only higher vocational college in comprehensive strategic cooperation with the Aviation Industry Corporation of China (AVIC) and Air China AMECO, and the only high-tech talent training base of AVIC among higher vocational colleges. So far, CAP has produced over 40,000 highly-skilled technicians for industries and the local economy.

## AWARD WINNING PROJECT/ PROGRAM/INSTITUTION

Taking the professional layout as a bridge docking the industrial chain and the regional economic circle, CAP actively promotes intensive cluster development of professional groups, and on this basis, initiates the establishment of two production - education alliances. Under the framework of alliance, CAP starts from the top-level design, systematically pushes forward reforms in cultivating mode, administrative system and guarantee system, and further improves the quality of skilled technician training.

Giving full play to the advantage of industry and actively integrating into the whole aviation industry chain. CAP takes the lead in establishing the Aeronautic Production and Education Alliance of Southwest China with more than 40 superior aviation equipment manufacturing enterprises and key civil aviation enterprises. The Alliance sets up a platform for school-enterprise cooperation and development, through which members of the alliance can conduct in-depth cooperation in cooperative development, skilled workforce training, technological

innovation, and application. CAP explores a diversified operation mode among government, industry, enterprise and school. So far, CAP has launched the "Aviation Talent Program" together with AVIC, cultivating a high-end skilled workforce, and has set up 45 tailored classes with Beijing Aircraft Maintenance Engineering Company, Hainan Airlines and other aviation enterprises, achieving "directed admission, directed training, directed employment" in skilled workforce training.

Taking full advantage of location and vigorously integrating into the regional economic circle. CAP takes the lead in establishing the Chengdu Economic Development Zone Automobile Production and Education Alliance with over 60 preponderant enterprises such as Volkswagen, VOLVO, Bosch, Röchling, and ABB, which deepens collaboration in talent cultivating, technical training, technology development, resource interaction and cultural integration. Until now, CAP has co-cultivated tremendous electromechanical technicians with Bosch Group, the world's largest manufacturer of automotive technology, and has established "one-to-one" strategic

partnerships with Jaguar Land Rover and Ford. As the first five nationwide and the only pilot school in west China of Sino-German Automotive Vocational Education (SGAVE) Project, CAP has trained a large number of automotive electromechanical maintenance technicians for the top five brands of German cars (Audi, BMW, Daimler, Porsche and Volkswagen). Due to its outstanding performance, CAP has been appraised as the Demonstration School of SGAVE Project.

## RESULTS AND ACCOMPLISHMENTS

Actively implementing skilled technicians' co-cultivation and technological collaborative innovation with international leading enterprises, CAP has co-constructed "Collaborative Innovation Centre of Geometric Measurement Technology," "Intelligent Manufacturing Solution Centre in Southwest China," "ABB Robot Application Innovation Centre," "Jaguar Land Rover Apprentice Training Centre" with Hexagon, GF Machining Solutions, ABB Company and Jaguar Land Rover separately. Based on these international industry-study-research integrating platforms, CAP implements a series of school-enterprise dual subjects workforce training, such as tailored classes, modern apprenticeships, working-learning alternations, and so forth.

CAP's students have improved greatly in technical skills and graduates' employment rate has remained above 95% for ten consecutive years. According to the third-party data from MyCOS, the indexes on CAP graduates' job satisfaction, professional matching rate, salary level and feedback from employers are much higher than the average of similar colleges in China.



From 2015 to 2017, CAP students represented China for three consecutive years in the United States' (SAMPE) International College Students Competition on Ultra-Light Composite Materials. They defeated competitors from world-renowned universities such as University of Washington, University of Maryland as well as New York University, and won two world championships and one second prize. Which proves that CAP is internationally competitive in cultivating talents with higher technical skills.

Apart from technical skills training, CAP also attaches great importance to the cultivation of comprehensive soft skills such as interpersonal skills, innovation consciousness, professional ethics and so on. Many CAP graduates become technical experts or company backbones after three - five years' employment, and have quite a strong ability for sustainable development.

## INTERNATIONAL VALUE

CAP creates the "five-togetherness" school-enterprise dual subject collaborative education model. That is, dual subjects (school and enterprise) work together to develop skilled workforce training programs, formulate curriculum standards, allocate resources, implement teaching, and manage students. The "five-togetherness" model is sustainable, and worth being promoted due to the high participation of industry and enterprise, as well as the effective results of skilled workforce training.

## WORDS OF WISDOM

In the process of school-enterprise cooperation, CAP follows the idea of "top-level consensus, middle-level docking and basic-level implementation," and forms a task list with enterprises. To be more specific: firstly, leaders of CAP and enterprises reach a broad consensus on school-enterprise cooperation and skilled workforce training; secondly, the school-enterprise cooperation office of CAP and the HR department of enterprises fully combine the demands for talents of enterprises with CAP's education resources; lastly, front-line teachers and technical experts in enterprises docking teaching process and production process, meanwhile, school counsellors and enterprise class teachers jointly implement student management. Only in this kind of tight and deep collaboration, can the dual subjects (school and enterprise) efficiently work together to co-cultivate highly-skilled technicians.

## NEXT STEPS

Located in western China, CAP confronts an underdeveloped economy and imbalanced industry layout compared to the eastern coastal provinces. Unlike some higher vocational colleges in central and western regions over-pursuing professional efficiency, ignoring their own industry characteristics and preponderant professions and blindly seeking perfection, CAP will stick to its focus on the aviation industry and regional economic characteristics in professional layout and skilled technicians training, and will take positive initiatives to adapt to the new requirements of the skilled workforce in industrial transformation and upgrading. CAP will make full use of the school-enterprise cooperation platforms to enrich the cooperation mode and deepen the cooperation connotation, will adhere to the principle of "five-togetherness" school-enterprise dual subject collaborative education to promote the effective training of high-quality technical personnel that meet enterprises' requirements, and to make CAP the domestic first-class and international influential cradle of highly skilled technicians.

# LEADERSHIP DEVELOPMENT





## GOLD: LEADERSHIP DEVELOPMENT

Project name:  
Leadership Development and Global Citizenship Education

Name of recipient/institution/association: Centennial College

Email address: abuller@centennialcollege.ca

Country: Canada

### CONTACT

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### INTRODUCTION

Centennial College is one of the most diverse postsecondary institutions in Canada, with an impressive international reach. We view our diversity and internationalism as inherent strengths, and they have shaped our unique approach to leadership development. As a leader in internationalization, we have a presence in countries such as China, India, South Korea and Brazil, and welcome students from around the world who choose to study at our four Toronto campuses. At the same time, we are enabling Canadian learners to gain international experience through innovative service learning and study abroad programs. We believe a Centennial education is an education without borders, because the world has changed, and so have we. As we look towards the future, we remain committed to promoting inclusive and compassionate leadership, creatively engaging our employees, building new bridges with communities and employers, and preparing our graduates to do meaningful work and live meaningful lives.

### AWARD WINNING PROJECT/ PROGRAM/INSTITUTION

Centennial College is proud to lead the conversation on leadership development in postsecondary education. As a learning-centred institution, we are committed to providing all members of our community – students, faculty, staff, and administrators – with unique leadership development opportunities. In keeping with our values as an institution, our approach to leadership development places a strong emphasis on global citizenship, social justice, equity and inclusion.

In today's increasingly borderless marketplace, career success requires strong leadership skills informed by a global mindset. There is a growing demand across all sectors for graduates with international competencies. Centennial College's leadership development programming is designed to help students acquire these competencies, articulate their leadership strengths and values and differentiate themselves in a competitive job market. Our co-curricular Leadership Passport program enables students to develop and document their leadership skills and earn a Distinction in Leadership upon graduation, allowing

them to gain a competitive edge once they enter the job market.

Many educational institutions offer study abroad components or individual courses examining social issues. Centennial is unique in our commitment to embedding the principles of inclusivity, global citizenship and equity into all of our policies, programs and services. We want to ensure that every graduate is able to develop a sound understanding of what it means to be a global citizen, both personally and professionally, and of the ways they can contribute to an equitable society and world. Our Global Citizenship and Equity Learning Experiences (GCELEs) are domestic and international service learning projects designed to open students' hearts and minds to the social justice issues that affect our world. After participating in these service learning projects, 73 per cent of students reported better performance in leadership and team-building activities, 82 per cent believed their experiences enhanced their knowledge of other cultures, and 78 per cent shared that it raised their awareness of social issues. Through rich, experiential learning opportunities at home and abroad, our students learn to lead in a

diverse, global environment with honesty, integrity, and ethics.

The College is equally invested in employee leadership development. In order to cultivate the talent required to realize the College's bold vision, we strive to identify and strengthen leadership capacity at every level of the organization



through a range of professional development initiatives. These include our Employee Leadership Passport Program (modeled on the student co-curricular program described above), our Pathways to Administration Program for support staff and our Equity & Inclusion Specialist Program for College Employees. We have also designed specialized reflective leadership practice tools and resources, along with learning and development, coaching and mentoring programs, for our support staff, faculty and academic chairs.

## RESULTS AND ACCOMPLISHMENTS

In 2009, we made a promise in our strategic plan to “become an internationally recognized leader in education that places a strong emphasis on global citizenship, social justice and equity.” Nine years later, our leadership development and global citizenship education programming has increased student satisfaction, improved employee engagement and built transformative leadership capacity at all levels of our organization.

Centennial's mission and vision is to educate students for career success as we transform lives and communities through learning. Our Global Citizenship and Equity Learning Experiences (GCELE) are service-learning projects that empower students to create positive social change in our interconnected world. Since 2010, over 700 students, faculty and staff have participated in 55 social justice projects around the globe, focusing on issues as diverse as sustainable farming practices in Cuba, community health support in Honduras, early childhood education in Ghana, human rights in New York and work with Indigenous groups in Ontario. Centennial students have also participated in high-level international leadership events worldwide, including the G20 Youth Summit and the UNESCO International Youth Conference.

Closer to home, over 400 Leadership Passport students have graduated with a “Distinction in Leadership” credential since the program's inception. We have expanded our student leadership programming to include a range of on-campus workshops, conferences and events, as well as intensive leadership-focused retreats. We continue to develop leadership development initiatives for staff. Since the initial launch of the Employee Leadership Passport in 2015, over 60 employees have enrolled, and interest in the program continues to grow.

## INTERNATIONAL VALUE

As an institution at the forefront of leadership development and global citizenship education, we are committed to sharing our expertise with international colleagues. Since 2010, Centennial has hosted visitors from the Vocational Education Leadership Training (VELT) program, which invites college leaders from China to learn how their Canadian counterparts deliver vocational education. Centennial was also the first Canadian college to participate in the Panama Bilingual Project, which enables professors to study abroad to become fluent in English and acquire teaching and academic leadership skills. In 2017, Centennial welcomed our sixth cohort of professors, and hosted a conference organized by the Government of Panama. We also promote international scholarship in the field of global citizenship education through The Journal of Global Citizenship and Equity Education. Published by our Centre for Global Citizenship Education and Inclusion (GCEI), this peer-reviewed journal features thought-provoking discourse from academics and researchers from around the world.

## WORDS OF WISDOM

We believe that global citizenship education is applicable to every career path and prepares students for the jobs of the future. We see immense value in the diverse perspectives our students and employees bring to Centennial College, and our diversity has shaped our inclusive approach to leadership development. Developing intercultural understanding enables our students to thrive in an interconnected and rapidly changing world. By the time our students graduate, they are job-ready, and are equipped with the new essential skills for an evolving global economy. We are very proud of our graduates' career success, but even prouder of the fact that they enter the workforce with a unique sense of purpose and social responsibility. Building leadership capacity throughout the institution has helped us to realize this vision, and developing the next generation of college leaders is critical to its sustainability and future success.

## NEXT STEPS

This spring, Centennial embarked on the creation of a new strategic plan. In meetings with stakeholders from across the institution, it was apparent that our community's commitment to equity, global citizenship and inclusion remains steadfast. Centennial has always been an inclusive, innovative and forward-thinking College, committed to assisting those who have been marginalized, or who have been unable to access postsecondary education in other ways, to receive the education and training they need to be successful. We will continue to create rich learning environments that are collaborative, inclusive, experiential and engaging. We will ensure that our students are equipped with the knowledge, skills and critical perspectives they need to navigate the highly complex world we live in today. Most significantly, we will inspire our students to lead with integrity and authenticity, and, in Gandhi's words, to “be the change they wish to see in the world.”



## SILVER: LEADERSHIP DEVELOPMENT

Project name:  
Creating and Developing Durham College Students Inc.

Name of recipient/institution/association:  
Naqi Hyder

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Country: Canada

### INTRODUCTION

Naqi Hyder is a recent Durham College (DC) graduate and former Officer and Transitional Manager with Durham College Students Inc. (DCSI), a service-based association focused on students' needs and providing quality campus engagement. Passionate about building positive communities, Naqi has spent his college career helping students receive the best post-secondary experience possible.

In his first year at DC, Naqi worked as a peer coach with the Access and Support Centre, helping students reach their personal and academic goals. After seeing the difference he was making and feeling confident in his ability to maintain his academics while working on campus, Naqi looked for his next challenge. When the dissolution of the joint student association for DC and the University of Ontario Institute of Technology (UOIT) brought about an opportunity for the creation of a new college-centric organization, Naqi leapt at the chance to be involved and was selected to join the team that developed the DCSI.

### AWARD WINNING PROJECT/ PROGRAM/INSTITUTION

In early 2017 Naqi, in his role as Officer and Transitional Manager with DCSI, was responsible for developing a student association that would provide DC students with a focused voice and governing body.

A student association has a huge impact on a college environment; providing students with direction, representation and guidance. After the previous organization that supported both DC and its campus partner UOIT was dissolved, Naqi applied and was selected to be part of the team that would implement a new one. Today, with a presence at both Oshawa and Whitby campuses and the Pickering Learning Site, the DCSI has a significant impact on all members of the campus community.

Naqi worked with a partner and team of lawyers to establish by-laws, policies and procedures that would embody transparency and accountability. As a student government, DCSI was designed to be responsive to its student membership, provide them with honest answers, and conduct its business ethically and with

a management team that supports the established values of the DCSI. With this in mind, Naqi and his partner were able to develop a strong governance model and an operational reporting structure for the association, with each service reporting to the DCSI general manager, who then reported to Naqi and his partner to provide oversight and strategic direction. This approach was maintained until the student elections in February 2018 when the first elected, student-led government was installed.

The administration of the Student Insurance Plan is one of the many services offered by the DCSI. After listening to students' feedback and identifying an area of need, Naqi was able to work with the health plan provider to add psychotherapy coverage for students. An advocate for overall student health, Naqi also worked closely with the Campus Health Centre to develop greater access to extended health services. The DCSI team improved its communication of the Student Insurance Plan details through fall orientation and on social media to ensure awareness of the added coverage and benefits.



DCSI is also responsible for the management of Riot Radio, DC's community-based radio station, and one of the first visual radio stations in North America. After reviewing the previous business model, Naqi and his partner developed a business case for an additional full-time position to assist with operations and continue providing students with diverse programming. Riot Radio is operated primarily by students, with over 70 student volunteers that assist in running the station. As a student-operated entity, it is another place where students can have a voice within the campus community.

## RESULTS AND ACCOMPLISHMENTS

DC students told DCSI that they required a strong student government that would advocate for their needs and provide services to support them. In response to this, all services offered reflect the unique demographic of the student population of DC and ensure equal opportunity for voices to be heard on campus.

As part of DCSI, the Outreach team was developed to provide students with guidance and access to a positive and inclusive service focused on equity and diversity. There are four key resources within the Outreach department: the Women's Centre, Pride + LGBTQ Centre, Sexual Health Resources Centre, and a Campus Food Centre. On this team, trained staff provide private counselling to students to assist them with managing their mental health and are equipped with a resource library to assist with student questions. Student engagement is also valued in this department through placement and volunteering opportunities.

On a daily basis, Naqi was able to positively impact students by responding to inquiries and being active and visible on campus. He was accessible to students, listened to their concerns and worked to ensure their needs were met, either through resources of the DCSI or working with the college.

## INTERNATIONAL VALUE

A project like this allows students to believe in each other and realize they are stronger together. Student governments globally should focus on their student membership to build a model that students can trust. In building the DCSI, the main goal was to reflect the demographic of the college and the diverse needs of its student membership to create a community that connects and supports students in achieving their goals. Being part of post-secondary education is a critical time in students' lives, and campus leaders must work together to allow for the ultimate student experiences.

## WORDS OF WISDOM

Post-secondary institutions must work towards building an open and inclusive environment for all students. Transitioning to college may be difficult for some, but communicating important support services that students can rely on to help them grow will lead to a very successful and rewarding college experience. DCSI assists students in connecting with various campus support services to provide them with options that will always be available to them.

By working together to communicate the same goals to all students globally, leaders can help achieve consistency and growth.

Encouraging students to become leaders in their own life and to take ownership of their careers will help them pave their own pathway to college success.

## NEXT STEPS

Naqi's goal was to build a platform for students to share their ideas with the college and regional community, government, and various stakeholders that play a critical role in their college experience. Future student leaders will now run in future DCSI elections to bring student ideas to life. By building a foundation of governance, services, and management, student leaders will have all that they need to achieve their vision. Moving forward, students will evolve with the needs of DC's campuses and learn to be consistent in the messages they share with their constituents. DC students now have a strong student government to rely on and to advocate on their behalf. The next steps for DCSI is to remain present on campus and continue serving the interests and needs of all students.





## BRONZE: LEADERSHIP DEVELOPMENT

Project name:  
The Path To Leadership

Name of recipient/institution/association:  
Anne Sado/George Brown College/Polytechnics Canada

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### CONTACT

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### INTRODUCTION

Anne Sado is president of George Brown College in downtown Toronto. Since January 2004, she has been an exceptional leader with a track record of transformational results and commitment to her community.

Under Anne, George Brown has almost doubled its enrolment and significantly increased its physical footprint in the heart of Canada's largest city. She's made a lasting impact on the college's mission, vision and culture. Its reputation has also increased to where it is now considered one of the top 5 colleges in the country.

She has activated a critical public discussion on the value of college education in the economic development of the city, province and country. Her areas of focus have been the critical need to develop a workforce with the right balance of skills for the knowledge economy, innovation in learning and the transition of new Canadians into productive careers to shape the future of Toronto.

### AWARD WINNING PROJECT/ PROGRAM/INSTITUTION

In 2005, the George Brown leadership team developed a vision, mission and values statement called the Path to Leadership. This statement has been the framework under which the college has developed its priorities since that time. It focuses intensely on student success and seeking to develop workplace ready graduates who continue to be employers' candidates of choice. A 2015 survey conducted by Research Management Group found that George Brown College is seen by GTA employers to produce the highest quality graduates and is a clear leader among colleges across a full range of reputation attributes.

In 2010 the college unveiled Strategy 2020, a 10-year roadmap developed as a result of considerable research into the GTA's economy. Six priorities have guided the work of all our employees, helping us create more dynamic, accessible and relevant courses and services for students and employers.

President Sado's active public engagement has woven the college into the economic, cultural and social fabric of Toronto. She

has served as the Chair of the Toronto Region Board of Trade, one of the largest and most influential chambers of commerce in North America. As part of her commitment to improving opportunities for students, she is currently co-chair of the Business-Higher Education Roundtable (BHER). Created by the Business Council of Canada, BHER is committed to strengthening co-operation between employers and educators to support young Canadians as they transition from education to the workplace, strengthen research collaboration and help employers adapt to the economy of the future. BHER members have endorsed a commitment to ensure 100% of postsecondary students have an opportunity for experiential or work-integrated learning as part of their educational journey. George Brown made such a commitment in 2011 – focusing initially on ensuring all programs had such a learning component. The college has gone from 69% of programs to 98%.

President Sado has also shown a deep commitment to improving pathways for students across postsecondary education systems. As Chair of the Committee of Presidents, she worked with Ontario



universities to facilitate transfers and increase transparency for students in navigating these pathways. This work led eventually to the creation of the Ontario Council on Articulation and Transfer (ONCAT). Her commitment to improving pathways for students across postsecondary education systems was identified when she was named a Member of the Order of Canada in 2013.

President Sado's leadership has been recognized with numerous awards, including the Professional Engineers Ontario Citizenship Award (2001) and Gold Medal (2007), Queen's Golden Jubilee Medal (2003) and Diamond Jubilee Medal (2012), YWCA Women of Distinction – Education (2012), Women's Executive Network – Canada's Most Powerful Women – Top 100 (2010,2012,2013) and Hall of Fame (2014), Women of Influence Diversity Champion (2012), Canada's 25 Women of Influence (2014) and Fellow of the Canadian Academy of Engineering (2015).

## RESULTS AND ACCOMPLISHMENTS

Through Anne's 15 years at George Brown College, it has grown considerably. In addition to almost doubling in enrolment, its physical footprint has also expanded. Key projects have included the opening of a 380,000 square foot campus for Health Sciences at Toronto's Waterfront in 2012. The college also opened its first student residence, The George, home for 500 students each year as a legacy of the 2015 Pan Am Games Athlete's Village.

In addition the college expanded our Centre for Hospitality and Culinary Arts, including the launch of the student run Chefs' House restaurant, the Food Innovation Research Studio and expanded space for Food and Beverage and Event Management programs; opened the Green Building Centre at Casa Loma Campus to support sustainability and green construction practices; opened 100,000 square feet of learning space to house Game Development and Design programs, including a Game Incubator; and The Fashion Exchange (FX), a vibrant hub where fashion education, design, production, entrepreneurship and engagement come together under one roof. In 2016, the college was chosen by YouTube to house its Toronto creator space, offering training, networking and production opportunities to students, staff and Canadian artists and producers. This was YouTube's first space in Canada, and 9th in the world.

Many of the above are linked with Applied Research opportunities. The college has realized significant federal and provincial research funding expansion and has been named Top Research college in Canada in 2 of the last 3 years.

## INTERNATIONAL VALUE

President Sado has been instrumental in developing partnerships, field placements and exchange opportunities in more than 30 countries, including China, India, Panama, Italy, France, Brazil and the Caribbean. The college now attracts students from around the world and provides domestic students with high impact international learning opportunities.



Examples of unique partnerships and learning opportunities include the Alma School near Parma in northern Italy, where students study and work in Italy over one semester, often in Michelin starred restaurants across Italy.

Toronto is the major destination in Canada for immigrants from all over the world. The college has developed particular expertise in supporting the transition of new Canadians into the workforce. It also offers specialized programs and services that help students prepare for next steps to employment or further education.

Programming for immigrant students includes workplace communications courses, and professional bridging programs that facilitate entry into the Canadian workforce.

## WORDS OF WISDOM

Colleges and Polytechnics are a vital resource in Canada's economy. They are still under-appreciated in our culture – often because our community doesn't recognize how we have evolved over our 50 years. And yet it is our graduates who make our cities and communities work. We are very closely linked to industry and can respond quickly to the needs of our industry partners. We must celebrate this advantage and continue to tell our stories.

We must also continue to place a priority on preparing our graduates for their future careers. We know that our world is poised

for unprecedented change as we stand at the start of what many are calling the 4th Industrial Revolution. We will have to embark on our own transformation to stay current, competitive and relevant.

## NEXT STEPS

Our Path to Leadership, which encompasses our mission, vision and values will always remain a guiding framework to our planning and strategic direction.

A recent re-organization of our senior team has aligned key functions to enable an even more laser like focus on student success. With key functions aligned, we will be able to further foster academic quality, student success, strategic partnerships and communication, as well as promote cross-functional collaboration. We have begun the journey of creating our plan for 2030 – which will ensure the type of integrated planning required in today's complex and quickly changing world.

We have recently revamped our Performance Planning and Development processes, completed an organization wide talent review, supported staff to create individual development plans, supported staff in smart goal setting and instituted a Succession Planning framework.

President Sado is committed to people development – as people are, and will always be, our most strategic resource.

# STUDENT SUPPORT SERVICES





## GOLD: STUDENT SUPPORT SERVICES

Project name: Apprentice Support Centre

Name of recipient/institution/association: Holmesglen Institute

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### INTRODUCTION

Holmesglen has a proud 36-year history delivering exceptional education and training. We have developed from a specialist provider for the building, construction and ceramics industries to one of Australia's largest public technical and further education institutes. Over 23,000 learners come to Holmesglen annually to study in 43 fields at senior-secondary, trade, vocational and higher education levels. We are one of the largest providers of trades training in the state of Victoria with over 3,000 apprentices training for careers in building and construction, plumbing, eletrotechnology, furnishings, horticulture, aboriculture, printing and commercial cookery. Our classrooms, simulated industry facilities, laboratories and workshops are inclusive spaces, welcoming learners from 15 to over 80 years of age, from 160 countries and speaking 130 languages. Our integrated and seamless approach to tertiary education also means over 1,000 learners, who may not otherwise participate in higher education, have the opportunity to achieve a bachelor or master's degree.

### AWARD WINNING PROJECT/ PROGRAM/INSTITUTION

Apprenticeship completion rates for trade occupations in the State of Victoria have fallen consistently over the last five years, with the latest release of data showing individual completion rates, adjusted for contract recommencements, stand at 48%. Contract completion for trade workers in Victoria lags behind the national rate, which is projected to decline further in the coming years. We know from the research and our own experience in providing trades training that many young people commencing an apprenticeship find their experience challenging socially, emotionally, financially and cognitively. Employment related reasons, such as not liking the work or not getting along with colleagues or employers, is the most frequently cited reason for not completing an apprenticeship or traineeship (NCVER, 2015). In some cases, the impact of these challenges is extreme, while other apprentices experienced periodic or on-going challenges to their engagement in learning. Sadly, we had noticed increasing rates of apprentices taking their own lives or experiencing mental health issues.

In response, Holmesglen established the Apprentice Support Centre in 2016 with the assistance of a Victorian Government Community Service Fund grant. The Centre provides holistic support services to apprentices and pre-apprentices studying at the institute that recognises the unique needs of this cohort. It aims to break the cycle of apprentice attrition by proactively identifying and supporting apprentices at risk of non-completion. The centre is staffed by experienced tradespeople who also have teaching qualifications. They use a mentoring approach to engage with apprentices and have particular skills in providing pastoral care and building empathetic relationships. They also support teaching staff to identify learners who may be at risk of disengagement and promote referrals. The Apprentice Support Officers are engaged across four key areas:

- Pastoral care - referrals for drug and alcohol support services, referrals for health support services, homelessness and accommodation support, navigating the complexities of the vocational education and apprenticeship systems, assistance in finding a new employer, resolving issues with employers or co-workers.

- Mentoring – providing career direction and advice on personal matters
- Financial support – assistance in approaching the employer for the payment of fees, assistance in accessing scholarships and allowances available to apprentices, assistance in developing budgets and financial plans.
- Course and learning support – assistance in resolving outstanding units and assessments, in transferring results between institutes, in accessing specialist services of academic support when required.

The Apprentice Support Officers are physically located on-campus in the trade teaching areas and actively engage with pre-apprentices, apprentices, employers, trade teachers, parents and government stakeholders. As the support officers also work collaboratively with employers in supporting their apprentices, it provides an important link to industry and provides strategies to improve employer/apprentice relationships. The centre has a network of referral agencies for specialised support, including on-campus and community support agencies. It uses an evidence-based approach to identify areas of emerging need and then establishes appropriate external networks in response. Often these networks lead to improved support for all learners at Holmesglen.

### RESULTS AND ACCOMPLISHMENTS

The Apprentice Support Centre makes a critical contribution to Holmesglen's mission to provide education and training that enables our learners to be work-ready, life-ready, and world-ready. Our Vision 2020 includes objectives to create a distinctive Holmesglen Experience for learners that supports their learning journey and facilitates positive interactions with our organisation. The Apprentice Support Centre directly contributes to these priorities by offering a distinctive



approach to apprentice support that enhances our reputation for trades training and delivers improved outcomes for individuals, the institute's financial sustainability and the industry, as a whole.

In 2017, the Apprentice Support Centre engaged with approximately one in five apprentices at Holmesglen, a three-fold increase from the previous year. Learners accessing support continue to show improved outcomes compared to all Holmesglen apprentices. For example:

- 92% of apprentices and pre-apprentices accessing the service were retained in learning during the year
- apprentices and pre-apprentices who accessed the service had a unit completion rate of 93.4% in 2017, well above the institute average of 89.8%
- 75% of pre-apprentices accessing the service were awarded their qualification and a further 7% transitioned to an apprenticeship prior to completion. In only 3% of cases, did the learner completely withdraw from their pre-apprenticeship.
- 90% of apprentices accessing the service who were due to complete in 2017 were awarded their qualification or have remained engaged in training in 2018. In 10% of cases the apprentice completely withdrew from the program prior to completion, well below the state average non-completion rate of 52%.

## INTERNATIONAL VALUE

Apprentice retention is a world-wide issue, with many countries developing strategies to improve commencement and completion of trades programs. While the historical and current policy context varies across nations, all vocational and technical colleges, institutes and polytechnics will be grappling with these issues. We embedded an applied research project into the first stage implementation of the Apprentice Support Centre. This research investigated how training colleges can customise apprenticeship support and pastoral care in order to lift their student completion rates. The findings support the existing literature, in that apprentices require ongoing support across a broad spectrum of challenges within their apprenticeship pathway to completion. It also suggested that the Apprentice Support Centre model was effective in achieving its aims. The vocational background of the support officer was important in identifying and coordinating the complexity of support on offer and in establishing a mentor relationship with the apprentice.

## WORDS OF WISDOM

Key learnings include:

- establishing rapport with apprentices is vital to gaining their trust and confidence. Support officers are best placed to do this when they also have a trade background and personal experience of the issues and challenges faced

- being physically located and visible in the spaces where apprentices are training is also important, this includes social media
- clarify the scope of practice for support officers, so they know where their professional boundaries lie and when they need to refer apprentices to specialist services
- ensure the support officers have appropriate resources to share case experiences, de-brief and receive counselling as required. They will deal with challenging issues and circumstances that can create stress and have personal impacts on their health and wellbeing
- build a knowledge base and information network, so support officers can give consistent and accurate advice
- consistently communicate and consult with teaching departments to build a 'one-team' approach.

## NEXT STEPS

In 2018, Holmesglen established Apprentice Central. Apprentice Central incorporates the existing Apprentice Support Centre and is a holistic client facing information and support service for apprentices, employers and other stakeholders from the moment Holmesglen is identified as the selected training provider until the apprentice completes his/her qualification. It continues to provide pastoral care and support for apprentices to remain engaged in training, alongside improving the consistency of information and engagement with employers and apprentices throughout the apprentice's journey. Administering an apprentice's enrolment, progression and completion in training also enables the team to identify those 'at risk' of disengagement. Deploying data analytics and business intelligence tools is the next logical step to improve apprentice support and completion at Holmesglen. Implementation of a CRM system that links to the institute's student management system is key to improving our capacity to make evidence-based actions and decisions.



## SILVER: STUDENT SUPPORT SERVICES

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## INTRODUCTION

Wuhan Polytechnic (WHPT), founded in 1972, is a non-profit public institution of higher vocational education (IHVE), directly sponsored by Hubei provincial government. WHPT is one of the 100 National Exemplary Higher Vocational Colleges assessed by the Ministry of Education of China, and holds the Presidency of the Hubei Provincial professional education Society and Hubei International Exchange Consortium for Vocational Education. Currently, WHPT operates 14 schools and offers 63 disciplines in the field of telecommunication, mechanics, computer, construction, business, art design, foreign languages, tourism and airline services, textile and fashion design, biology, etc. It has about 1,500 faculty and staff, including 449 professors or associate professors, as well as more than 23,000 full-time students. Because of its excellent talent cultivation, WHPT provides more than 7,000 qualified graduates for industries annually, and the graduate employment rate remains constant at over 95% in the past decades.

## AWARD WINNING PROJECT/ PROGRAM/INSTITUTION

As one of the 100 National Exemplary Higher Vocational Colleges assessed by the Ministry of Education of China, WHPT has stood out in China as a model in offering student support services through its internationalization strategy to improve students' comprehensive occupational abilities.

WHPT has initiated its internationalization strategy over 30 years ago and established partnerships with 107 institutions in 25 countries and regions worldwide, and has developed over 60 international programs such as student exchanges, joint education, and internships. Under those programs, better international education resources were introduced from our partners. In addition, to help students better prepare for globalization, WHPT has focused on the enhancement of their international awareness and cross-cultural communication skills. Each year, it offers over 200 courses bilingually and over 3,000 hours of extracurricular intensive English training, admits around 100 international students, and recruits about 15 international teachers to help students

obtain cross-cultural communication skills. It has also provided financial support for around 60 students annually to study abroad and immerse them into different learning environments and cultures. All the above measures have definitely enhanced the competitiveness of WHPT's students in the globalized job market. Meanwhile, WHPT is always aiming at improving students' comprehensive occupational abilities by developing a competence development system and a systematic curriculum model. From 2007 to 2009, WHPT had developed a comprehensive competence development system combining curriculum teaching and practical training. On this basis, a systematic curriculum model had been developed through a six-year theoretical research project and practical exploration from 2010 to 2016. This model emphasizes base and facility construction, rule and regulation perfection, manifestation of a campus culture, workplace culture and craftsman spirit, and the combination of curriculum theory and practice. By applying the model, students have to finish a five-stage experiential learning process, which includes observation and imitation, learning and investigation, participation and experiencing, appreciation and

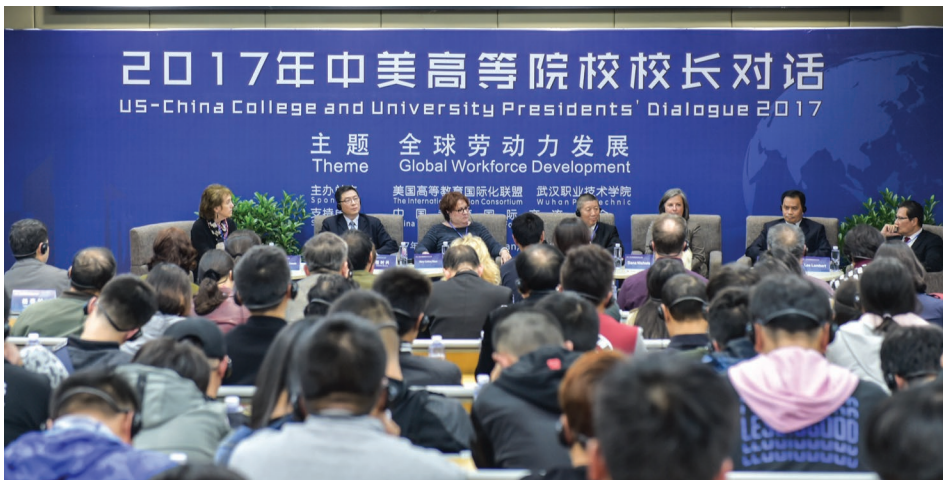
comparison, innovation and practice. The systematic curriculum model has now been applied to all the 63 diploma programs of WHPT due to its sound application effects.

In addition, WHPT has been seeking to offer students international internship opportunities by entering strategic partnerships with multinational companies, such as IBM, Lenovo, Apple and Huawei. The ways of cooperation include co-developing curriculum, co-building internship bases on campus, and offering internships for students at home or abroad. Each year, over 60 students do work placement in the branches of those companies. It also cooperates with those companies to do order-based training for students, which means students are ordered by those companies upon admittance, and then educated based on the needs of the enterprise.

To initiate the internationalization strategy effectively and offer excellent student support services, all stakeholders, including the president, vice president for international affairs, vice president for student affairs, directors of relative divisions, faculty and student representatives, are involved in designing Internationalization plans and implementing international projects. This practice makes it possible for almost all stakeholders of WHPT to function actively and effectively in its internationalization, and enjoy the benefits of its internationalization.

## RESULTS AND ACCOMPLISHMENTS

The objectives of our Internationalization Initiative are threefold. The preliminary objective is to cultivate students into International Professionals with qualified language skills, healthy personalities, and comprehensive professional competences; the secondary objective is to help reinforce the construction of the comprehensive competence development system; and the ultimate goal is to meet the requirements of society for international technical



talents. What is in our road map is by the year 2020, over 3,000 students shall have the overseas experiences of study, joining technical skill competitions, taking internship or work, and the comprehensive competence development system is gradually perfected. In this way, our objectives for international Initiatives are being approached step by step.

Over the past six years, the students of WHPT have won 66 awards in various provincial, national or international skills competitions, and nearly 100 excellent students have been influential provincially and nationally. Over 500 faculty members have had overseas exchange experiences. Therefore, the talent cultivation and the competitiveness of the students have been significantly improved.

In addition, An Outdoor Competence Development Base was built on campus to offer over 120 ability building courses annually. The building was assessed as a Provincial Exemplary Base for student competence training, and has so far trained over 70,000 college students and over 11,000 community staff. What's more, WHPT has published ten ability building textbooks and conducted nine provincial and higher scientific research projects, the results of which have been used by 15 colleges and reported by the news media over 400 times.

## INTERNATIONAL VALUE

WHPT was not only named National Advanced Unit of Vocational Education and National High-skilled Talents Training Model Base by China's Ministry of Education, but also ranked first in overseas media searches among Chinese top 100 vocational colleges, according to China's Higher Education Public Opinion Report (2016).

Every year, exchange students from Singapore, Germany, Finland and Taiwan come to WHPT to attend training programs on campus, together with local students, to improve their comprehensive occupational abilities. Therefore, the recognized initiative is practical and can be applied internationally.

If possible, WHPT would like to build up more partnerships in the field of international professional education in terms of student cultivation and student support services to meet the critical need for global citizens.

The exemplary practice is transferable and applicable to vocational training institutions as the relative research results and textbooks have been used by 15 colleges in China.

## WORDS OF WISDOM

The advice is that more attention should be paid to internationalization and competitiveness of vocational education, and the most important role, of which is the training of global citizens. We should strengthen cooperation with partner institutions in the fields of student exchange, skill training, joint

curriculum development, co-developing curriculum, co-building internship bases, and constant improvement of the training quality of skilled talents.

First, we should study and introduce occupational standards, professional curriculum, digitalized resources, occupational qualification certificates and other high-quality educational resources that can reflect the relevant international occupational standards and advanced technologies; then, develop occupational standards and curriculum systems that link up with international advanced standards. Second, we should introduce international advanced technological processes, product standards, technical standards, service standards, and management methods, etc. into our teaching content, so as to constantly improve the comprehensive occupational competence system and effectively enhance students' competitiveness in the globalized job market.

## NEXT STEPS

In order to ensure sustainability of its internationalization initiative, WHPT will continue to carry forward the Internationalization strategy, enhance organizational leadership and further improve the conditions in terms of funding, staff and infrastructure. Meanwhile, WHPT will foster both professional skills and vocational qualities, strengthen its exchanges and cooperation with partner institutions, improve foreign language teaching and cross-cultural education, organize students to take part in international skills competitions, and expand overseas internships and work opportunities.

WHPT will keep on improving the system of comprehensive occupational competence and the quality of student support services so as to cultivate more skilled talents with international awareness, communication skills and competitiveness for the community, and the globalized job market. WHPT strives to rank the top 3,000 universities on Webometrics Ranking of World Universities assessed by Spanish National Research Council - CSIC by the year of 2020.



## BRONZE: STUDENT SUPPORT SERVICES

Project name:  
Exceed & Expectations project

Name of recipient/institution/association:  
Qingdao Vocational and Technical College of Hotel Management (QVTCHM)

Email address: internationalqhmc@163.com

Country: China

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### INTRODUCTION

Qingdao Vocational and Technical College of Hotel Management (QVTCHM), which was the first independent government-owned hotel management college in China, has more than 73 years' history of vocational education. QVTCHM offer tourism and culture programs in various areas.

In accordance with the school motto "Diligence, Honesty, Smartness and Elegance" and the school spirit "Sincerity, Strength and Responsibility", the college introduced the University Identity System to form a characteristic college culture.

- The College has also won the following titles:
- High Quality College of Shandong Province
- Digital Institution of Ministry of Education
- The Top 50 College in International Influence of 2016
- Pathpro Programme

### AWARD WINNING PROJECT/ PROGRAM/INSTITUTION

The Exceed&Expectations project is the embodiment of the student-centred service concept of the college, which focuses on providing services for the sustainable development of students and enhancing their competitiveness in the service industry. The project consists of six service modules including academic support, information support, financial support, life support, employment and Start-up support, and social practice support.

- The "E&E project" helps students design clearer career development, provides counselling, and trains students to learn independently. As a result, more than 500 students have acquired overseas bachelor's degrees and several students have received scholarships from foreign universities such as the "Kyoto Diligence Scholarship," and "Silla University Excellence Scholarship."

- The project coordinates all the sectors concerned in academic life, provides facilities required for theory study, as well as practical activities. The students' ability to live and study independently are also enhanced, which makes them better adapted to society.
- Most of the graduates gain employment in international Five-Star hotels or Top-500 enterprises. According to statistics, the rate of the college graduates receiving promotions at the Shangri-La, Hyatt, IHG, and other Five-Star hotels ranks No.1 among the colleges in the last five years.
- The college created a "Study Abroad Safely Program" to help students study and live abroad, providing the students with international employment platform through which 0.8% of the graduates got high quality jobs in the U.S, Singapore, Dubai, Maldives, Macao and Hong Kong.

- Through the "Chinese Culture Culinary Skill" program created by the college, foreign students could demonstrate Chinese Cuisine skills with explanations in Chinese. One graduate from our college has opened a Chinese Restaurant in Korea.

First of all, the Exceed Expectations project solves the shortcomings of the traditional satisfaction theory. The traditional satisfaction theory takes the perceived value as a model and believes that only achieving or basically meeting the expectation is satisfactory; but, "Exceed Expectations" shifts the perceptual standard upwards, and believes in meeting the expectations of most students and achieving the satisfaction by "accident" or "surprise." So, it emphasizes the value of service.

Secondly, the "Exceed Expectations" student service system also constructs a student satisfaction evaluation method. The central purpose of the whole evaluation method is to provide students with direct service or management level as the main reference, and use it as the main evaluation standard for professors and faculty staff of the college.

Thirdly, the "Exceed Expectations" student service system will provide services that transcend students' expectations as the service progresses. The whole system includes six modules: academic services, information services, economic services, life services, employment and entrepreneurial services, and social practice services.

Each year, the College provides students with high-quality employment opportunities in high-end hotels in Singapore, Macau, Dubai and other countries and regions. The company's quality partners are well-known companies such as InterContinental Hotels Group, Shangri-La Hotels, Hong Kong CTS Travel Service Group, Vanke Property, and Alibaba.com.





## RESULTS AND ACCOMPLISHMENTS

(1) The bright prospects for student development

The “Exceed Expectations” student service system helps students set their personal development plans more reasonably, provides timely guidance, and cultivates students’ self-learning ability.

(2) Comprehensive development for students

The “Exceed Expectations” student service system coordinates the internal and external factors of students’ learning and daily life, fully provides students with a more reasonable and effective theoretical learning and practical atmosphere and conditions, and maximizes the overall quality of students to meet the needs of social development.

(3) More accurate self-cognition

The “Exceed Expectations” student service system enables students to naturally abandon the resistance to traditional management, and promote a more sunny and healthy examination of themselves and their lives, and then make a choice that is truly beneficial to themselves and stimulates their potential.

The college develops the students’ professionalism to meet the demands of enterprises. According to a third party survey, the employment rate of the 2016 graduates is 98.18% which is 8 per cent over the national average level, and the average incomes of the graduate is 3,538 RMB monthly, which is 457 RMB more than the national average level. A large amount of graduates were hired by famous enterprises like Inter-Continental Hotels Group, Shangri-La Hotel, China Travel Service Group Corporation, VanKe and Alibaba.

- Take the Hotel Management Program as example: the graduates’ job-remaining rate in 3 years is above 75% which is 10% higher than the average level in the industry; the graduates’ promotion rate in 3 years is 50%, among which 10% are Chief Officers; more than 400 graduates were employed overseas in Singapore, Dubai and Macao with average income over 8000 RMB monthly.

## INTERNATIONAL VALUE

- The Exceed Expectations project provides students with various programs, such as short-term overseas exchange, long-term overseas study, further-study abroad, and participation in international skill competitions. It also enables the students to get access to high quality employment in countries and areas such as the U.S, Singapore, UAE, and Macao.
- In order to achieve the service goals of “exceed your expectations”, the college has established substantial friendly partnerships with 41 institutes in 10 countries, including Canadore College and Confederation College in Canada, TAFE South Australia and TAFE Queensland in Australia, Waterford Institute of Technology in Ireland, University of North Alabama in the United States of America, and Silla University and Hyejeon University in South Korea.
- The college has also set up the Chinese Cuisine Foundation to give financial support for overseas students learning Chinese Cuisine in China.

## WORDS OF WISDOM

From the traditional “management of students” to “service students” is the first leap of student concept innovation; we regard the concept of “serving students” to “beyond expectations” as the second leap in student concept innovation. We believe it is more important, because only “exceeding expectations” can truly reflect the pros and cons of the service.

The “E&E project” student service guides education participants to observe the true value of the service from another perspective. Each activity and link of the school's education and teaching changes can bring “moving” or “surprising” effects to the students through various activities under the existing conditions.

## NEXT STEPS

The “E&E project” provides classifying services considering the students' diversity. There are 4 different types of students referring to how they were enrolled, which are: vocational-undergraduate students, regular vocational students, high school-vocational students, and ex-army students.

- For the vocational-undergraduate students, we provide “Academic and Skill Acquiring” service.
- For regular vocational students, we provide “Skill Learning+Cultural Cultivation+Academic Planning +Social Practice” service.
- For high school-vocational students, we provide “Confidence Establishment+Self-insight+Skill Acquiring +Cultural Cultivation” service.

- For ex-army students, we provide “Role-Switch+Career Cognition+Academic and Career Planning +Cultural Cultivation” service.

The college created the “Hismile” service brand, combining the “Hi” and “Smile” which come from Modern Service Industry, to form the college's own culture with its Modern Service Industrial culture. Based on the “Hismile service brand”, the “Hismile Golden Dolphin Employment Service Team” was set up to conduct all kinds of social practice and volunteer service.





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