

Newsletter of YunTech

National Yunlin University of Science & Technology

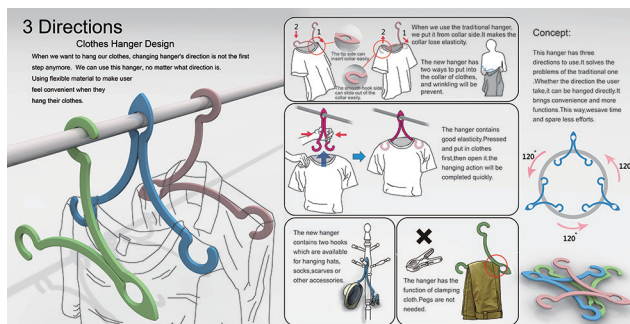
Taiwan R.O.C.

Volume 13, Number 2

2015

- ① Department of Industrial Design is Awarded an iF Concept Product Design Award in 2014 1
- ① YunTech Snares 2 Awards at the 17th Moscow International Salon of Inventions and Innovation Technologies, Archimedes 2
- ① The Baby Teaching Aid, "Fun Pinball" is Granted the Red Dot Design Concept Award-Best of the Best! 2
- ② By First Delivering the Torch to Taipei 101 and Integrating the Idea of an Anti-Drug Life of the Echinacea Campaign, The National Intercollegiate Athletic Games 2014 Hopes the Athletes to "Challenge Yourself at National Intercollegiate Athletic Games 2014, and Break Records at Universiade Taipei 2017." 3
- ② The College of Management was Accredited by The Association to Advance Collegiate Schools of Business. 4
- ② 2014 International Design Study Forum and Conference 4
- ② YunTech is Granted Awards at the International Exhibition of Inventions, Geneva! 5
- ② YunTech is Granted 3 Gold and 4 Silver Awards and 1 Copper Award at the 2014 Invention Innovation and Technology Exhibition! 7
- ② YunTech Has an Excellent Performance at the 29th Invention & New Product Exposition, Pittsburgh! 7
- ② Digital Art Space Light Conversion Lighting Design Changes Your Emotions! 8

Awards and Commendation



Description of the clothing hanger "3 Direction Hanger"

Department of Industrial Design is Awarded an iF Concept Product Design Award in 2014!

"3 Direction Hanger," invented by students Cheng Tse-peng and Chang Yu-zhong of Department of Industrial Design, was awarded an iF Concept Product Design Award in 2014.

According to Cheng, the reason for inventing the clothes hanger is that they had difficulties in hanging clothes one day. The two students stayed up to do an assignment and found they had not hung their clothes. While hanging the clothes, Cheng said "The clothing

hangers are really not easy-to-use because the hooks will catch on each other easily.” When doing research on traditional clothing hangers, they found people have to change the directions in order to hang their clothes. Due to this reason, they started to design a more easy-to-use clothing hanger that enables people to hang their clothes from every direction.

The clothing hanger “3 Direction Hanger” eases the way of using a clothing hanger. Instead of using steel as the main material, the “3 Direction Hanger” uses plastic, making the hooks less possible to catch on each other. The areas of hook and the loop are wider than the traditional ones. The wider areas can help to hold the clothes steadily. When wind is blowing, the clothing hangers won’t fly into the same directions and then the hooks won’t catch on each other. Most important of all, the simple shape allows for mass production by industry.

Cheng presented his thanks to his advising professors in his undergraduate period. As an undergraduate student, he was encouraged by his advising professors to propose any idea that he would like to do. When studying at YunTech, his advising professors helped him a lot and also encouraged him to take part in international contests. He was grateful for all the support from both of his advising professors.

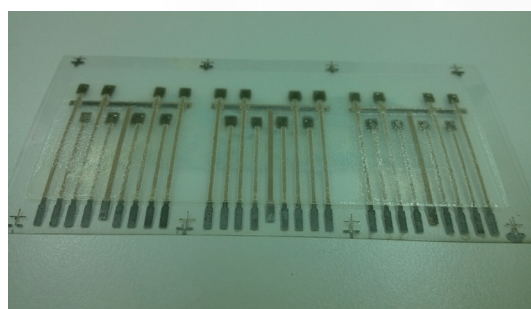
The main teaching goal of the Department of Industrial Design is to integrate industrial needs into courses. The clothing hanger, “3 Direction Hanger,” has already applied for a patent and plans to cooperate with a company to mass produce the product. It is anticipated the new clothing hangers will be on the market soon.

YunTech Snares 2 Awards at the 17th Moscow International Salon of Inventions and Innovation Technologies, Archimedes.

The 17th Moscow International Salon of Inventions and Innovation Technologies, Archimedes took place from April 1st to April 4th 2014. Two entrees from YunTech were awarded a gold and a copper Medal, respectively.

The gold medal product, “Readout Signal Correction System for Potentiometric Ion-Sensor,” was invented by students Gan Chun-yi, Lin Chu-wen, Liao Yi-hung, Chen Chie-ting and Yang Su-ying under the instructions of Professor Chou Jung-chuan of the Department of Electronic Engineering. The purpose of the product is to create a micro precision instrument by integrating the concepts of mechanics, electronic engineering, medics, biochemistry, monitoring, photoelectricity and more, thus increasing its quality, reliability, accuracy, and added value. Moreover, the cost can be reduced by following the Standard Operating Procedure (SOP). It is believed the technology can be widely used on biomedical inspection chips.

The copper medal product, “A Health, Innovative, Smart, and Green E-Bike (HIS-Green E-Bike),” was invented by students Wong Yu-ren, Tsai Ming-chan, Zeng Chiong-yi, Yeh Chia-wei and Li Shin-yun under the instructions of Professor Wan Terng-jou of the Department of Safety Health and Environmental Engineering. The green E-bike not only transforms solar power into electric power, but also produces and saves power simultaneously while braking or moving downhill. Also, the bike takes only 3 Watts to move 100 kilometers, and it can be folded easily, making it convenient for the rider to store it anywhere. Last but not least, the highest speed the E-bike can reach is 40 km per hour.



“Gold Medal Product- Readout Signal Correction System for Potentiometric Ion-Sensor

The Baby Teaching Aid, “Fun Pinball” is Granted the Red Dot Design Concept Award-Best of the Best!

Red Dot Award, the Oscar in the design field, released its winning list recently. The 3 products invented by

students from Department of Industrial Design of YunTech were granted awards in the category of Concept Award because of their design powers and creativities.



Fun Pinball

The awarded products are listed below:

“Fun Pinball,” awarded a Red Dot Design Award-Best of the Best, was invented by students Chen Li-jung, Tsai Nin-han, Lin Yi-fong, Kao Yu-ting, Lin Yi-ru, Zeng Yu-shao, Chen Yi-hua and Lin Yu-wen under the instructions of Lecturer Ching-hsu Chang of the Department of Industrial Design. The design concept of the product is to integrate the ideas of drawing and rail construction. Kids do not only play pinball but also build it. The rails are not limited to traditional rails, but they also act as a drawing papers for kids to use their imagination, thus making the pinballs unique. While building the pinballs, kids learn how to interact with their team members at the same time.

“Garden System,” awarded the Red Dot Design Award-Winner, was invented by students Gu Wen-min and Li Chi-yuan under the instructions of Assistant Professor Yu Yuan-liang and Lecturer Chang Chian-hsu of the Department of Industrial Design. The design concept of the product is to combine loose media, mat media and structural media of a green wall into one unit for growing plants and producing solar power with polar panels. The green wall is composed of different units containing the above medias, which provide a lot of waterways and consequently serve as the water circulating system for the plants. Due to the wide area taken up by green plants, which blocks the strong sunlight, the green wall is a good choice since it can be placed outdoors or in open places of buildings. Moreover, the sunlight absorbed in the day by the solar panels can be transformed into solar power for use at night.

“Future Desk,” awarded the Red Dot Design Award-Winner, was invented by students Chen Yun-yu and Hsieh Yi-hsiung under the instruction of Adjunct Associate Professor Yeh Po-shiung of the Department of Industrial Design. The design concept was to invent a desk that will fit the learning environment in the future. Group discussion and presentation are the 2 main teaching and learning modes in most university classes. The teaching and learning styles are changing; however, the desks being currently used are still the old ones that have been passed on from past generations. Based on the idea of group discussions, the future desk is easy to move. The top of the desk is equipped with a touch screen which allows students to show their ideas on their screens and white boards to create more interactions in class, thus fitting the needs of the future learning environment.



Garden System

The Department of Industrial Design of YunTech showed their design ability and creativity at the international design contest and presented the design power of the department of YunTech.



Academic Exchanges

By First Delivering the Torch to Taipei 101 and Integrating the Idea of an Anti-Drug Life of the Echinacea Campaign, The National Intercollegiate Athletic Games 2014 Hopes the Athletes to “Challenge Yourself at National Intercollegiate Athletic Games 2014, and Break Records at Universiade Taipei 2017.”

YunTech organized the National Intercollegiate Athletic Games 2014. Revering the Goddess Matsu, the flame was ignited at Yunlin's Mailiao Kong Fan Temple and was passed to the south. Under the protection of Matsu, it was believed the games could progress smoothly. The games integrate the spirit of the Olympics,

“solidarity, peace, friendship, justice,” and the idea of a drug-free existence of the Echinacea Campaign. The athletes’ endurance and strength over their challenges showed their persistence in chasing their goal.



Digital The torch ignited at Mailiao Kong Fan Temple, Yunlin

The medalists of Universiade Kazan 2013 Russia were invited to the games. They were the Badminton Gold Medalist Lin Tzi-ying, the Table Tennis Gold Medalist Lin Chia-hui and Table Tennis Silver Medalist Chen Si-yu. Led by the Minister and Deputy Ministers of the Ministry of Education (R.O.C.), the medalists ascended the landmark of Taipei, Taipei 101. Leading nearly 12,000 athletes, they looked forward to Universiade Taipei 2017 with the idea of “Challenge Yourself at National Intercollegiate Athletic Games 2014, and Break Records at Universiade Taipei 2017.”

The delivering of the torch presented two important concepts. It was hoped the athletes would follow the spirit of “solidarity, peace, friendship, and justice.” Also,



The passing of the torch at Dream Mall, Kaohsiung and Dr. Fauyaz from Coventry University, the United Kingdom

The College of Management was Accredited by The Association to Advance Collegiate Schools of Business.

The College of Management was accredited by the authoritative business management association, Association to Advance Collegiate Schools of Business (AACSB). With the accreditation, the College of Management has taken its place among the top 5% of business institutions globally. In addition, the College

of Management is one of 10 Taiwan universities accredited by AACSB and the only national program/institution accredited by AACSB among universities in central Taiwan.

Having been an AACSB member since 2007, the college started to apply for accreditation from 2009. In May 2014, the college finally satisfied the association’s requirements and earned the AACSB accreditation. During these 6 years, the staff members and office workers of the college tried to adjust the missions of the College and departments to meet requirements and to advance the teaching and learning quality. Furthermore, the outstanding performances of the alumni and the support and continuous cooperation with the industrial field were the other 2 critical factors in being qualified for the accreditation. The AACSB accreditation presents the dedication and cooperation of all the members of the college.



President Hou, the host of the Ceremony of AACSB Accreditation
Dean Chen of the College of Management briefing the school on the college’s accreditation

The College of Management focuses on three strategies: excellent teaching, practical learning, and an international vision. The outstanding teaching results, complete interns for students, cooperation with the industrial field and international academic exchanges were highly praised by the committee members. In the future, the college will still concentrate on the learners, research applications, and practical skills.

2014 International Design Study Forum and Conference

The Micro-awareness-International Design Study Forum and Conference was held from June 17th to 18th in the year of 2014. The conference was organized around the ideas of international vision, localization, diversity and interdisciplinary cooperation.



The issues the conference took up were “culture, cross-border diversification, sustainability, and creativity,” and it discussed the trivial details that had the power to change our lives. Through the speeches, presentations and design forum, a platform for international exchanges and learning could be established, thus advancing the research and development potential of the College of Design. Two scholars were invited to act as keynote speakers. They were Assistant Professor Pierre Smars of the Department of Cultural Heritage Conservation, YunTech, who was also a former researcher at R. Lemaire Centre for Conservation at Kuala Lumpur, Malaysia, and Partrice Mugnier, the art director and manager of Active Design in Active Creative Design. The issues they presented were about cultural heritage buildings and public arts. The co-chairs, Professor Chiou Shang-chia and Associate Professor Peng Li-hsun, introduced the backgrounds of the speakers and the issues. During their introduction, they also shared some research data they did and some micro-points to provide newer vision for the academic area and hoped Taiwan would be able to connect with the world. Moreover, not only the alumni of the College of Design but also the staff members and students of Kobe Design University, Japan, Beijing Institute of Technology, Mainland China, and Dongseo University, South Korea, were invited to take part in the conference. It is hoped that a platform for Asian design could be built through exchanges of design research and knowledge from the four countries.

The design colleges of the 4 well-known universities located in Japan, the Mainland China, South Korea and Taiwan, formed a group to hold an international design forum and conference yearly. In 2008, the forum and conference was held by Kobe Design University, Japan. In 2012, the forum and conference was held by Beijing Institute of Technology, Mainland China. In 2013, the forum and conference was held by Dongseo University, South Korea. And in 2014, YunTech took the responsibility to hold the forum and conference.

- 1: The speech by Assistant Professor Pierre Smars
- 2: The speech by Partrice Mugnier, the art director and manager of Active Design

YunTech is Granted Awards at the International Exhibition of Inventions, Geneva!

The 42nd International Exhibition of Inventions, Geneva, took place from April 2nd to 6th in the year of 2014. The YunTech team was granted 2 gold and 2 silver awards among all the entrees, which showed the research and development power of the staff members and students of YunTech.

The awarded products are listed below:

The gold-awarded product, “Si-Ge Thin-Film Solar Cells with Poly-Germanium Thin Film and Method for Performing the Same,” was invented by students Hung Wei-chin, Li Chao-chen and Yang Ting-yu instructed by Associate Professor Li Jian-yang of the Department of Electronic Engineering. The purpose of this product was to improve the conversion efficiencies of solar cells. By adopting the researchers’ method, people don’t need expensive or high risky airs. It is believed the method eases the manufacturing process. If the method is applied to crystalline silicon solar cells, the energy-producing efficiency and the values of products will be



Associate Professor Yu-hsun Nien joined the exhibition and was the representative for receiving the awards.

The other gold-awarded product, “Preparation of Radar Absorbing Materials,” was invented by student Lin Pei-ju instructed by Associate Professor Nien Yu-hsun of the Department of Chemical Engineering. The graphene films on the market have the problem of multiple scattering due to their small sizes. Due to this problem, the main purpose of the invention is to help absorb most of the radar waves on a high frequency of X-Band. It is believed that the new absorbing materials can be applied for military uses, for example, radar absorbing

and electromagnetic interference (EMI). Furthermore, the absorbing materials can be used for absorbing the electromagnetic wave radiation occurring in our daily lives, such as the electromagnetic waves from our cell phones, local area network (LAN), 3C appliances and

The silver-awarded product, "Fly Catcher," was invented by students Hung Rei-yung and Chang Shi-shun instructed by Associate Professor Wang Ching-liang of the Department of Creative Design. According to student Hung traditional covers of trash cans can only prevent the smell of trash, but can prevent fruit flies from producing new fruit flies and growing. The cover of Fly Catcher is in the shape of a funnel which causes fruit flies to fly into the trash can easily but makes it difficult for them to fly out. The smell of the trash inside the can will flow from the bottom through an air path. There are 3 sizes for the Fly Catcher, making it easy for everyone to choose the right sizes for their own trash cans.

The other silver-awarded product, "Convenient Jelly," was invented by students Hsieh Tsai-en instructed by Associate Professor Chang Tsen-yao of the Department of Creative Design. Student Hsieh integrated the concepts of jelly and jelly slipper to create a new product. By using Convenient Jelly, you don't need to prepare another jelly slipper but still can plaster jelly on the bread or toast you are going to eat. The new design not only preserves jelly but also makes the jelly plastering easier and more convenient. Besides this advantage, the integrated design lessens the amount of trash, making it environmentally friendly and fulfilling the basic concepts of green design theory.

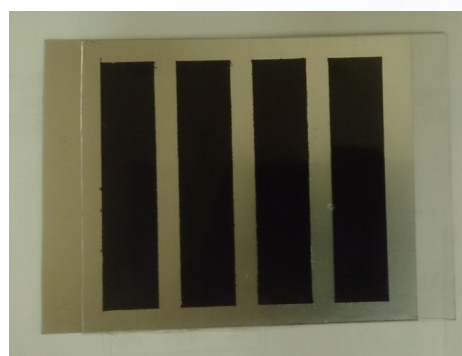
YunTech is Granted 3 Gold and 4 Silver Awards and 1 Copper Award at the 2014 Invention Innovation and Technology Exhibition!

The 25th Invention Innovation and Technology Exhibition was held from May 8th to 11th in the year of 2014 at the Kuala Lumpur Convention Centre, Malaysia. The teams from YunTech were granted 3 gold and 4 silver awards and 1 copper award.

The awarded products are listed below:

The first gold awarded product, "Development of Novel Diametric Cholesterol Derivatives," was invented by students Chen Chien-wen under the instruction of Associate Professor Chou Tzung-han of the Department Chemical Engineering. This product combines 3 kinds of novel diametric cholesterol derivatives (DCDs) using an easier and more economical method. By observing dynamic light scatterings and the result from electron transmission microscopes, we can know that the nanostructures in round and multi-angular shapes will become polymeric substances through a self-assembling process. The substances are not poisonous and can be used to carry medicine safely.

The second gold awarded product, "Dye-Sensitized Solar Cell and Method for Fabricating the Same," was invented by students Chiu Yu-yi, Chuang Shen-wei, Hu Rei-en and Yang Su-ying under the instruction of Professor Chou Jung-chuan of the Department of Electronic Engineering. By adding a reflecting surface, the absorption of second light improved, thus increasing the photoelectric efficiencies of fabricating.



Sensitized Solar Cell and Method for Fabricating the Same"

The last gold awarded product, "Fabrication Method of Dye-sensitized Solar Cells and Electrochemical Analysis Device," was invented by students You Yi-min, Yang Chen-jung and Chen Chen-wei under the instruction of Professor Chou Jung-chuan of the Department of Electronic Engineering. The invention is a new device for the analysis of dye-sensitized solar cells. The tight formation that comes with the method can increase transmission efficiencies and prevent the production of back current.

The first silver awarded product, "Fabrication Method of Back Contact Solar Cells," was invented by students Nien Sou-yu, Chen Ting-chia, Chen Tei-fei and Li Chou-chen under the instruction of Associate Professor Lin Jian-yang of the Department of Electronic Engineering. The proposed method can be adopted to improve power generation efficiencies of both mono-crystalline silicon solar cells and poly-crystalline silicon solar cells.

The second silver awarded product, "Smart Innovation Water-Saving Washing Machine System," was invented by students Tsai Min-chan, Li Shin-yun, Chu Feng-ren and Chen Chiou-yi under the instruction of Professor Wan Terng-jou of the Department of Safety Health and Environmental Engineering. According to Professor Wan, the water-saving washing machine saves 50 percent of power and 60 percent of water, and the carbon dioxide emission is lower than traditional washing machines. If 10 percent of the traditional ones

YunTech Has an Excellent Performance at the 29th Invention & New Product Exposition, Pittsburgh!

The 29th Invention & New Product Exposition (INPEX) took place from June 18th to 20th in the year of 2014. The team from YunTech was granted a gold and 2 silver awards.

The awarded inventions are listed below:

The gold-awarded product, "Green-Friendly Trash Container," was invented by students Chen Kuan-chen, Liu Wen-chie and Chiu Hsien-yi under the instruction of Associate Professor Chen Hsi-chao of the Department of Electronic Engineering. The main idea is originally from the high-tech trash containers used in public places in the United States. The high-tech trash containers combine solar energy, internet and deflation techniques. The Green-Friendly Trash Container can distinguish and categorize the different kinds of trash. Regardless of whether you are throwing tins or aluminum cans, plastic bottles or paper cups, it can distinguish and categorize them easily, thus reducing the working hours and labor for categorizing them. The power used in distinguishing and categorizing the trash is from solar energy saved through solar cells. Also, a reminding light is installed on the hole that is used for throwing trashes inside. With the light, the public can easily find the right place

to throw their trash instead of disposing of their trash by leaving it outside the trash container. It is expected to equip the deflation technique to the trash container, making it easier to collect a large amount of trash and increasing the efficiency of trash collection..

The first silver-awarded product, "Using Fly Ash and Spent Catalyst Synthesizing Sorbents to Improve Indoor Air Quality and Capture CO₂ from Flue," was invented by students Wu Shan-ru, Chen You-shuan, Huang Yu-shan, Kuo Li-wei and Lu Chun-yuan under the instruction of Professor Hsieh Chu-chin of the Department of Safety Health and Environmental Engineering. This method has already been used by clinics to improve the air quality. In synthesizing wastes from factories, green materials which can remove bacteria, CO₂ and volatile organic compounds will be produced. The air quality will definitely be improved this way. After several experiments were done, there was resounding proof for the efficacy of the method. It is expected that this method will be used indoors in public places in the future to improve air quality.

The second silver-awarded product, "Penicillin G Biosensor, Systems Comprising the Same, and Measurement Using the Systems," was invented by students Yen Chi-hsin, Lai Yi-ting and Lin Chin-yi under the instruction of Professor Chou Jung-chuan of the Department of Electronic Engineering. The biosensors are small, low cost, easy to use and fast. Furthermore, they can measure the concentration of enzymes effectively and read the measurement correctly. With the features listed above, the biosensors can be used in the measurement of penicillin, blood testing and home health check-ups.

Due to their practicality and the potential of the inventions, YunTech has been granted awards at INPEX over these years. Moreover, all the inventions that took part in the competition this time were granted patents. The inventions can be merchandized in the future.



Student Kuan-chen Chen (in the middle) accepting an award at the 29th Invention & New Product Exposition.

Digital Art Space Light Conversion Lighting Design Changes Your Emotions!

The 2014 Macau International Innovation & Invention Expo was held from June 27th to 29th at the Macau Fisherman's Wharf & Exhibition Center. The research teams from YunTech were granted 2 gold, 2 silver, 1 copper and 2 special awards. Among the awarded products, the gold-awarded product "Digital Art Space Light Conversion Lighting Design," was further granted a special award. "Digital Art Space Light Conversion Lighting Design" was invented by student Pei-yu Liao under the instruction of Assistant Professor Chen-yuan Liu of the Department of Visual Communication Design. Sensors are installed on lamps, which can then interact with pedestrians from a variety of distances. Different colors and brightness will bring you different feelings and change your emotions even when you are alone.

The second gold-awarded product, "Dye-sensitized Solar Cells," was invented by students Huang Chin-hui, Hu Rei-en, Chuan Wei-shen, Lin Shin-chan and Liao Yi-hung under the instruction of Professor Chou Jung-chuan of the Department of Electronic Engineering. It has been proved that the solar cells can improve the efficiency of components, thus advancing their functions and saving time and money.

The silver-awarded product, "Real-time Indoor Positioning System Based on RFID Heron-Bilateration Location Estimation and IMU Inertial-Navigation Location Estimation," was also granted a special award. The product was invented by students Wu Lien-rung and Lai Tsu-hou under the instruction of Assistant Professor Ho Chian-chen of the Department of Electrical Engineering. The real-time indoor positioning system combines the advantages of RFID heron-bilateration

location estimation and IMU inertial-navigation location estimation so that the new system can help shoppers to locate themselves at whole-selling markets. Also, the system can assist shoppers in organizing their shopping routes, making it easier to shop.

The other silver-awarded product, "Green Traffic Cone," was invented by student Chen Hung-yi under the instruction of Professor Tu Jui-che of the College of Design. This invention has 5 features. 1) The exterior of the cone is in the shape of a concave. The concave side can serve as a living place if the cone collapses. 2) The interior of the cone is installed with illuminating devices and it features as a lantern and a storage battery as well. 3) The storage battery is also a Green Science-Enviro Water Battery and is therefore reusable. 4) The three doors use soft scrolling materials. If the cone collapses, the doors can still be opened. 5) Food, water, and basic medical components are placed inside the cone. Rotating shelves and conveyer belts are adopted as the main structures, thus reducing the limitations associated with hiding.

The copper-awarded product, "Development of a Series of Novel Materials for the Drug Carrier," was invented by student Chen Chien-wen under the instruction of Associate Professor Chou Tzung-han of the Department of Chemical Engineering. By using this new method, it will be easier and more economical to synthesize new sterol derivatives (SO). The round nanostructure makes it easier to synthesize aggregates in aqueous solution. The method can be applied to aesthetic medicine as well. Full absorption of the molecules in aesthetic medicine is highly possible.



The photo of the winners, Pei-yu Liao (left), Assistant Professor Chen-yuan Liu (center), Tsu-hou Lai (right)

Publisher: Chun-Kan Hou

Publication Office: National Yunlin University of Science and Technology

Chief of Newsletter of NYUST Editing Committee: Kwo-Ting Fang

Chief Editor: Shinn-Hwa Chen

Executive Editor: Yi-Lan Dong

Translator: Huei-Ching Kang

Cover Design: Sheng-Hsiung Hsu

Tel: +886-5-534-2601

Fax: +886-5-532-1719

Address: 123 University Road, Section 3, Douliou, Yunlin, Taiwan 64002, R.O.C.

http://www.yuntech.edu.tw

E-mail: aax@yuntech.edu.tw