PROGRAM BOOK
ICE-ELINVO CONFERENCE
13th September 2018
The International Conference on Electrical, Electronics, Informatics, and Vocational Education
Sharpening the Capability of Electrical, Electronics, Information Engineering, and Vocational Education Toward Industry 4.0

OPENING CEREMONY
THURSDAY, 13th SEPTEMBER 2018
Digital Library
Universitas Negeri Yogyakarta

| Item                                                                 |
|----------------------------------------------------------------------|
| Opening Remark                                                       |
| National Anthem “Indonesia Raya”                                     |
| Report by Committee Chair                                            |
| Welcome Address by Dean of Engineering Faculty                       |
| Speech and Formal Opening by Rector of Universitas Negeri Yogyakarta |
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Preface

Welcome to ICE-ELINVO 2018

Assalamu’alaikum wa rahmatullahi wa barakatuh
Please be upon you in God's mercy and blessings.

It is our great pleasure to welcome you to the International Conference on Electrical, Electronics, Informatics, and Vocational Education (IC-ELINVO2018), held at Digital Library, Universitas Negeri Yogyakarta, Yogyakarta, Indonesia. The Conference is a continuation of the national conferences in 2015, 2016, and 2017, respectively. The main theme of this conference now is “Sharpening the Capability of Electrical, Electronics, Information Engineering, and Vocational Education toward Industry 4.0.” The primary goal of this conference is, therefore, to provide an international forum for researcher and practitioner to share ideas in all aspect of how to enhance the vocational capability related to Electrical, Electronics, and Information Engineering in the 4th industrial version.

Today, we have about 100 participations both as speakers and participants, including researchers, teachers, students, industrial experts, and professionals joining this conference. They come together here to exchange, discuss, and demonstrate research ideas. To make this conference on schedule, we have a three session of plenary speed delivered by three speakers from different countries and three parallel sessions. are very optimistic that all participants will acquire new ideas and knowledge from this conference to enhance the capability toward Industry 4.0. We would encourage all participants to take active parts in the interesting presentation and discussion.

Last but not least, we would like to express our sincere gratitude to everyone involved in supporting the conference success, although there are too many for me to name one by one. I would like to thank the keynote speakers, co-host, AMIKOM University, the program committee, the reviewers, the conference participants, and all the other sponsors for their great support to make this event possible. In particular, we would sincerely appreciate the financial support from the Indonesian Ministry of Research, Technology and Higher Education (RISTEKDIKTI) in collaboration with Universitas Negeri Yogyakarta.

Again, it is our great pleasure to have you with us at this conference. We wish all speakers and participants have a fruitful conference and can enjoy staying in this splendid city, Yogyakarta. We hope this conference can successfully bring in our work to further prosperity and well being for our people. Thank you very much.

Wassalamu’alaikum warrahmatullah wabarackatuh.
Rector Speech

Assalamu’alaikum warahmatullah wabarakatuh.
May peace and God’s blessings be upon all of us.

Rapid development in vocational education, particularly in the field of Electrical Engineering, Electronics, and Informatics, have received significant attention due to the rapid development in information technology. Such rapid development and directions in vocational education need to be presented, discussed, and disseminated. The International Conference on Electrical, Electronics, Informatics, and Vocational Education (ICE-ELINVO 2018) hosted by the Department of Electronics and Informatics Engineering Education of Universitas Negeri Yogyakarta (UNY) is such a conference where researchers, practicians, and educators share their research findings, best practices, and ideas.

UNY, as one of the leading universities in Indonesia – now rank 11 nationally – has a high commitment and is highly determined to promote development in vocational education. We are also happy to support efforts that ICE – ELINVO 2018 has done to contribute to the development of electrical engineering, electronics, informatics, and vocational education in Indonesia in particular, and worldwide in general.

Finally, appreciation and gratitude are for all committee members and those who have been working hard to make this conference possible. I also hope that this conference will contribute to the upbringing of not only the vocational education, but also the scientific life in general.

Wassalamu’alaikum warrahmatullah wabarakaatu.

Yogyakarta, 8 September 2018
Prof. Dr. Sutrisna Wibawa, M. Pd.
Rector
List Of Conference

Patron

Prof. Dr. Sutrisna Wibawa, Rector of Universitas Negeri Yogyakarta, INDONESIA

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4. Assoc Prof. Dr. T. Herawan, Universitas Negeri Yogyakarta, INDONESIA

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23. Dr. Habib Shah, Islamic University of Madinah, SAUDI ARABIA (Scopus ID: 55077194100)
24. Dr. Younes Saadi, Batna University, ALGERIA (Scopus ID: 55602551000)
25. Dr. Haruna Chiroma, Federal College of Education, NIGERIA (Scopus ID: 55583663400)

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1. Dr. Putu Sudira, Universitas Negeri Yogyakarta, INDONESIA
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3. Rustam Asnawi, Ph.D., Universitas Negeri Yogyakarta, INDONESIA
4. Suprapto, Ph.D., Universitas Negeri Yogyakarta, INDONESIA
5. Assoc Prof. Dr. T. Herawan, Universitas Negeri Yogyakarta, INDONESIA

Conference Chair

Dr. phil. Rahmatul Irfan, Universitas Negeri Yogyakarta, INDONESIA

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8. Dr. Umi Rochayati, Universitas Negeri Yogyakarta, INDONESIA
Curriculum Vitae and Plenary Speech

Keynote 1

Prof. GWO-DONG CHEN, Ph.D.

(Professor of Computer Science and Information Engineering, National Central University - TAIWAN)

Gwo-dong Chen was born at 1957 Tainan, Taiwan. He got his BS, MS, Ph. D. degrees from Department of Electrical Engineering from National Taiwan University, Taiwan at 1979,1982,1991 respectively. Currently, he is CSIE chair professor of Department of Computer Science and Information Engineering, National Central University. In 2003 to 2005, he was the chairman of Department of Computer Science and Information Engineering. He got distinguished research award from National Science council at 2001-2002, and 2003-2005 respectively. Since 2004 to 2014, he was the CEO of the project office that in charge of National cross ministries E-learning program of Taiwan government. He was the director general of Department of Science Education of National Science Council of Taiwan at 2010 to 2013. After the service in the government, he was the dean of research and development affair office of National Central University at 2013. In 2014-2018, he served as CEO of project office for Aim for the TOP university at National Central University.

The research topics of Dr. Chen is on Human Computer Interaction for technology enhanced learning. His current research topic is on Digital Theater for Drama based Learning. He introduced the concept and built a system of Digital Theater that is to support contextual learning, situated learning, and authentic learning. The Digital Theater, including virtual environment, robot, and virtual human, enable the students learn by design and performing drama based on the contents of the textbooks. The Digital Theater is designed based on the concept of “Computer as a Theater” and users interact with the digital system by using natural interaction.
Title: A digital theater for drama based on learning in the classroom

Prof. GWO-DONG CHEN, Ph.D. (Professor of Computer Science and Information Engineering, National Central University - TAIWAN)

Abstract:

Situated cognition emphasizes that people's knowledge is constructed within and linked to the activities, context, and culture in which it was learned. Contextual learning emphasizing learning takes place when teachers are able to present information in a way that enables students to construct meaning based on their own experiences. Based on these two theories, we introduce and build a digital theater for the classroom where students and teachers can create a drama and design their scene for activities, context, and culture and develop learning content in the scenes. Furthermore, the students can learn by performing in groups on the virtual stage designed by students and generated by Digital theater.

I introduced the digital drama-based learning by using Digital Theater. The digital drama-based learning has the unique features: (1) sense of audience, (2) sense of role playing, and (3) sense of living through. Our digital theater was designed to offering the actors the three senses and the facilities for learning through script writing, learning by performing, and learning by watching and reflection. The drama-based learning shifted the students from a pressure of learning to the joy of drama rehearsal and performing.

I presented the four year experiences and finding of using our digital theater approach in school's ordinary courses and demonstrated our digital theater and how teacher and students used our system in learning.
Keynote 2

Curriculum Vitae of Dr. CHO EUNSANG
(Korea Research Institute for Vocational Education and Training)

Dr. Cho has worked as a programmer specialist as well as a regional coordinator for Asia Pacific Bureau for Education at UNESCO, Bangkok from June, 2016 to June, 2018. Before joining UNESCO, he has worked for UNESCO BEAR (Best Education Africa Rise) as a project manager in Malawi from 2012-2015.

He has been a Senior Research Fellow at Korea Research Institute for Vocational Education and Training (KRIVET), Seoul, Korea since 1997. He specializes in human resource development, vocational training, organizational development, and human resource management. He was a consultant in training evaluation for International Labor Organization, Switzerland and an expert of technical and vocational education and training at INTECAP (Government Training Institution) of Guatemala.

He has extensive experience in international organizations, particularly with APEC, UNESCO, ILO and OECD. He was also an advisory committee member for Human Resource Development International, reviewer for Human Resource Development Quarterly and Advances in Developing Human Resources.

He received Ph.D. degree in Human Resource Development from University of Minnesota, U.S.A. (1997), MA degrees in Economics (1987) and industrial relations (1989) from Michigan State University, U.S.A. and BA degree in Economics from Hankuk University of Foreign Studies, Seoul, Korea (1983).
Executive summary

The focus of the paper is on the TVET policies for employment and entrepreneurship in Asia Pacific. An overview of labour market in Asia Pacific is briefly reviewed, followed by the review of National economic and social plans in Asia Pacific, such as India, Korea, Nepal. The strategic industries and major industrial development in Asia Pacific are explained in terms of different development phases. The main features of TVET policies are briefly reviewed together with the suggestions for TVET policies for employment.

Regarding entrepreneurship, different types of skills are explained and then TVET policies for entrepreneurship in AP are suggested along with issues and barriers of TVET policy development.

The analysis of the paper led to the following recommendations:

TVET policies:

- Increase awareness of the need for skilling among all stakeholders
- Make training continuously relevant to industry needs
- Structural reforms to make easier access to TVET system and to transfer within and from that system
- Develop ‘Blended skills training’ combining entrepreneurial, business, technical and soft skills
- Improve capacity for monitoring and evaluation

Entrepreneurship policies:

- Introduce or strengthen youth-orientated and youth-friendly business development services
- Encourage private sector sponsorship for entrepreneurial training
- Link up business with entrepreneurship education
- Develop tailor-made training for teachers who would teach the entrepreneurship course
- Governments should set up a national steering committee for entrepreneurship education, including representatives from different ministries and relevant stakeholders (including delivery partners and NGOs), with the objective of launching and developing a national strategy.
Legal framework should be created so that it enables EPE, and makes the necessary funds available.
Keynote 3

Biography of Prof. Soenarto, MA., M.Sc, Ph.D
(Professor in Vocational Education, Yogyakarta State University)

Prof. Soenarto, MA., M.Sc, Ph.D was born at 1948 Yogyakarta, Indonesia. He got his Ph. D. degrees from Industrial Vocational Education from Ohio State University, USA at 1988 respectively. Currently, he is one of professor of Department of Vocational and Technology, Universitas Negeri Yogyakarta.

In 2004 to 2008, he was chief of Department of Vocational and Technology for master and doctor degree. In the same time, he became a development team to improve the quality of learning at Ministry of Research, Technology and Higher Education of The Republic of Indonesia. He was also an assessor of The National Accreditation Board in 2004 – 2010. In 2007 to 2008, he was a chairman of verification team of SMK- BI GTZ, cooperation between PPs-UNY with Germany Institute (IGI). He was the director program of Master Degree Program UNY at 2008 to 2012. In 2012, he was also a consultant and researcher, Social Ministry of The Republic Indonesia.

The research topics of Prof. Soenarto is on Educational Evaluation. One of publication related to Educational Evaluation was Evaluation Model of School Quality Assurance presented at International Conference at SIBR Hongkong in 2014. He was as a keynote speaker in seminars and trainings related to Vocational Education and Technology domestically and abroad.
Conference Information

Area Map

Conference Venue (Floor Plan)

3rd Floor
# Program Schedule

**TECHNICAL PROGRAM**

The International Conference on Electrical, Electronics, Informatics, and Vocational Education 2018  
Sharpening the Capability of Electrical, Electronics, Information Engineering, and Vocational Education Toward Industry 4.0

**September 13th, 2018 (Thursday)**

| TIME    | AGENDA                                      |
|---------|---------------------------------------------|
| 08:00-08:30 | Registration                               |
| 08:30-09:15 | **OPENING**                                |
| 08:30-09:15 | **SPEAKER I**                              |
| 09:15-09:45 | Prof. GWO-DONG CHEN, Ph.D. (Professor of Computer Science and Information Engineering, National Central University - TAIWAN) |
| 09:45-10:00 | Discussion                                 |
| 10:00-10:05 | Token of Appreciation                      |
| 10:05-10:15 | Group Photo Session                        |
| 10:15-10:30 | Coffee Break                               |
| 10:30-11:30 | **SPEAKER II**                             |
| 10:30-11:30 | Dr. CHO EUNSANG (Korea Research Institute for Vocational Education and Training) |
| 10:30-11:30 | **SPEAKER III**                            |
| Time           | Session/Activity                                                                 |
|---------------|----------------------------------------------------------------------------------|
| 11:30-11:50   | Discussion                                                                      |
| 11:50-12:00   | Token of Appreciation                                                           |
| 12:00-13:00   | LUNCH BREAK                                                                     |
|               | PIC: Rustam Asnawi, Ph.D                                                        |
| 13:00-15:00   | Panel Session                                                                   |
| Room 1        | Room 2                                                                           |
| (Topic:       | (Topic: Vocational Education)                                                   |
| Electrical    | (12 orang)                                                                      |
| and Electronic| Mini Video Conference Room                                                       |
| Engineering)  |                                                                                  |
| Main Hall     | Room 3                                                                           |
| Digital       | (Topic: Informatics)                                                             |
| Library UNY   | Collaborative Room                                                               |
|               |                                                                                  |
| Session Chair | Session Chair: Dr. Putu Sudira.                                                  |
| Dr. Mashoedah | Session Chair: Dr. Kus'Ini, M.Kom                                                |
| 15:00-15:30   | Coffee Break                                                                     |
| 15:30-16:00   | Room 1 Session II (Vocational Education)                                         |
|               | Room 2 Session II (Informatics)                                                  |
|               | Room 3 Session II (Informatics)                                                  |
| Session Chair | Session Chair: Dr. Arief Setyanto, M.T                                          |
| Dr. Mashoedah | Session Chair: Dr. Ratna Wardani, S.Si., M.T.                                   |
| 16:00-17:00   | Lunch Break                                                                      |
|               | PIC: Rustam Asnawi, Ph.D                                                        |
# List Of Title And Abstract Presenter

## ROOM 1 Session I

| #  | Authors                  | Papers ID  | Category                  | Title                                                                 |
|----|--------------------------|------------|---------------------------|-----------------------------------------------------------------------|
| 1  | Rustam Asnawi            | KRYO145G   | Electrical                | The Characteristic of Supercapacitors Circuit as a Future Electrical   |
|    |                          |            |                           | Energy Storage Media                                                 |
| 2  | Ghia Pisti Cikarge       | L1QMV92Y   | Electrical and Electronics| Oyster Mushrooms Humidity Control Based On Fuzzy Logic By Using       |
|    |                          |            |                           | Arduino ATmega238 Microcontroller                                      |
| 3  | Moh Khairudin            | XBP1KQD2   | Electrical and Electronics| PID CONTROL FOR A MANIPULATOR ROBOT USING INTERNET NETWORKING AND      |
|    |                          |            |                           | MATLAB-BASED                                                         |
| 4  | Deny Budi Hertanto       | NP8BC4VL   | Electrical and Electronics| Anti-Drowsiness Helmet Using Heartbeat Sensor and Thermoelectric     |
|    |                          |            |                           | Cooler to Help Reduce Accident Rate                                  |
| 5  | TARYUDI                  | CRDXWZ0E   | Electrical and Electronics| IoT-Based Integrated Home Security and Monitoring System              |
| 6  | Moh Khairudin            | DUOZQLPV   | Electrical and Electronics| SOLAR TRACKER ON SOLAR HOME SYSTEM TO OPTIMIZE SUNLIGHT ABSORPTION   |
| 7  | Nur Hasanah              | P2MS3VOZ   | Informatics               | Smart System For Early Detection Of Lung Diseases                     |