BOOK OF PROGRAMS

SMARTEX PROJECT FINAL CONFERENCE

AUDITORIUM, 4TH FLOOR MAGISTER BUILDING
POLITEKNIK STTT BANDUNG

TUESDAY, 04 JULY 2023
09.00AM - 04.00 PM

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Remarks from Director of Politeknik STTT Tina Martina, A.T., M.Si.

Dear participants of Smartex Final Conference,

On behalf of Politeknik STTT Bandung, I am pleased to welcome you to the Smartex Final Conference today, Tuesday, the 4th of July, 2023. Special welcome to our international partners who are for the very first time visiting our campus, or even Indonesia. You are here now, in the auditorium of Politeknik STTT Bandung, the only higher education institution in textile technology owned by the Indonesian government, under the Ministry of Industry. We are located in the capital of West Java, the city of Bandung, which since the past time, during the Dutch colonialism, has been given a nickname, parijs van java.

Smartex is particularly special for us because it is the first international project in which Politeknik STTT Bandung is a member of the consortium of multinational partners. This has given more opportunity for STTT not only to learn but more importantly expand its global network with potential for further cooperation and collaboration at different levels of any possible areas. Smartex project has become one of our priority programs in the development of international cooperation apart from the other projects with European partners that we have started, such as Enatex which is funded (2021-2024) by the German Ministry of Research and Higher Education (BMBF) and Edu4SmartTex which is funded (2022-2025) by DAAD (Deutscher Akademischer Austauschdienst or German Academic Exchange Service). Additionally, we are also actively engaged in several other collaborative projects with partners from Japan and China. Those international cooperation projects have become some of our strategic programs in realizing the vision of being a provider of vocational education in the field of textiles on a global scale. For this regards, I would like to send my highest appreciation to the Smartex Project Team of Politeknik STTT Bandung, that with their hard yet smart works, with their full efforts, all project deliverables have been achieved.

Today's conference, in particular, also has an important meaning, not only as a sign of the end of the Smartex project, but also must be seen as a very beneficial scientific forum for developing expertise networks and also the development or improvement of textile technology in the future through collaboration with related stakeholders. Your participation and contribution in the conference, by sharing and exchanging ideas, invigorate the spirit of the collaboration. Finally, I wish you all an insightful and rewarding discussion during the conference.

Thank you.

Bandung, July 04, 2023

Yours, faithfully

Tina Martina, A.T., M.T.

Director of Politeknik STTT Bandung

Remarks from Smartex Project Coordinator Prof. Georgios Priniotakis

We are very pleased to announce the Final Conference of SMARTEX European project (http://www.smartexproject.eu/index.php/en/) funded by Erasmus+ programme, which is going to take place on the 4th of July 2023 in Bandung, Indonesia and it will be organized by our Asian Partner Politeknik STTT Bandung. The venue will be in Politeknik STTT Bandung, located in Auditorium Magister Building, 4th floor.

The SMARTEX FINAL Conference covers all areas of SMART Textiles SMARTEX - 'Smart textiles - Modernisation of curriculum of Textile Engineering and Textile Technology in Indonesia, Malaysia and Pakistan' (Project reference number 610465-EPP-1-2019-1-EL-EPPKA2-CBHE-JP, Duration: 15/01/2020 - 14/07/2023) is a curriculum development CBHE Erasmus+ project. It involves three EU universities (from Greece, Belgium and Spain), a training and consultancy company from Greece plus 2 Universities from Malaysia, 2 from Indonesia and 2 from Pakistan, all having departments in the field of textiles engineering and fashion.

The general objective of the project is to support the modernisation and internationalisation of Higher Education Institutes in Malaysia, Indonesia and Pakistan, in the context of the priorities identified in the New EU Consensus in Development and the EU Higher Education in the World.

The focus of this project is on the development of the curriculum of Textile Engineering and Textile Technology studies at the bachelor level for universities in Pakistan, Malaysia and Indonesia. All 3 Asian partner countries have very developed textile industry and high dependency on it as far as critical indicators (employment, GDP, exports etc.) are concerned. The new and updated curriculums will focus on textile engineering, especially on smart and technical textiles. Technical and smart textiles are a fast-growing area of textiles. They combine new materials with innovative applications. Unlike conventional textiles, their applications are very diverse. They include, agrotech, buildtech, clothtech, geotech, indutech, meditech, mobiltech, packtech, protech etc. Owing to a wide range of applications, the technical and smart textile products development needs knowledge from different fields. This project will support the modernisation and internationalisation of Asian HEIs and will result in sharing of good practices with partners and upgrading the competencies of textile engineering graduates, which will enable the development of new products.

For the SMARTEX project Final Conference, it is our expectation to bring together our partners and other scientists for an excellent scientific conference. The scientific program will consist of keynote lectures and oral presentations, ranging from experts, academicians, industry executives and project leaders to dynamic and ambitious students in order to exchange state-of-the-art research and development and identify research needs and opportunities in the emerging field of SMART Textiles.

We, therefore, anticipate a very energetic and dynamic scientific gathering!

We look forward to welcoming you to SMARTEX FINAL Conference in Bandung, Indonesia and in return promise a rewarding and enjoyable conference!

Professor Georgios Priniotakis
Lab of Innovative Textile Technologies for Multifunctional Garments
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SMARTEX Project Coordinator
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Remarks and Final Report from Project Manager of Politeknik STTT Bandung

Dr. Ida Nuramdhani, S.Si.T., M.Sc.

Dear colleagues and partners,

Welcome to the city of Bandung, Indonesia, especially to our foreign Smartex partners from Belgium, Greece, Pakistan and Malaysia. To all participants, welcome to Politeknik STTT Bandung, the only government-owned higher education institution focusing on textile technology, garment and fashion design in Indonesia.

It is a great pleasure and honour for me to finally welcome you to this exceptional event of "Smartex Final Conference", which is the sign of the end of the project that has successfully carried on for the last three and a half year since the end of 2019. It is also worth mention that the project has been enduring difficult times during the global pandemic of COVID-19, which covered practically almost the whole period of the project. Up and down situations, challenging communication dynamics, and any other special circumstances have been faced during this period, but then finally, with all gratitude, we are up to this remarkable time, "strongly" and gratefully. The fact that we are all here now is an evidence that outstanding commitments and dedication have been given by all the team members and partners across different continents.

The smartex project, which is a collaboration with universities providing education in textile technology and textile engineering in Europe and Asia, is a beneficial and mutual international cooperation for the development and internationalization of educational programs of each partner. For Politeknik STTT Bandung itself, it is indeed in line with the vision of the university to become an excellent global vocational higher education institution in textile technology, garment and fashion design. The involvement of Politeknik STTT as one of the

Smartex consortium members has given and opened up priceless opportunities to play and socialize in a larger arena of textile communities in the world.

In this special occasion, as the Smartex project manager of Politeknik STTT Bandung (P7), I would like to proudly final report our achievements of the project, especially for some noteworthy deliverables. One of main goals of this project have been achieved by updating three existing courses which have been implemented in three departments of our Bachelor degree, i.e. Technical Textiles in the Department of Textile Enginnering, Smart Textiles and Fashionable Technology in the Department of Textile Chemistry, as well as Advanced Garment and Smart Clothing in the Department of Garment Production and its concentration of Fashion Design. For those courses, Smartex project team of Politeknik STTT has developed 11 modules written in English among the total of 87 modules developed by the whole Smartex partners. We also have translated 29 modules as topics included in the three mentioned courses. The module titles as well as the writers from Politeknik STTT and reviewers from the European Universities are as follow:

Module Codes	Module Titles	Writers	Reviewers
M36 – 37	Introduction to Advanced garment and Smart Clothing	- Mohamad Widodo - Karlina Somantri	Evangelos Louris (UNIWA, Greece)
M40	Conductive Polymers	- Hardianto - Ikhwanul Muslim	Lieva Van Langenhove (UGent, Belgium) Benny Malengier (UGent, Belgium) Granch Berhe Tsegai UGent, Belgium)

Module Codes	Module Titles	Writers	Reviewers
M44	Smart Dyes	- Ida Nuramdhani	Eva Bou Belda (UPV, Spain)
M47	Optical Fiber	- Asril Senoaji Soekoco	Lieva Van Langenhove (UGent, Belgium) Benny Malengier (UGent, Belgium)
M48	Smart and Adaptive Polymers	- Ida Nuramdhani - Mohamad Widodo	Lieva Van Langenhove (UGent, Belgium) Benny Malengier (UGent, Belgium) Granch Berhe Tsegai UGent, Belgium)
M93	Wearable Technology and E-Textiles	- Wiah Wardiningsih - Hardianto	Benny Malengier (UGent, Belgium)
M94	Integration of Conductive Materials	- Gunawan - Irfandhani Fauzi	Benny Malengier (UGent, Belgium)
M96 M02-03-07	Fibers and Yarns for Technical Textiles	- Wiah Wardiningsih	Maria Angeles Bonet Aracil (UPV, Spain) Jaime Gisbert Paya (UPV, Spain)
M97-M04A	Woven Fabric for Technical Textiles	- Gunawan	

Module Codes	Module Titles	Writers	Reviewers
M98 – M04B	Knitted Fabric for Technical Textiles	- Gunawan	
M100 M30-31-32	Non-Woven	- Asril Senoaji Soekoco	Pablo Diaz Garcia (UPV, Spain)

The three courses updated have been implemented in the Pilot Teaching for semester 5 students in the three departments of our Bachelor degree in the odd semester of academic years 2021-2022 and 2022-2023. Number of students involved are depicted in the table below:

Course Name – Department Name	Teaching Team	Total Number of Students Participated	
		Odd Semester 2021/2011	Odd Semester 2022/2023
"Smart Textiles and Fashionable Technology" – Departement of Textile Chemistry	Course Coordinator: Dr. Ida Nuramdhani, S.Si.T.,M.Sc. Team Members: Dr. Mohamad Widodo, A.T.,M.Tech. Dr. Hardianto, S.Si.T.,M.Eng.	Class K1K2 42 Students Class K3K4 45 Students	Class K1K2 48 Students Class K3K4 50 Students
Sub Total 1: Number of Textile Chemistry students participated in the pilot teaching:		**87 Students**	**98 Students**

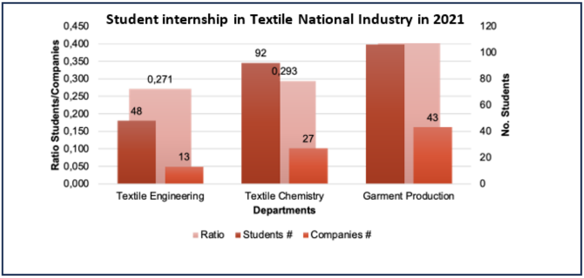
Course Name – Department Name	Teaching Team	Total Number of Students Participated	
		Odd Semester 2021/2011	Odd Semester 2022/2023
"Technical Textiles" – Departement of Textile Engineering	Course Coordinator: Gunawan, S.Si.T.,M.Sc. Team Members: Dr. Wiah Wardaningsih, S.Si.T.,M.Tech. Dr.Eng. Hendra, S.Si.T., M.Eng. Asril Senoaji, S.S.T.,M.T.	Class T1T2 40 Students Class T3T4 40 Students	Class T1T2 40 Students Class T3T4 40 Students
Sub Total 2: Number of Textile Engineering students participated in the pilot teaching:		**80 Students**	**80 Students**
"Advanced Garment and Smart Clothing" – Department of Garment Technology	Course Coordinator: Dr. Mohamad Widodo, A.T.,M.Tech. Team Members: Dr. Ida Nuramdhani, S.Si.T.,M.Sc. Dr. Wiah Wardaningsih, S.Si.T.,M.Tech. Dr. Hardianto, S.Si.T.,M.Eng.	Class G1G2 29 Students Class G3G4 31 Students	Class G1G2 52 Students GP+ Fashion Design Class G3G4 34 Students
Sub Total 3: Number of Garment Production and Its Concentration of Fashion Design students participated in the pilot teaching:		**60 Students**	**86 Students**

Course Name – Department Name	Teaching Team	Total Number of Students Participated	
		Odd Semester 2021/2011	Odd Semester 2022/2023
TOTAL STUDENTS OF POLITEKNIK STTT BANDUNG PARTICIPATED IN THE PILOT TEACHING		**237 STUDENTS**	**274 STUDENTS**
GRAND TOTAL		**491 STUDENTS**	
***TARGETED NUMBER OF STUDENTS INVOLVED IN THE PILOT TEACHING**		**100 STUDENTS**	

In the context of capacity building, Politeknik STTT has obtained 3 new equipment purchased from the project budget which has been used for education and research for students and staffs:

1. Electrochemical workstation potentiostat
2. Contact angle goniometer
3. High speed stirrer for making the micro- or nanometer sized particles/materials

In terms of internships and international mobilities, which are one of main deliverables in this project, we have implemented internships for 6 semester students in our national textile and garment industries and in the three European countries involved in this project for the context of international mobilities. For the internship in national textile industries, in the even semester 2021, we have sent 246 students to the total of 83 companies. The detailed data of this national internship activities is presented in the figure below. In addition, we have participated in the other activities of Smartex Project such as online and offline academic trainings, academic visits and symposiums in the Smartex partner universities, as well as management and consortium meetings.



Three students from our three departments who got opportunities for international mobilities are:

1. Nanda Choerunnisa (Dept. of Textile engineering student) – having internship in Belgium with the host university in the Department of Materials, Textiles and Chemical Engineering (MaTCh), UGent (Universiteit Gent), Gent, Belgium.
2. Danu Setia NUgraha (Dept. of Textile Chemistry student) – having internship in Spain with the host university in the Department of Textile and Paper Engineering, UPV (Universitat Politecnica de Valencia), Valencia, Spain.
3. Neng Saraswati Widyatami Budiarto (Dept. of Garment Production student) – having internship in Greece with the host university in the Department of Industrial Design and Production Engineering, UNIWA (University of West Attica), Piraeus, Greece.

The conference today, Tuesday, July 4, 2023, is the marking of the end of this project. I am grateful that we have a rich source of speakers today, who will talk mostly in the field of Smart

Textiles from different perspectives. The speakers of the first plenary sessions will be all academicians: Prof. Muhammad Tufail from NED University of Engineering, Karachi, Pakistan, Dr. Benny malengier from Ghent Univeristy, Belgium, and Dr. Mohamad Widodo from Politeknik STTT Bandung, Indonesia. Students from different departments, Nanda Choerunnisa, Danu Setia Nugraha, Kharisma Putri Wibowo, Neng Saraswati Widyatami Budiarto, and Syifa Aulia will be presented in the moderated talkshow of the second plenary session.

In the parallel sessions, altogether, we have 12 oral presenters coming from each partner of the Smartex project. We are so humble to host all national and international guests, participating in the conference representing the Smartex project partners (Universiteit Gent – Belgium, University of West Attica – Greece, NED University of Engineering – Pakistan, Bahaudin Zakaria University – Pakistan, Universiti Teknologi MARA – Malaysia, and Universiti Tun Husein Onn – Malaysia), Representatives of Polytechnics under the Indonesian Ministry of Industry, Indonesian Textile Industries and Associations, students and lecturers from other textile education institutions in Indonesian, and of course, our proud students and colleagues from Politeknik STTT Bandung.

Our highest appreciation and sincere gratitude goes to Badan Pengembangan Sumber Daya Manusia Industri – BPSDMI (Industrial Human Resource and Development Agency) the Indonesian Ministry of Industry and the management of Politeknik STTT for the full support given since the beginning of this project.

Finally, I have to mention my proud appreciation to all fellow members of the Smartex team of Politeknik STTT Bandung as well as the rest of the organizing committee of this conference who have been working hard all together realize all deliverables of this project and to prepare and realize this event today. May Allah SWT repay all the kindness and dedication that has been given.

And for you all, I wish you a fruitful discussion, more opportunities for networking and scientific experiences, and enjoyable stay in the city of Bandung.

Bandung, July 04, 2023

Dr. Ida Nuramdhani, S.Si.T., M.Sc.
P7 (Politeknik STTT Bandung) Smartex Project Manager

SMARTEX PROJECT TEAM OF POLITEKNIK STTT BANDUNG

Dr. Ida Nuramdhani, S.Si.T., M.Sc.
Project Manager and Researcher

Researchers

Dr. Muhamad Widodo, A.T., M.Tech.

Gunawan, S.Si.T., M.Sc.

Dr. Hardianto, S.Si.T., M.Eng.

Technical staff

Ikhwanul Muslim, S.Si.T., M.T.

Karlina Somantri, S.S.T., M.T.

Asril S. Soekoco, S.S.T., M.T.

Irfandhani Fauzi, S.S.T., M.Ds.

Administration and financial staff

Eric Hasmiraldi, S.Pd., M.Hum

Ngadiyono, S.T.

CONFERENCE ADDITIONAL SUPPORTING TEAM

Abdurrohman,
S.Si.T., M.Tr.T.

Sri Endah Handayani

Brilyan Muhammad Rasyid Ridho,
S.Si.T.

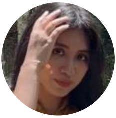
Resty Mayseptheny,
S.Si.T., M.T.

Atin Sumihartati, S.Si.T.,
M.T.

Roni Sahroni, S.Si.T.,
M.T. M.B.A.

Ursae Pramesvari,
S.ST.

Muhammad Bagus N.A,
M.T.



Jantera Sekar Tirta,
S.Tr.Si., M.Tr.T.

Desti Rahayu Pratama,
S.Ds.

Fauzi Jamaludin, A.Md.

Witri Aini Salis,
S.S.T., M.Tr.T.

Dinan Safta
Oktavian, S.ST.

Conference Information

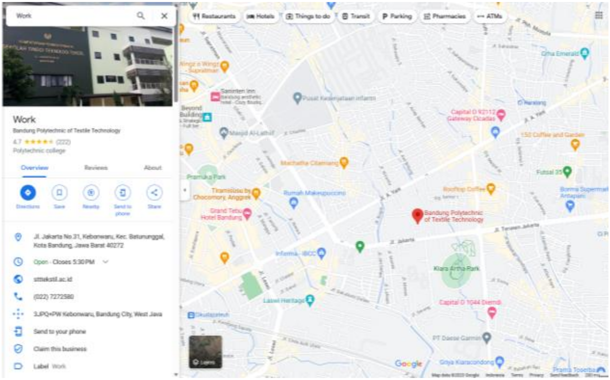
Date	**:**	Tuesday, July 04, 2023
Organizer	**:**	Politeknik STTT Bandung
Venue	**:**	Politeknik STTT Bandung – Auditorium of the 4th floor of Magister Building, Jalan Jakarta No.31, Kebonwaru, Batununggal, Bandung City, West Java, Indonesia Phone : +62 816-618-066 Email : anto_hardianto@yahoo.com
Official Language of delivery	**:**	English

Venue Map

Politeknik STTT Bandung – Auditorium of the 4th floor of Magister Building, Jalan Jakarta No.31, Kebonwaru, Batununggal, Bandung City, West Java, Indonesia

Phone : +62 816-618-066

Email : anto_hardianto@yahoo.com



Work
Bandung Polytechnic of Textile Technology
4.7 ★★★★★ (222)
Polytechnic college

Jl. Jakarta No.31, Kebonwaru, Kec. Batununggal, Kota Bandung, Jawa Barat 40272
Open · Closes 5:30PM
stttekstil.ac.id
(022) 7272580
3JPQ+PW Kebonwaru, Bandung City, West Java

Schedule

Time	Agenda
09.00 – 09.30 WIB	**Opening ceremony**
9.30 – 09.40 WIB	**Presentation from P7 Smartex Project Manager: Project Final Report (Dr.Ida Nuramdhani, S.Si.T., M.Sc.)**
09.40 – 09.50 WIB	**Souvenir exchange**
09.50 – 10.40 WIB	**Plenary Session**
10.40 – 10.50 WIB	**Coffee Break**
10.50 – 11.00 WIB	**Live Performance by GST**
11.00 – 11.45 WIB	**Talk Show 5 student representatives who have been involved in the pilot teaching of the courses updated in the Smartex project and international internships**
11.45 – 13.00 WIB	**Lunch Break and Praying Time**
13.00 – 14.00 WIB	**Parallel Sessions**
14.00 – 16.00 WIB	**Coffee Break & Social function between participants**
16.00 WIB	**Closing Remarks by Vice Director for Academic Affairs**

Plenary Session List

Venue	**: Magister Building**
1	**Integrated Techniques Employed in the Production of Modern Textile Composites** Prof. Muhammad Tufail, PhD, FIMechE, C. Eng. NED University, Karachi, Pakistan
2	**Textile electroosmotic pumps as elements to improve comfort** DR. Benny Malengier Ghent University, Belgium
3	**Anti-Biofouling with Switchable Release by Thermoresponsive Polymer of N-Isopropyl Acrylamide for Smart Antimicrobial Textiles** Mohamad Widodo, AT., M.Tech., Ph.D. Politeknik STTT Bandung, Indonesia

Parallel Session 1

Topic	**: Smart Textiles**
P1	**Eco design for smart textiles** Ioannis Chronis, Kyriaki Kiskira, Georgios Priniotakis Presenter : Ioannis Chronis University of West Attica
P2	**A Glimpse of Smart Textiles Research at CTSE, UGent** Carla Hertleer, Benny Malengier, Lieva Van Langenhove Presenter : Carla Hertleer From University of West Attica
P6	**Overview of Smart Textile Research in UTHM** Dr Siti Hana Nasir Presenter : Dr Siti Hana Nasir Universiti Tun Hussein Onn Malaysia
P8	**Implementation of Smart Technology in Sustainable Concept Theater Costume** Zaafira Ariana Sadaqah Presenter : Zaafira Ariana Sadaqah Institut Teknologi Bandung

Parallel Session 2

Topic	**: Textile Research**
P5	**Threads of Innovation: Textile Research at UiTM, Malaysia** Dr Atiyyah Musa Presenter : Dr Atiyyah Musa From Universiti Teknologi MARA
P6	**Driving Innovation and Growth: Malaysian Agricultural Crop Fiber Potentiality** Dr Mohd Nazrul Roslan Presenter : Dr Mohd Nazrul Roslan Universiti Tun Hussein Onn Malaysia
P7	**Extraction of Soybean Peroxidase and Its Application on the Aftertreatment of Cotton Reactive Dyeing** Danu Setia Nugraha Presenter : Danu Setia Nugraha From Politeknik STTT Bandung
P8	**Utilization of Shallot Waste as Anti-UV Textile Coloring Paste with Screen Printing Technique for Sportswear Products** Imara Raida Putri Jafari Presenter : Imara Raida Putri Jafari From Institut Teknologi Bandung

Parallel Session 3

Topic	**: Technical Textiles**
P6	**Overview of Technical Textile R&D in UTHM** DR Azrin Hani Abdul Rashid Presenter : DR Azrin Hani Abdul Rashid Universiti Tun Hussein Onn Malaysia
P7	**Development of Spacer Fabric as Smart Materials for Sound Absorption** Nanda Choerunnisa Presenter : Nanda Choerunnisa From Politeknik STTT Bandung
P9	**Development of nano fibre devices for mass scale production** Dr Abdul Waqar Rajput Presenter : Dr Abdul Waqar Rajput From Bahauddin Zakariya University-BZU
P10	**Enhancing Impact Performance with Continuous Fibre Reinforcement in Helmet** Prof. Dr. Bilal Zahid Presenter : Prof. Dr. Bilal Zahid From NED University of Engineering and Technology