

# 4th Annual International Conference on Industrial and Mechanical Engineering and Operations Management (IMEOM 2021)

December 26-27, 2021

*-Dhaka  
Bangladesh*

Organized by IEOM Bangladesh Chapter

Venue: Krishibid Institution Bangladesh (KIB), Farmgate

# Sponsors and Partners



## Organizer

## IEOM Bangladesh Chapter



**IEOM Society**

"Achieving and Sustaining Operational Excellence"

[www.ieomsociety.org](http://www.ieomsociety.org)

**Industrial Engineering and Operations Management Society International**

IEOM Society International, 21415 Civic Center Dr., Suite 217, Southfield, Michigan 48076, USA

Phone: 1-248-450-5660, Email: [info@ieomsociety.org](mailto:info@ieomsociety.org)

**Welcome to the 4<sup>th</sup> International Conference on Industrial & Mechanical Engineering and Operations Management  
IMEOM 2021 Dhaka  
Dhaka, Bangladesh, December 26-27, 2021**

**To All-Conference Attendees:**

On behalf of the IEOM Society of Bangladesh and IEOM Society International, we would like to welcome you to KIBC, Dhaka, Bangladesh and the **4<sup>th</sup> International Conference on Industrial & Mechanical Engineering and Operations Management (IMEOM 2021)**, Dec 26-27, 2021. This unique international conference provides a forum for academics, researchers, and practitioners from many industries to exchange ideas and share recent developments in the fields of industrial engineering, mechanical engineering and operations management. This diverse international event provides an opportunity to collaborate and advance the theory and practice of significant trends in industrial & mechanical engineering and operations management.

The IEOM Society expresses our deep appreciation to the IMEOM 2021 Dhaka conference organizing committee for their contributions in planning this event. We also graciously appreciate the support of our academic and industry partners, authors, keynote speakers, the local committee, and the student volunteers who have given so much of their time and talent to make this an overwhelmingly successful event.

We hope you will have a wonderful experience at the conference.

Enjoy the conference!



**Prof. Dr. M Sarwar Morshed**  
Conference Chair  
Head, MPE Dept.  
Ahsanullah University of Science  
and Technology (AUST)  
Dhaka, Bangladesh



**Prof. Dr. Mohammad Iqbal**  
Conference Co-Chair  
Professor, IPE Dept.  
Shahjalal University of Science  
and Technology (SUST)  
Sylhet, Bangladesh



**Dr. A.R.M. Harunur Rashid**  
Conference Honorary Secretary  
Associate Professor, MPE Dept.  
Islamic University of Technology (IUT)  
Dhaka, Bangladesh



**Prof Dr Md. Haider Ali Biswas**  
Conference Hon. Treasurer  
Professor, Mathematics Discipline  
Khulna University  
Khulna, Bangladesh





**IMEOM 2021 Dhaka**  
**4<sup>th</sup> International Conference on Industrial & Mechanical Engineering**  
**and Operations Management (IMEOM), December 26-27, 2021, Bangladesh**

Organised by: IEOM Society of Bangladesh  
 Supported by: IEOM Society International

**Introductory Session and Inaugural Ceremony**  
**26 December 2021, Sunday**

Time	Events
09.00 am- 09.03 am	Participants login to the conference program via Zoom ""
09.03 am- 09.04 am	Call to Order
09.04 am -09.09 am	Recitation from the Holy Quran
09.09 am-09.15 am	Welcome Address by Dr. A.R.M. Harunur Rashid, IUT – Conference Honorary Secretary and Honorary General Secretary, IEOM Society Bangladesh Chapter
09.15 am-09.20 am	Speech by Prof Dr. Md. Haider Ali Biswas, KU – Conference Hon. Treasurer, Honorary Treasurer, , IEOM Society Bangladesh Chapter
09.20 am-09.25 am	Speech by Prof. Dr. Mohammad Iqbal, SUST – Conference Co-chair and Co-chair, IEOM Society Bangladesh Chapter
09.26 am-09.30 am	Speech by Dr. Ahad Ali, Executive Director, IEOM Society International Associate Professor, Lawrence Technological University Southfield, Michigan, MI 48075, USA
09.31 am-09.35am	Speech by Prof Don Reimer, Director of Membership, IEOM Society International
09.36 am-10.45 am	Keynote Presentations Prof. Shamsuddin, IUT Prof. Iqbal, SUST
10.45 am-10.50 am	Speech by Prof. Dr. M Sarwar Morshed, AUST – Conference Chair and Chair, IEOM Society Bangladesh Chapter
<b>10.51 am-10.59 am</b>	<b>Inauguration of the conference and Chief Guest speech by</b> <b>Professor Dr. Md. Sazzad Hossain</b> Member, University Grants Commission (UGC) of Bangladesh
MC : Faria Noor, IUT and Hakim Dina Anjum, IUT	



# IMEOM 2021 Dhaka

## 4<sup>th</sup> International Conference on Industrial and Mechanical Engineering and Operations Management (IMEOM)

26-27 December, 2021 ,Dhaka, Bangladesh

<http://ieomsociety.org/ieom/imeom2021/>

### Program Schedule

Day Date	Time Start	Time End	A Room	B Room	Room 1	Room 2	Room 3
Sun 26-Dec	900	930	Introductory Session				
	930	1000	Keynote: Prof Shamsuddin, IUT, Bangladesh				
	1000	1030	Keynote: Prof Iqbal, SUST, Bangladesh				
	1045	1100	Inaugural Ceremony – Chief Guest - Professor Dr. Md. Sazzad Hossain, Member, University Grants Commission (UGC) of Bangladesh				
	1100	1200	IE & ME , 391lcaut, 376aust, 388aust, 499kuet,506	Student Supply Chain	IE 320, 321, 322, 324, 304, 298aka, 507iutch:m	IE 316, 323, 329, 330, 331 ch:b	IE 402ku, 285hanoi, 291iut, 278iut, 404whiut, 378id
	1200	1300	ME 413, 414, 415, 424buet, 400xen,	Student Supply Chain	IE 325id, 326id, 336ph, 335mn, 364 aka, 444mn	IE 339id, 337ph, 338ph, 327ph, 476id, 475id	IE, 468, 472, 477, 479, 481 allid, 501id
	1300	1340	Lunch and Prayer Break				
	1340	1410	Keynote Dr. Khristian, Indonesia				
	1410	1500	IE & ME, 416buet, 370bim, 416, 419, 420	Student Talk	IE 317sa, 352sa, 440de, 441id, 486	IE 366sa, 367sa, 312cuat, 396iut, 280sa	IE, 453id, 454id, 455id, 457id, 463id
	1500	1600		Student Talk	IE 448in, 440saudi, 408id, 409id, 332id	ME, 341kuet, 348kuet, 361kuet, 362iut, 394aust	IE,471id, 458id, 459id, 466id, 464id
	1600	1700			IE, 340, 343, 344 sa, 417gh, 418gh	IE, 308, 328id, 374id, 398id, 407id	IE 483, 484, 487, 492 allid, 358
	1700	1800					
	1800	1830	Keynote Prof. Haider, Khulna University, Bangladesh				
	1830	1900	Pre Dinner Keynote by Dr. Patwari, UK – Virtual 1				
	1900	2000	Dinner				
	2100	2230	Panel Session on Entrepreneurship, Innovation and Engineering Education By Prof. Don Reimer, Dr. Ahad Ali, Dr. Mazharul Islam and Md Kawsar Ali				

Day Date		Time Start	Time End	A Room	B Room	1 Virtual	2 Virtual	3 Virtual	
Mon 27-Dec		600	800			Quality Competition 508, 509, 510, 511, 512, 513	Simulation Competition 514, 515, 516, 517, 518, 519, 520		
		800	830			IE & ME, 345, 450, 488 USA			
		830	900	Keynote Mr. Dave, USA					
		900	930	Keynote Prof. Morshed, AUST, Bangladesh					
		930	1000	Keynote Dr Uttam, USA					
		1000	1030	Keynote Prof N Absar, IUT, Bangladesh					
		1030	1100	Keynote Prof Sankar, India					
		1100	1200			IE,381aust, 389ruet, 383niter, 386cu et, 379ruetnp	IE 442id, 443id, 445buet, 449ku, 305	IE, 411, 315id, 485ku, 503id, 504id	
		1200	1300			IE, 346jp, 349ru, 412id, 426id, 435id, 436id	ME 365, 470cu et, 342 aka 456 mist, 432sylvmkd, 423buet, 451sust	IE 523, 314, 528, 529	
		1300	1335	Lunch and Prayer Break					
		1330	1400	Keynote Prof Hannelie, South Africa					
		1400	1430	Keynote Dr. Patrick, Italy					
			1430	1530			IE 400ku, 430syl, 431syl, 372aust, 401ku	ME 350, 351, 356, 427sa, 428sa, 422	
		1530	1600	Closing Ceremony					

[illegible]

Notes::

A room=3D Seminar Hall Level 4

B room = Training Room 1 Level 5

Tea and Lunch = outside B room

Prayer Room = 2<sup>nd</sup> floor of KIBC back building

## Submissions and Speakers from Countries and Territories

- |               |                 |                  |                |
|---------------|-----------------|------------------|----------------|
| 1. Bangladesh | 9. India        | 17. Nigeria      | 25. Turkey     |
| 2. Belarus    | 10. Indonesia   | 18. Pakistan     | 26. Ukraine    |
| 3. Canada     | 11. Italy       | 19. Philippines  | 27. UAE        |
| 4. China      | 12. Japan       | 20. Poland       | 28. UK         |
| 5. Colombia   | 13. Malaysia    | 21. Russia       | 29. USA        |
| 6. Finland    | 14. Myanmar     | 22. Saudi Arabia | 30. Uzbekistan |
| 7. Germany    | 15. Netherlands | 23. South Africa | 31. Vietnam    |
| 8. Ghana      | 16. New Zealand | 24. Sweden       | 32. Zimbabwe   |

## Conference Committee

### Conference Leadership Committee

Prof Dr Mohammad Sarwar Morshed, AUST, Conference Chair  
Prof Dr. Mohammad Iqbal, SUST, Conference Co-Chair  
Dr A R M Harunur Rashid, IUT, Conference Hon. Secretary  
Prof Dr. Md. Haider Ali Biswas, KU, Conference Hon. Treasurer

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Prof Dr. Mohammad Iqbal, SUST, Conference Co-Chair  
Dr A R M Harunur Rashid, IUT, Conference Hon. Secretary  
Prof Dr. Md. Haider Ali Biswas, KU, Conference Hon. Treasurer  
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Prof Dr M Kutubuddin, KUET  
Prof Dr Shamsuddin Ahmed, IUT  
Prof Dr. Md. Mosharraf Hossain, RUET  
Prof Dr. Md. Kamruzzaman, DUET  
Prof. Dr. Sultana Parveen, BUET  
Engr SK Masum Kamal, SKM  
Prof. Dr. A M. M Mukaddes, SUST  
Dr. A.S.M. Mojahidul Hoque, JUST  
Prof. Dr. Md. Mamunur Rashid, BIM  
Dr. Ahad Ali, Lawrence Tech University and IEOM, USA  
Dr. Mohammed Khadem, University of Sharjah, UAE and IEOM

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Professor Sharif Ullah, Professor, Kitami-IT, Japan  
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Professor Dr. Tajul Islam, CUET  
Professor Dr. AKM Nurul Amin, MIST  
Prof Abu Masud, Former Professor, Wichita University, USA  
Prof Abdur Rahim, University of New Brunswick, Canada  
Professor Dr. Abdullahil Azeem, BUET  
Prof. Peter Hasle, Southern Denmark University, Denmark

### Technical Committee

Dr. Mizanur Rahman, UTM, Malaysia  
Dr. Abbas Mahmoudabadi. Director, Master Program in Industrial Engineering MehrAstana University, Gilan, Iran

## IEOM Bangladesh Chapter Executive Committee



**Prof Dr M Sarwar Morshed**  
Chair  
Head, MPE Dept, Ahsanullah  
University of Science and  
Technology (AUST, Dhaka,  
Bangladesh



**Prof Dr. Mohammad Iqbal**  
Co-Chair  
IPE Dept, Shahjalal University  
of Science and Technology  
(SUST), Sylhet, Bangladesh



**Dr. A.R.M. Harunur Rashid**  
Honorary General Secretary  
Associate Professor, MPE Dept,  
Islamic University of Technology  
(IUT), Dhaka, Bangladesh



**Prof Dr Md. Haider Ali Biswas**  
Honorary Treasurer  
Mathematics Discipline, Khulna  
University, Khulna, Bangladesh

### 2020-21-22 Executive Committee of IEOM Society Bangladesh Chapter

Chair: Prof Dr. Mohammad Sarwar Morshed (AUST)  
Co-Chair: Prof Dr. Mohammad Iqbal (SUST)  
Honorary Treasurer : Prof Dr. Md. Haider Ali Biswas (Khulna Uni)  
Honorary General Secretary: Dr. A.R.M. Harunur Rashid (IUT)  
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EC Member: Prof Dr. Shamsuddin Ahmed (IUT)  
EC Member: Prof Dr. Md. Mosharraf Hossain (RUET)  
EC Member: Dr. A.S.M. Mojahidul Hoque (JUST)

### IEOM Student Chapters in Bangladesh

IEOM Student Chapter	Faculty Advisor
1. Ahsanullah University of Science & Technology, Dhaka	Mr. Sayem Ahmed
2. Bangladesh Institute of Management (BIM)	Prof. Dr. Md. Mamunur Rashid
3. BUET – Bangladesh University of Engineering and Technology	Dr. Kais Bin Zaman
4. BUTEX – Bangladesh University of Textiles	Mohammad Ali, Professor & Head Md Mamunur Rashid, Assistant Professor Sourav Kumar Ghosh, Lecturer Farhatul Janan, Lecturer
5. CUET – Chittagong University of Engineering & Technology	Sanjeeb Roy
6. Daffodil International University	Dr. Md. Mahbubul Haque Md. Mominur Rahman
7. International Islamic University of Chittagong (IIUC)	Prof. Dr. Mohammad Masrurul Mowla
8. Islamic University of Technology (IUT)	Dr. A.R.M. Harunur Rashid
9. IUBAT-International University of Business Agriculture and Technology	Dr. Muhammad Hasibur Rashid Chayon
10. Jessore University of Science and Technology (JUST)	Dr. A. S. M. Mojahidul Hoque
11. Khulna University	Dr. Md. Haider Ali Biswas
12. KUET – Khulna University of Engineering and Technology	Dr. Subrata Talapatra
13. Military Institute of Science and Technology (MIST)	Shahriar Tanvir Alam
14. National Institute of Textile Engineering and Research	Mr. Mahamudul Hassan
15. Rajshahi University	Dr. Mohammed Harunur Rashid
16. Shah Jalal University of Science and Technology (SUST)	Mrs. Shanta Saha
17. University of Chittagong	Dr. Mohammad Jalal Ahammad
18. World University Bangladesh	Dr. Md. Mizanur Rahman



# Keynote Speakers

## December 26, 2021 (Sunday)

Date: 26 Dec 2021 at 9:30 AM



**Professor Shamsuddin Ahmed**  
**Professor, Department of Mechanical and Production Engineering**  
**Islamic University of Technology (IUT), Dhaka Bangladesh (an organ of OIC)**

Shamsuddin Ahmed graduated from BUET in 1984. He is currently a Professor in the Department of Mechanical and Production Engineering at Islamic University of Technology (IUT). He joined this University in 2015. Before that he worked with the reputed University of Malaya (QS ranked 59 in 2020 and No. 1 in Malaysia) between 1997 and 2015. He supervised a postdoctoral candidate, produced eight (8) PhD graduates, and 18 masters' candidates. He and his research team published 99 journal papers, and about 130 articles in conference proceedings. Their papers have been cited for more than 3,500 times and received about 30 h-index and 50 i10-index. He delivered a good number of keynote speeches, 100s of public lectures in various fields and involved with a number of academic and social institutions. His research interests are in areas of Islam, manufacturing

planning and control, supply chain management, operations research, renewable energies, quality and reliability engineering, human resources management and maintenance engineering. He reviewed about 50 papers for reputed Elsevier, Emerald journals (UK), IMechE, Springer, Applied Mathematics, and some other journals. He administered several research projects as project leader (PI) including some high-impact researches. He holds CEng (UK) certification, IET(UK) Membership, and IEB Life-fellowship. He is currently involved with several universities at home and abroad in different capacities.

Date: 26 Dec 2021 at 10:00 AM



**Professor Dr. Mohammad Iqbal**  
**Professor, Department of Industrial and Production**  
**Shahjalal University of Science and Technology (SUST)**

Professor Dr. Mohammad Iqbal is currently serving as a Professor at Shahjalal University of Science and Technology (SUST), Sylhet-3114, Bangladesh under the Department of Industrial and Production. He is the founder lecturer of Department of Industrial and Production, SUST. He served as the Head of the aforesaid dept. for thirteen years. Dr. Iqbal was the Dean of School of Applied Sciences and Technology for two years. He was the Head of Petroleum and Mining Engineering Department, SUST for one year. He served as visiting research scholar at Texas A&M University, College Station, Texas, USA, 2018. His affiliations as researcher have contributed more than 26 publications in peer-reviewed national and international journals. Dr. Iqbal has more than 80 national and international publications in conference proceedings.

Dr. Iqbal is actively involved in research and teaching of Mechanical, Industrial, Production Engineering and environment related topics. He has 30 years of industrial, research and teaching experiences along with the working scopes in a development organization. He was a member, Peer Review Committee on Engineering & Applied Science, Ministry of Science, Information and Communication, Republic of Bangladesh Government for the financial year June 2006-July 2007. His affiliations as researcher have contributed more than 27 publications in peer-reviewed national and international journals. He has more than 80 national and international publications in conference proceedings. He is one of the advisors to the Sylhet Chamber of Commerce and Industries, Sylhet, Bangladesh. He was the member of SUST Research Centre, Shahjalal University of Science and Technology, Sylhet-3114, Bangladesh. He was the Honorary Secretary of IEB Sylhet Centre, Sylhet, Bangladesh (April, 2018 to September 10, 2020). Dr. Mohammad Iqbal was the Conference Chair of IEOM Society of Bangladesh Chapter (held in December, 2019). Dr. Mohammad Iqbal was the Chair of IEOM Society of Bangladesh Chapter from April 2018 to February 2020. At present, Dr. Mohammad Iqbal is the Co-Chair of IEOM Society of Bangladesh Chapter.

Date: 26 Dec 2021 at 1:40 PM



**Dr. Ir. Khristian Edi Nugroho Soebandrija, B.S.I.E, M.M**  
**Binus Aso School of Engineering**  
**Bina Nusantara University (Binus)**  
**Tangerang, Banten, Indonesia**

Dr. Khristian Edi Nugroho Soebandrija is a Faculty Member in Industrial Engineering Department in Bina Nusantara University, Jakarta, Indonesia. He got his PhD from Bina Nusantara University, Jakarta, Indonesia. He earned Bachelor of Science Degree in Industrial Engineering (BSIE) from Wichita State University (WSU), Wichita, Kansas, USA; Master Degree in Management from Indonesian Institute for Management Development, Institut Pengembangan Manajemen Indonesia (IPMI), Jakarta, Indonesia. He has professional working exposures in Thompson CSF Corporation (Versailles, France), Cessna Aircraft Company (Wichita, Kansas, USA), Frigoglass Group (Cikarang, Indonesia), Citibank, N.A (Jakarta, Indonesia), Perfetti Van Melle Indonesia (Cibinong, Indonesia). As in Education Professional and Consultancy, he has been involving in teaching

Leadership and Strategic Programs in several National and Multinational Companies and State Owned Enterprises. He is a member of IEOM society, Sigma Gamma Tau (Aerospace Engineering Honor Society) and Tau Beta Pi (National Engineering Honor Society), Strategic Management Society (SMS) and International Council on Systems Engineering (INCOSE). His research interests include Sustainability in Industrial Systems and Engineering, Strategic Management and Psychology. Precisely, the research covers the aspect of Leadership, Innovation, Performance, Sustainability and Sustainable Competitive Advantages.

Date: 26 Dec 2021 at 6:00 PM



**Dr. Md. Haider Ali Biswas**  
**Professor, Mathematics Discipline**  
**Science Engineering and Technology School**  
**Khulna University, Bangladesh**

Dr. Md. Haider Ali Biswas is currently affiliated with Khulna University, Bangladesh as a Professor of Mathematics under Science Engineering and Technology School and he served as the Head of Mathematics Discipline from 2015 to 2018. Prof. Biswas obtained his B Sc (Honors) in Mathematics and M Sc in Applied Mathematics in the year 1993 and 1994 respectively from the University of Chittagong, Bangladesh, M Phil in Mathematics in the year 2008 from the University of Rajshahi, Bangladesh and PhD in Electrical and Computer Engineering from the University of Porto, Portugal in 2013. He has more than 20 years teaching and research experience in the graduate and post-graduate levels at different public universities in Bangladesh. He published Three Books, Five

Book Chapters and more than 150 research papers in the peer reviewed journals and international conferences. Prof. Biswas has worked at several R & D projects in home and abroad as PI and/or Researcher, particularly he is conducting different research projects funded by the Ministry of Science and Technology, Bangladesh, University Grants Commission of Bangladesh and The World Academy of Science (TWAS), Trieste, Italy. His present research interests include Optimal Control with Constraints, Nonsmooth Analysis, ODEs and Dynamical Systems, Mathematical Modeling, Mathematical Ecology, Environmental modeling and Climate change, Mathematical Biology and Biomedicine, Epidemiology of Infectious Diseases. Since the last ten years, Prof. Biswas has been working on the applications of mathematical models for designing and implementing those to real life problems, specially for the sustainable/optimal management under the changing environment due to global warming. He is the life/general members of several professional societies and/or research organizations like Bangladesh Mathematical Society (BMS), Asiatic Society of Bangladesh (ASB), Institute of Mathematics and its Applications (IMA), UK, European Mathematical Society (EMS) and Society for Mathematical Biology (SMB). Dr. Biswas is the founder member of Mathematical Forum Khulna and served as the General Secretary of the Forum in 2013-2015. Dr. Biswas organized several national and international seminars/workshops/conferences in home and abroad and he has been working as Editor/Member of editorial boards of several international peer-reviewed journals. Professor Biswas contributed as Keynote/Invited/Plenary/Panel speaker at several international conferences/seminars/workshops in home and abroad. Professor Biswas has been nominated as the Member of the Council of Asian Science Editors (CASE) for 2017-2020 and the Associate Member of the Organization for Women in Science for the Developing World (OWSD) since 2017. Recently, Professor Biswas has been elected as a Member of Executive Committee of Bangladesh Mathematical Society (BMS) for the year 2020-2021, and also nominated as the Associate Editor of the international journal GANIT- Journal of Bangladesh Mathematical Society (BMS) for the year 2020-2021. Dr. Biswas has been nominated as a Member of Executive Committee of the IEOM Society, Bangladesh Chapter and also serving as the Treasurer of the IEOM Society, Bangladesh Chapter. He is also serving as the Faculty Advisor of the IEOM Society Khulna University Chapter. Professor Biswas is presently serving as the President of Bangladesh Society for Mathematical Biology (BSMB) for the year 2020-2022.

Date: 26 Dec 2021 at 6:30 PM



**Professor Mohammad N Patwary**  
**Faculty of Science and Engineering**  
**University of Wolverhampton**  
**Wolverhampton, UK**

Mohammad Patwary is the Director of Centre for Future Networks & Autonomous Systems (CeFNAS) & Professor of Telecommunications at the Faculty of Science & Engineering in University of Wolverhampton since June 2020. He is also research lead for '5G Connected Forest Project' funded by DCMS that aims at accelerating 'visitor economy' in midlands. He was a full Professor of telecommunication networks and digital productivity and the Head of the Intelligent Systems and Networks (ISN) Research Group, at School of Computing and Digital Technology, Birmingham City University, UK, between 2017 till 2020; he was also the Principal Data Architect for a large scale 5G testbed in the UK to accelerate digital productivity and to develop urban connected community, with West Midland 5G during 2018-2020. He was also Full Professor of wireless systems and digital productivity and the Chair of the Centre of Excellence on Digital Productivity With Connected Services,

Staffordshire University, until 2017; and His current research interests include sensing and processing for intelligent systems, wireless communication systems design and optimization, signal processing and energy-efficient systems, future generation of cellular network architecture, and business modelling for data-economy.

He is Chartered Engineer of Engineering Council, Senior Member of IEEE, Fellow of IET, and co-chair of Testbed working group of International Network Generation Roadmap at IEEE.

**Sunday, Dec 26, 2021- Session: 9:00PM - 10:30PM**  
**Panel Session on Entrepreneurship, Innovation and Engineering Education**



**Professor Donald M. Reimer**  
**Director of Membership and Chapter Development – IEOM Society**  
**President, The Small Business Strategy Group, Detroit, Michigan, USA**  
**Adjunct Faculty – A. Leon Linton Dept. of Mechanical, Robotics and Industrial Engineering**  
**Lawrence Technological University, Southfield, Michigan, USA**

Donald M. Reimer is an adjunct faculty at the A. Leon Linton Department of Mechanical Engineering in College of Engineering at Lawrence Tech in Southfield, Michigan. He coordinates the Certificate of Entrepreneurial Engineering Skills. Mr. Reimer holds a Bachelor of Science degree in Industrial Management from Lawrence Technological University and a Master of Arts degree in Political Science from University of Detroit/Mercy. He is a Certified Management Consultant with over 35 years of experience in working with closely-held businesses. He has taught courses in entrepreneurship, strategic management, corporate entrepreneurship and innovation for

engineers. Mr. Reimer is a member of the Lawrence Tech Kern Campus Committee, Coordinator of the Lawrence Tech Innovation Encounter. He

is faculty Advisor of the Collegiate Entrepreneurs' Organization. Mr. Reimer serves as a Kern Fellow of The Kern Family Foundation, Co-Direct of the Coleman Fellows Program, member of the National Collegiate Entrepreneurs' Organization Faculty Advisory Council and is a member of the American Society of Engineering Education. He has operated his own consulting company – The Small Business Strategy Group for 23 years. He published numerous articles on small business, entrepreneurship and strategic thinking. He has received several awards and recognition by local, state and federal agencies for his work in entrepreneurship and minority business development. Mr. Reimer served as member of the Minority Economic Development Committee of New Detroit. Mr. Reimer is member of the Small Business Advisory Council of the Detroit Regional Chamber of Commerce. Mr. Reimer is a member of Advisory Board of the Milwaukee Junction Small Business Assistance Center. He is also a member of the Applied Innovation Alliance. Mr. Reimer serves as a KEEN Fellow for The Kern Family Foundation and is a member of United States Association of Small Business and Entrepreneurship.



**Ahad Ali, Ph.D.**  
**Associate Professor**  
**Director, Bachelor of Science in Industrial Engineering**  
**Director, Master of Science in Industrial Engineering**  
**Director, Graduate Certificate in Lean Six Sigma**  
**Director, Smart Manufacturing and Lean Systems Research Group**  
**Coordinator, Siemens Electro-Matic Industrial Engineering Lab**  
**A. Leon Linton Department of Mechanical, Robotics and Industrial Engineering**  
**Lawrence Technological University**  
**Southfield, Michigan, MI 48075, USA**  
**Executive Director – IEOM Society International**

Ahad Ali is an Associate Professor and Director of Industrial Engineering Program and Director of Smart Manufacturing and Lean Systems Research Group, A. Leon Linton Department of Mechanical, Robotics and Industrial Engineering at the Lawrence Technological University, Southfield, Michigan, USA. He earned B.S. in Mechanical Engineering from Khulna University of Engineering and Technology, Bangladesh, Masters in Systems and Engineering Management from Nanyang Technological University, Singapore and Ph.D. in Industrial Engineering from University of Wisconsin-Milwaukee. Dr. Ali was Assistant Professor in Industrial Engineering at the University of Puerto Rico - Mayaguez, Visiting Assistant Professor in Mechanical, Industrial and Manufacturing Engineering at the University of Toledo and Lecturer in Mechanical Engineering at the Bangladesh Institute of Technology, Khulna. He received an Outstanding Professor Award of the Industrial Engineering Department, University of Puerto Rico - Mayaguez, (2006-2007). He has published 50 journal and 121 conference papers. Dr. Ali has conducted research projects with Chrysler, Ford, DTE Energy, New Center Stamping, Whelan Co., Delphi Automotive System, GE Medical Systems, Harley-Davidson Motor Company, International Truck and Engine Corporation (ITEC), National/Panasonic Electronics, and Rockwell Automation. His research interests include manufacturing systems modeling, simulation and optimization, intelligent scheduling and planning, artificial intelligence, predictive maintenance, e-manufacturing, and lean manufacturing. He has successfully advised seven doctoral students. Dr. Ali has involved with many international conference committees. He is serving as an Executive Director of IEOM Society International and Conference Co-Chair of the International Conference on Industrial Engineering and Operations Management and hold events in Dhaka, Kuala Lumpur, Istanbul, Bali, Dubai, Orlando, Detroit, Rabat, UK, Bogota, Paris, Washington, DC, Pretoria, Bangkok, Pilsen, Toronto, Costa Rica, Sao Paulo and Riyadh. Dr. Ali has visited 20 countries for professional events. He is a member of IEOM, INFORMS, SME and IEEE.



**Professor Mazharul Islam, PhD, P.Eng. (APEGA, Canada), Fellow (IEB), Member (ASME)**  
**Department of Mechanical and Production Engineering**  
**Ahsanullah University of Science and Technology**  
**Tejgaon Industrial Area, Dhaka-1208, Bangladesh**

Professor Dr. Mazharul Islam, who has P.Eng. from APEGA Canada, is currently working at Ahsanullah University of Science & Technology (AUST), Dhaka. He obtained a Bachelor of Engineering from India in 1993. He worked at Bangladesh Power Development Board for about nine years and during that period he completed two M.Sc. degrees, one in Mechanical Engineering from Bangladesh in 1998, and another one in Renewable Energies from Germany in 2001. In 2003, he started his doctoral studies and subsequently received his Ph.D. in Mechanical Engineering in Canada. Professor Islam taught engineering courses in Bangladesh, Canada, Saudi Arabia, and Malaysia. Currently, he is the Director of Institutional Quality Assurance Cell (IQAC) of AUST.



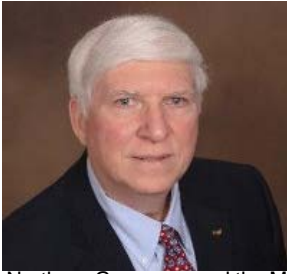
**Md Kawsar Ali**  
**Chief Operating Officer**  
**Comfit Composite Knit LTD**  
**Gorai, Mirzapur, Tangail**  
**Dhaka, Bangladesh**

Md. Kawsar Ali is a well-known expert and mentor in the garment industries of Bangladesh. He has twenty one years of professional experiences in RMG sector. He has worked in different capacities in leading companies like Beximco, Square, Orion and DBL. He has got strong communication, interpersonal relations, mentoring, negotiation and cross-cultural organizational skills, and has demonstrated such over the years with utmost productivity and reputation. He is also expert in Total Quality Management, Lean manufacturing, Kaizen, Leadership and self-development courses like Meditation and Yoga. Mr. Kawsar has completed his graduation from Khulna University of Engineering and Technology (KUET) also obtained an MBA degree from Dhaka University. He has participated in many workshops, seminars and training sessions in Bangladesh and abroad.



# December 27, 2021 (Monday)

Date: 27 Dec 2021 at 8:30 AM



**David A. Harry**  
**Chief Executive Officer and Black Belt Trainer**  
**Process Whisperer® Consultants LLC**  
**Greeneville, Tennessee U.S.A.**

David Harry, a.k.a. "The Process Whisperer®", has more than 30 years' experience as a project manager, business process improvement instructor and expert problem solver. Following a successful military career which included a tour as the U.S. Defence Attaché Colombo Sri Lanka, he taught hundreds of Lean and Six Sigma "Belt" and project management classes for various companies including KPMG Consulting, Northrop Grumman, Rolls-Royce Energy, the University of Tennessee Knoxville, and SimpliLearn (India). He was an Expert Trainer at Northrop Grumman and the Manager of Continuous Improvement at Rolls-Royce Energy. He served on leadership boards of the American Society for Quality (ASQ) and the Institute of Industrial Systems Engineers (IISE). He has also served several years on Conference Committees for the IISE Engineering Lean Six Sigma Conference and the ASQ Lean & Six Sigma Conference. He has been awarded three management Masters-level degrees including from the University of Chennai (India). His certifications and interests include PMI certified Project Management Professional (PMP®), ASQ Certified Six Sigma Black Belt (CSSBB), Lean Bronze Certification (LBC) from the SME/Shingo/AME Alliance, Agile Certified Scrum Master (CSM®). He is also a Kata "Geek" and has attended and presented at the Post Graduate Institute of Management in Colombo.

Date: 27 Dec 2021 at 9:00 AM



**Professor Dr Mohammad Sarwar Morshed**  
**Professor, Mechanical and Production Engineering**  
**Ahsanullah University of Science and Technology (AUST), Bangladesh**

Sarwar Morshed is a Professor of Industrial and Production Engineering and Head of MPE at the Faculty of Engineering, Ahsanullah University of Science and Technology (AUST). He started his academic career in Chittagong University of Engineering and Technology (CUET) in early 90s after receiving his undergraduate degree in Mechanical Engineering. He received his Masters in Industrial Management from the Centre for Industrial Management, Katholieke University of Leuven, Belgium and received his PhD in Manufacturing and Mechanical Engineering from the Birmingham University, UK on Optimization and Scheduling. He worked in the Birmingham University as PhD researcher before his post-doctoral research in Coventry and Bath University, UK. He also served as a visiting academic at Bath University and affiliated as a Visiting Research Fellow at Aalborg University, Denmark. He has supervised many undergraduate, masters and several PhD students further to his contribution in leading academic and research positions and course curriculum developments in past years. He has published 38 articles in several journal and conferences. He has been working as a Senior Researcher and Deputy Project Leader of Aalborg-AUST Research Project (POHS-BD) and collaborative work among AUST, Aalborg University and BGMEA since 2015-2020. A sustainable maturity model has been developed by integrating lean and OHS for intervention process in RMG industries. He is the project leader for NIPOSH network training project which is collaboration among Danish Embassy Dhaka, BGMEA, AUST and Southern Denmark University for the RMG industries in Bangladesh. He has developed Multi-objective knowledge based scheduling techniques using genetic algorithm (GA) for cancer patients in dynamic situation along with his hybrid GA framework for industrial and service scheduling using machine learning. Prof Morshed has affiliations with HEA (UK), OR Society, IEOM Society and IEB.

Date: 27 Dec 2021 at 9:30 AM



**Uttam Kumar Chakravarty, Ph.D.**  
**Associate Professor, Department of Mechanical Engineering**  
**University of New Orleans**  
**New Orleans, Louisiana, USA**

Dr. Uttam K. Chakravarty is an Associate Professor in the Department of Mechanical Engineering at the University of New Orleans, Louisiana, USA. He received his Ph.D. in Aerospace Engineering from the Georgia Institute of Technology, Atlanta, Georgia, USA. Before that, he obtained two M.S. degrees—one from the Georgia Institute of Technology, Atlanta, Georgia, USA in Aerospace Engineering and the other from the Tuskegee University, Tuskegee, Alabama, USA in Mechanical Engineering. He earned his B.Sc. in Mechanical Engineering from the Bangladesh University of Engineering and Technology (BUET), Dhaka, Bangladesh. Dr. Chakravarty conducts research in the areas of solid mechanics, composite structures, finite element analysis, computational fluid dynamics, fluid-structure interaction, and small-scaled unmanned aerial systems.

Date: 27 Dec 2021 at 10:00 AM



**Dr Md Nurul Absar Chowdhury**  
**Professor, Department of Mechanical and Production Engineering**  
**Islamic University of Technology (IUT), Dhaka Bangladesh (an organ of OIC)**

Dr Md Nurul Absar Chowdhury is a Faculty Member of Mechanical and Production Engineering Department at Islamic University of Technology (IUT), Dhaka, Bangladesh. He earned Master of Science Degree in Mechanical Engineering from Volgograd State Technological University, Russia in 1982. He specialized in Production. He completed his Ph.D. in Industrial and Production Engineering from Moscow State Auto-mechanical University, Russia. He did his post-doctoral in Pennsylvania State University, USA and his field of specialization was Building Administrative Capacity in Institutions of Higher Education.



Date: 27 Dec 2021 at 10:30 AM



**Dr. Sankar Kumar Roy**  
**Professor, Dept. of Applied Mathematics with Oceanology & Computer Programming**  
**Vidyasagar University**  
**Midnapore-721102, West Bengal, India**

Sankar Kumar Roy obtained M.Sc in Applied Mathematics in 1996 from Vidyasagar University and Ph. D in 2003 from the Dept. of Mathematics. IIT, Kharagpur, India. Dr. Roy is serving as a Professor in the Department of Applied Mathematics with Oceanology and Computer Programming, Vidyasagar University, Midnapore, West Bengal from the year 2016 to till now. He also served as a Head of his own department during 2013-2015. He delivered a talk as an invited Speaker in the International Webinar, International Faculty Series on "Opportunities and Challenges for Data Sciences in the field of Natural Sciences in the Further" in the State Islamic University of

North Sumatera, Jakarta, Indonesia on May 8, 2021. He was selected for awarding International Travel Fellowship for attending and contributing paper in ICIAM 2019, July 2019 at University of Valencia, Valencia, Spain. He visited as a research scientist for delivering invited talks at the Dept. of Computer Science and Artificial Intelligence in the University of Granada, Spain in July 2019. He also visited and delivered talk at the Dept. of Operations Research and Statistics, Polytechnic University of Valencia, Spain, July, 2019. He delivered a talk in Joint ORSC/EURO International Conference on Continuous Optimization, 2015, Shanghai University, Shanghai, China, May, 2015. He visited three times in Bangladesh for delivering invited talk in Khulna University, 2015; in Rajshahi University, 2016; and Dhaka University, 2017. He delivered more than 30 invited lectures in India and Abroad. His research interests are mainly on Transportation Problem, Game Theory, Inventory Management and Facility-location Problem, and Bio-Mathematics. He has published more than 120 articles (most of the articles have been published in Q1/SCI/SCIE journals with good impact factors) in the area of Operations Research. His h-index is 29 and i-10 index is 77 with total citations 2383 (Google Scholar). Eleven (12) Ph. D students have been awarded under his supervision, another two (03) students have been submitted their theses under his guidance and eight (08) students are pursuing Ph. D under his guidance. He is life member of Calcutta Mathematical Society, Operations Research Society of India (ORSI, Calcutta Chapter), International Society for Development and Sustainability (ISDS), Japan and Senior Member of IEDRC, Hong Kong. He is also associated in EURO stream organizer from 2016 to till now. He has been selected as Top 2% of scientists in the World in all disciplines during a single calendar year 2019 and 2020 also (two consecutive years) based on the Stanford University Study He has been also enlisted in World Scientist and University Rankings 2021.

Date: 27 Dec 2021 at 1:30 PM

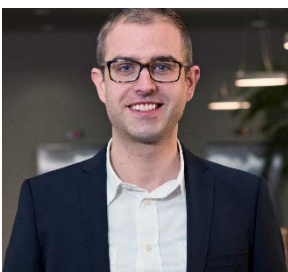


**Prof Hannelie Nel**  
**Postgraduate School of Engineering Management**  
**University of Johannesburg, South Africa**

Prof Hannelie Nel is an Associate Professor at the Postgraduate School of Engineering Management at the University of Johannesburg. She holds a Doctorate in Engineering Management, an MSc in Industrial Engineering, and a BEng in Chemical Engineering; and has over 20 years' experience in both industry and academia. With a tenure of 17 years at UJ, she has successfully supervised and graduated 50 Masters students and 2 Doctorates in Engineering Management. She served as Past President of the Southern African Institute for Industrial Engineering and is currently an Honorary Fellow of the Institute. She was twice nominated for the prestigious Professor Kris Adendorff Award as most outstanding Industrial Engineering professional in South

Africa; and was recognized for contribution to her profession with two SAII Special Commendation Awards. As former Vice-Dean of the Faculty of Engineering and the Built Environment at UJ, she founded the UJ-Group Five Women in Engineering and the Built Environment programme (WiEBE) for the advancement and recognition of excellence by technical women in Southern Africa. In recognition of this work, she was bestowed the IEEE WIE Award for Human Capital Development in Science, Engineering and Technology and consequently elected as a finalist in the Standard Bank Top Women in Business Awards, for her work towards gender parity in engineering. Hannelie is an international author and speaker with over 50 international academic publications and two professional books to date, namely Leadership and Agency of Women Engineers in South Africa and The Development of Women and Young Professionals in STEM Careers, published as co-author. In 2016, Hannelie was invited to become member of the International Women's Forum (IWF), an invitation-only network of the most accomplished women in the world. Hannelie works with the professional institution, Consulting Engineers South Africa, to develop young and experienced technical women in Leadership in the industry. From 2018 to 2021 Hannelie was appointed as a Non-Executive Board Director of Denel SOC by the Minister of Public Enterprises, Mr Pravin Gordhan, in recognition of her engineering expertise where she served as Chair of the Social and Ethics Committee. Currently she is Board Chairperson of Foundations & Finishes, a non-profit organization that provides support to children and young adults from primary through tertiary education. Professor Nel is a member of Member of the Global Engineering Education Committee of the IEOM and in 2021, she became a Professional Member of the American Society for Engineering Management. She was recently appointed to the Advisory Council of the IT Governance & Cybersecurity Institute, an organization that builds cyber resilience and capabilities for global emerging markets. Hannelie continues to contribute to the field of Engineering Management through her research, supervision, consulting and advisory services; and her passion for the development of young people and the advancement of technical women remains a lifelong commitment.

Date: 27 Dec 2021 at 2:00 PM



**Patrick Dallasega**  
**Faculty of Science and Technology**  
**Free University of Bolzano, Italy**

Patrick Dallasega is an Assistant Professor (tenure track) of Factory Planning and Project Management at the Faculty of Science and Technology of the Free University of Bolzano (Italy). He studied at the Polytechnic University of Turin (Italy) and got his PhD at the University of Stuttgart (Germany). He was Visiting Scholar at the Excellence Centre in Logistics and Supply Chain Management Chiang Mai University (Thailand) and at the Worcester Polytechnic Institute in Massachusetts (USA). He is author as well as co-author of 60 scientific publications indexed in the Scopus database with an overall H-index of 20 and around 1200 citations. Furthermore, in 2019 he received the IEOM Young Researcher Award in recognition and appreciation of

outstanding achievement in research and publication, dedication, support and service in Industrial Engineering and Operations Management. In 2018 he received the National Scientific Habilitation (Abitazione Scientifica Nazionale) as Associate Professor in Industrial Engineering (sector 09/B2 ING-IND/17 Impianti Industriali Meccanici).

## Sunday, Dec 26, 2021- Session: 9:00 AM-9:30 AM

9:00 AM-9:30 AM, SUNDAY

Room A

### Introduction Session

## Sunday, Dec 26, 2021- Session: 9:30 AM-10:45 AM

### Keynote Speakers

9:30 AM – 10:00 AM- Room A

#### Kenote I: Professor Shamsuddin Ahmed

Professor, Department of Mechanical and Production Engineering,  
Islamic University of Technology (IUT)

10:00 AM-10:45 AM- Room A

#### Keynote II: Professor Dr. Mohammad Iqbal

Professor, Department of Industrial and Production,  
Shahjalal University of Science and Technology (SUST)

10:45 AM-11:00 AM, SUNDAY

Room A

### Inaugural Ceremony

## Sunday, Dec 26, 2021- Session: 11:00PM -12:00PM

11:00PM – 12:00PM, SUNDAY

Room A

Session Chair:

Industrial and Mechanical Engineering

#### Paper ID 391 A Comprehensive Study on Life Cycle Analysis (LCA) of Electric Vehicles: A Literature Review

Md Asif Ahmed, Md. Raisul Islam Atik, Md. Samawat Ahsan Mashiyat, and A.R.M. Harunur Rashid  
Department of Mechanical and Production Engineering (MPE)  
Islamic University of Technology (IUT)  
Boardbazar, Gazipur, Dhaka, Bangladesh

#### Paper ID 445 Developing and Implementing Classroom Optimization Model

Dr. Azizur Rahman  
Faculty of Science Engineering and Technology  
Swinburne University of Technology  
Melbourne, Victoria, Australia

Ahnaf Tahmid and Mohammad Farhan Akif  
Department of Industrial Engineering and Management  
Khulna University of Engineering & Technology  
Khulna- 9203, Bangladesh

#### Paper ID 376 Python in Predicting Mechanical Properties of FDM 3D Printed Parts Based on PLA HM Toufik Ahmed Zisan, Tahmidul M.

Azizur Rahman and Anamul Hasan  
Department of Mechanical and Production Engineering (MPE)  
Ahsanullah University of Science and Technology  
Dhaka, Bangladesh

Synthia Ferdous, Tafsir Ahmed  
Department of Industrial and Production Engineering (MPE)  
Ahsanullah University of Science and Technology  
Dhaka, Bangladesh

#### Paper ID 388 An Intelligent Cyber Physical System of Machining Operation for Industry 4.0

Md Shihab Shakur, Maishat Lubaba, Mir Wahidul Islam, Md. Saniat Kamal, M. Azizur Rahman, Md. Shahnawaz Bhuiyan  
Department of Mechanical and Production Engineering

Ahsanullah University of Science and Technology (AUST)  
Dhaka, Bangladesh

Md. Abdul Gaffur  
Principal Scientific Officer, Pilot Plant and Process Development Centre  
Bangladesh Council of Scientific and Industrial Research (BCSIR)  
Dhaka, Bangladesh

**Paper ID 499 Influence of Fiber Orientation on the Tensile and Flexural Properties of Jute Fiber Reinforced Polymer Composites**

Pranto Karua, Md. Arifuzzaman  
Department of Mechanical Engineering (ME)  
Khulna University of Engineering and Technology (KUET)  
Khulna, Bangladesh

**11:00PM – 1:00PM, SUNDAY**

**Room B**

Session Chair:

**Student Supply Chain Competition**

**11:00PM – 12:00PM, SUNDAY**

**Room 1**

Session Chair:

**Industrial Engineering**

**Paper ID 320 Factors Affecting Consumer Buying Decision of Flower Bouquet: A Case Study of Online Florist Business A. B. M.**

Ingrid Sabatini Priadi Buntojo, Mulyani Karmagatri, Iston Dwija Utama, Nur Azmi Karim  
Entrepreneurship Department, BINUS Business School Undergraduate Program  
Bina Nusantara University, Jakarta, Indonesia

**Paper ID 321 The Effectiveness of Social Media Advertising to Increase Engagement in the Craft Business - Case Study of Instagram Advertising used in Cressa Craft**

Catherine Angelina Husein, Mulyani Karmagatri, Ivan Diryana Sudirman, Nur Azmi Karim  
Entrepreneurship Department, BINUS Business School Undergraduate Program  
Bina Nusantara University, Jakarta, Indonesia

**Paper ID 322 Implementation of Customer Relationship Management in Small Laundry Business to Increase Customer Satisfaction**

Thania Fardha Yughni, Mulyani Karmagatri, Dian Kurnianingrum, Nur Azmi Karim  
Entrepreneurship Department, BINUS Business School Undergraduate Program  
Bina Nusantara University Jakarta, Indonesia

**Paper ID 324 Understanding Customer behaviors of Online Food Delivery for maximum selling- a Case Study on Go-food and Grab-food platform used by Anasuki Nuggets Business**

Edwin Pangestu, Mulyani Karmagatri, Doni Purnama Alamsyah, Nur Azmi Karim  
Entrepreneurship Department, BINUS Business School Undergraduate Program  
Bina Nusantara University, Jakarta, Indonesia

**Paper ID 304 Optimizing the Rock Mechanic Laboratory Operations: Simulation-Based Methodology for Investment Decision**

Sindu Umboro and Yuliani Dwi Lestari  
Department of Operation and Performance Management  
School of Business and Management  
Institut Teknologi Bandung, Indonesia

**Paper ID 298 A Survey On Ishikawa Diagram Applied To Manufacturing Industry**

Tawsif Zaman Arnob, Ekra Binta Noor, Raita Rahman and Afsana Akter  
Department of Mechanical and Production Engineering (MPE)  
Islamic University of Technology (IUT)  
Boardbazar, Gazipur, Dhaka, Bangladesh

**11:00PM – 12:00PM, SUNDAY**

**Room 2**

Session Chair:

**Industrial Engineering**

**Paper ID 316 Efficient Pre-Disaster Planning and Optimization for A Multi-Echelon Relief Distribution Network: A Case Study in Bangladesh Perspective**

A. B. M. Mainul Bari  
Department of Industrial and Production Engineering, Bangladesh University of Engineering and Technology, Dhaka-1000, Bangladesh.  
K Jamie Rogers, Jay M Rosenberger  
Department of Industrial & Manufacturing Systems Engineering,  
The University of Texas at Arlington, USA

**Paper ID 323 Assessment of the Elements of Industry 4.0 in Terms of Their Implementation Potentials: In the Context of the Ready-Made-Garment Industries of Bangladesh**

A. B. M. Mainul Bari, Ahsan Habib, Mehedi Hasan Akash  
Department of Industrial and Production Engineering,  
Bangladesh University of Engineering and Technology, Dhaka-1000, Bangladesh.

**Paper ID 329 Sundanese Entrepreneurial Leadership Model of Gen Z**

Mulyani Karmagatri, Andreas Chang, Santika Syaravina, Ivan Diryana Sudirman  
Entrepreneurship Department, BINUS Business School Undergraduate Program, Bina Nusantara University, Jakarta, Indonesia 11480  
Hazmilah Hasan  
Faculty of Technology Management and Technopreneurship, Universiti Teknikal Malaysia Melaka

**Paper ID 330 Understanding Entrepreneurial Leadership Model of Gen Z in Confucian Values Frames**

Mulyani Karmagatri, Andreas Chang, Santika Syaravina, Ivan Diryana Sudirman  
Entrepreneurship Department, BINUS Business School Undergraduate Program  
Bina Nusantara University, Jakarta, Indonesia 11480  
Hazmilah Hasan  
Faculty of Technology Management and Technopreneurship  
Universiti Teknikal Malaysia Melaka

**Paper ID 331 Cultural Acculturation in Entrepreneurial Leadership Model of Gen Z**

Mulyani Karmagatri, Andreas Chang, Santika Syaravina  
Entrepreneurship Department, BINUS Business School Undergraduate Program  
Bina Nusantara University, Jakarta, Indonesia 11480  
Hazmilah Hasan  
Faculty of Technology Management and Technopreneurship  
Universiti Teknikal Malaysia Melaka

**11:00PM – 12:00PM, SUNDAY**

**Room 3**

**Session Chair:**

**Industrial Engineering**

**Paper ID 402 Mathematical Model of Cell-Cell Interaction to Assess the Evolution of Breast Cancer**

Tahera Parvin and Md. Haider Ali Biswas  
Mathematics Discipline, Science Engineering and Technology School, Khulna University  
Khulna-9208, Bangladesh

**Paper ID 285 Optimization Approach for the Design of IPM Synchronous Motor for Escooter**

Bui Minh Dinh and Dang Quoc Vuong  
School of Electrical Engineering,  
Hanoi University of Science and Technologies

**Paper ID 291 Basis of Age Groups in Peru, Korea, China and Italy to Determine the High-Risk Age Group and Their Vaccination Plan**

Md. Jobayer Aziz, Nurul Abrar and Riasat Sadman  
Department of Mechanical and Production Engineering (MPE)  
Islamic University of Technology (IUT)  
Board Bazar, Gazipur, Dhaka, Bangladesh

**Paper ID 278 Usage of Control Charts in the Pharmaceutical Industry: A Literature Review**

Tajwar Azim Baigh, Intisar Islam Orony, Fairouz Nanzeeba and Ishtiak Ahmed Khan  
Department of Mechanical and Production Engineering  
Islamic University of Technology (IUT)  
Boardbazar, Gazipur, Dhaka, Bangladesh

**Paper ID 404 Challenges in Warehouse Optimization: A case study of an Electrical and Electronic Appliance Company in Bangladesh**

Md Tawhid Aziz, Sk Tahmid Shahriar, F.M. Farhan Faiyaz, Aseer Nehalul Islam and A.R.M. Harunur Rashid  
Department of Mechanical and Production Engineering (MPE)  
Islamic University of Technology (IUT)  
Boardbazar, Gazipur, Dhaka, Bangladesh

**Paper ID 378 The Role of Digital Marketing on Consumer Preferences in Purchase of Frozen Food Startup Products**

Mabel Lutgardis, Kukuh Lukiyanto, R. Aditya Kristamtomo Putra, and Agung Purnomo  
Entrepreneurship Department  
BINUS Business School Undergraduate Program  
Bina Nusantara University  
Jakarta 11480, Indonesia



# Sunday, Dec 26, 2021- Session: 12:00PM -1:00PM

12:00PM – 1:00PM, SUNDAY

Room A

Session Chair:

**Mechanical Engineering****Paper ID 413 Marangoni Natural Convection in a Discretely Heated Cubic Cavity under Isoflux Heating Condition**

HM Toufik Ahmed Zisan, Tahmidul Haque Ruvo and Sumon Saha

Department of Mechanical Engineering

Bangladesh University of Engineering and Technology (BUET)

Dhaka, Bangladesh

**Paper ID 414 CFD Study of Aerosol Particle Deposition in Converging-Diverging Nozzle**

Md. Shahneoug Shuvo, Md Nazmus Sakib, Sumon Saha

Department of Mechanical Engineering

Bangladesh University of Engineering and Technology (BUET)

Dhaka, Bangladesh

**Paper ID 415 Mixed Convection Heat Transfer of Non-Newtonian Fluid Flows in a Discretely Heated Lid-Driven Trapezoidal Cavity**

Partha Pratim Roy, Shuvra Chowdhury, Md. Hossain Raj and Sumon Saha

Department of Mechanical Engineering

Bangladesh University of Engineering and Technology

Dhaka-1000, Bangladesh

**Paper ID 424 Assessment of Overall Thermal Performance of Conjugate Pure Mixed Convection in a Lid-Driven Partitioned Cavity**

Sumon Saha, Mir Atiqur, Md Alif Mahmud and R. K. B. M. Rizmi

Department of Mechanical Engineering

Bangladesh University of Engineering and Technology (BUET)

Dhaka 1000, Bangladesh

**Paper ID 400 Natural Gas Pipeline Failure Risk Consequences Modeling: A Potential Threat to the Airport and Its Surrounding Infrastructures**

Sk Kafi Ahmed

Department of Industrial Systems Engineering

University of Regina

Regina, Canada

Shahrukh Khan

School of Mechanical Manufacturing

and Automation Engineering

Beihang University

Beijing, P.R. China

Sumaiya Rahman

Department of Civil Engineering

University of Asia Pacific

Dhaka, Bangladesh

Md Asifuzzaman Khan

School of Aerospace Engineering

Shenyang Aerospace University

Shenyang, P.R. China

11:00PM – 1:00PM, SUNDAY

Room B

Session Chair:

## Student Supply Chain

12:00PM – 1:00PM, SUNDAY

Room 1

Session Chair:

**Industrial Engineering****Paper ID 325 The Influence of E-Commerce Consumer Intention Factors in Choosing & Willingness to Pay for Eco-Friendly shipping on Last-Mile Delivery**

Afriandi Ginting, Farizal

Department of Industrial Engineering

University of Indonesia

Salemba, Jakarta, Indonesia

**Paper ID 326 QbD Approach for Successful Initial Sterile Aseptic Filling Facility Validation**

Pitoyo Amrih

Eko Pujiyanto

Department of Industrial Engineering  
Sebelas Maret University  
Surakarta, Indonesia

**Paper ID 336 Factors Affecting Problem-Solving Competency of Statistics Students in E-Learning: Education Perspectives Amidst the COVID-19 Crisis in the Philippines**

April Joy C. Dawates, Pearl R. Dela Peña, Marie Isabel F. Garza, Justin A. Rivera, Niña M. Suarez, Joshua B. Torremucha, Romalyn L. Galingan  
Department of Industrial Engineering, College of Engineering and Architecture  
Technological Institute of the Philippines – Quezon City  
Cubao, Quezon City, Philippine

**Paper ID 338 Perceived Stress and Memory Performance: A Correlational Study among Students taking Undergraduate and Vocational Program during Online Learning in Luzon, Philippines**

Almeyda, Jamaela L., Bondad, Eunice Denlee A., Fabillo, Maria Renci Anne S., Falic, Jhonvi F., Hipolito, Franchesca D., Lagrosa, Ma. Jovi Louise P. Managbanag, Shaira F., Galingan, Romalyn L., Palisoc, Arriane A.  
Department of Industrial Engineering, College of Engineering and Architecture  
Technological Institute of the Philippines – Quezon City  
Cubao, Quezon City, Philippines

**Paper ID 335 Quality Improvement of a Garment Industry in Myanmar using Total Quality Management Tools**

Su Nandar Hlaing and Aung Myo Lwin  
Department of Mechanical Engineering,  
Yangon Technological University  
Yangon, Myanmar

**Paper ID 364 New Analytical Model for Load distribution and Pitting Stress analysis of a Spur Gear on Lathe Machine**

Khin Khin Thant and Than Than Htike  
Department of Mechanical Engineering  
Yangon Technological University (YTU)  
Yangon, Myanmar

**12:00PM – 1:00PM, SUNDAY**

**Room 2**

**Session Chair:**

**Industrial Engineering**

**Paper ID 339 Feasibility Study and Idea Validation to Catch up Opportunity for Creating A New Venture**

Gabriela Victoria Haris Gunawan Sutanto, Mulyani Karmagatri and Rudy Aryanto  
Entrepreneurship Department, BINUS Business School Undergraduate Program  
Bina Nusantara University,  
Jakarta, Indonesia 11480

**Paper ID 337 Perceived Stress on Work Performance among Work-From-Home Filipino Medical Professors due to COVID-19 Pandemic**

Reiniel D. Allanic, Jovelyn C. Borlas, Shahira S. Herrera, Stephanie Christine D. Landicho, Aracely Ruth DC. Ramiro, Mel Andrew B. Reyes, Joanne Christine C. Rovedillo  
Department of Industrial Engineering, College of Engineering and Architecture  
Technological Institute of the Philippines – Quezon City  
Cubao, Quezon City, Philippines.

**Paper ID 338 Perceived Stress and Memory Performance: A Correlational Study among Students taking Undergraduate and Vocational Program during Online Learning in Luzon, Philippines**

Almeyda, Jamaela L., Bondad, Eunice Denlee A., Fabillo, Maria Renci Anne S., Falic, Jhonvi F., Hipolito, Franchesca D., Lagrosa, Ma. Jovi Louise P. Managbanag, Shaira F., Galingan, Romalyn L., Palisoc, Arriane A.  
Department of Industrial Engineering, College of Engineering and Architecture  
Technological Institute of the Philippines – Quezon City  
Cubao, Quezon City, Philippines

**Paper ID 327 Quantitative Comparison of the Three Vaccination Centers in the Philippines: An Assessment for the Optimum Practices Using Queueing Theory**

Marvin D. Bermeo, Eula Mae Q. Berroya, Stephanie J. Besana, Nellaine P. Delos Santos Cyrille Earl A. Helis, Angela Joyce C. Martin, Frances O. Sotto  
Department of Industrial Engineering, College of Engineering and Architecture  
Technological Institute of the Philippines – Quezon City  
Cubao, Quezon City, Philippines

**Paper ID 476 Sales Display Relayout Based on Analysis of Item Sets Pattern Using Combination of Complete Linkage Hierarchical-Clustering and Association-Rule Methods with Apriori Algorithm**

Selvia Putri Andriani, Aisyah Larasati, Abdul Muid,  
Industrial Engineering, Faculty of Engineering, Universitas Negeri Malang  
Jl. Semarang No. 5 Malang, Indonesia 65145

Nina Aini Mahbubah  
Industrial Engineering Department, Engineering Faculty, Universitas Muhammadiyah Gresik  
Jl Sumatera 101 GKB Gresik, Indonesia 61121

**Paper ID 475 Evaluation of Instant Noodle Packing Quality Improvement Based on Failure Mode And Effects Analysis Method**

Mulyani Karmagatri, Andreas Chang, Santika Syaravina  
 Nina Aini Mahbubah, Rendra Rahmatulloh  
 Department of Industrial Engineering – Engineering Faculty  
 Universitas Muhammadiyah Gresik (UMG)  
 Jl. Sumatera 101 GKB Gresik, Jawa Timur – Indonesia 61121

Abdul Muid  
 Department of Industrial Engineering – Engineering faculty  
 Universitas Negeri Malang (UM)  
 Jl. Semarang no 5 Jawa Timur – Indonesia 65145

**12:00PM – 1:00PM, SUNDAY****Room 3**

Session Chair:

**Industrial Engineering****Paper ID 468 Mapping The Intellectual Structure of Educational Linguistics Research**

Nuzula Firdausi and Nur Afia  
 English Language Education Department  
 Universitas Nahdatul Ulama Sidoarjo  
 Sidoarjo 61218, Indonesia

Fatkul Anam  
 Teacher Professional Education Department  
 Universitas Wijaya Kusuma Surabaya  
 Surabaya 60225, Indonesia

Kaswadi  
 Indonesian Language Education Department  
 Universitas Wijaya Kusuma Surabaya  
 Surabaya 60225, Indonesia

Agung Purnomo  
 Entrepreneurship Department  
 BINUS Business School Undergraduate Program  
 Bina Nusantara University  
 Jakarta 11480, Indonesia

**Paper ID 472 From Analysis to Strategy Formulation for Apparel Startup** Bui Minh Dinh and Dang Quoc Vuong

Narendra Bagaskara and Agung Purnomo  
 Entrepreneurship Department  
 BINUS Business School Undergraduate Program  
 Bina Nusantara University  
 Jakarta 11480, Indonesia

**Paper ID 477 Insights into Business Strategy: Formulation of Export Entrepreneurship**

Agung Purnomo, Annisa Dina Shalsabilla Sugiantoro, Nazaria Jotur Siregar, and  
 Febby Candra Pratama  
 Entrepreneurship Department  
 BINUS Business School Undergraduate Program  
 Bina Nusantara University  
 Jakarta 11480, Indonesia

**Paper ID 479 Inclusive Education Research Mapping in ASEAN: Lesson from Scientometric Perspective**

Nur Asitah, Syamsul Hadi, and Shirly Rizki Kusumaningrum  
 Primary Education Department  
 Universitas Negeri Malang  
 Malang 65145, Indonesia  
 Abdur Rahman Asari  
 Mathematics Department  
 Universitas Negeri Malang  
 Malang 65145, Indonesia

Agung Purnomo  
 Entrepreneurship Department  
 BINUS Business School Undergraduate Program  
 Bina Nusantara University  
 Jakarta 11480, Indonesia

**Paper ID 481 Business Strategy of Trading Company: Analysis and Formulation**

Agung Purnomo, Dian Markus Tambunan, Megawati Sundoro Putri, Averina Cindy Setio, and Febby Candra Pratama  
 Entrepreneurship Department  
 BINUS Business School Undergraduate Program

Bina Nusantara University  
Jakarta 11480, Indonesia

**Paper ID 501 Women Consumer Online Purchase Decision Making on Body Care Products: Analysis of Influencing Factors**

Hanisavila Putri Widoriantika and Agung Purnomo  
Entrepreneurship Department  
BINUS Business School Undergraduate Program  
Bina Nusantara University  
Jakarta 11480, Indonesia

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## Sunday, Dec 26, 2021- Session: 1:00 PM-1:40 PM

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Lunch Break

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## Sunday, Dec 26, 2021- Session: 1:40 PM-2:10 PM

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### Keynote Speakers

1:40 PM-2:10 PM- Room A

**Keynote III: Dr. Ir. Khristian Edi Nugroho Soebandrija**

Binus Aso School of Engineering, Bina Nusantara University (Binus)  
Tangerang, Banten, Indonesia

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## Sunday, Dec 26, 2021- Session: 2:10 PM-3:00 PM

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2:10 PM- 4:00 PM, SUNDAY

Room B

Session Chair:

### Student Talk

2:10 PM- 3:00 PM, SUNDAY

Room 1

Session Chair:

### Industrial Engineering

**Paper ID 317 Determination of Force During Wire Drawing of Copper**

Sunday J. Ojolo and Mojisola G. Omolomo  
Department of Mechanical Engineering  
University of Lagos  
Akoka, Lagos

**Paper ID 352 The economic sustainability of Spheroidization of Ti6Al4V with respect to Additive Manufacturing: Literature Review.**

Tsepo.M. Dube  
Department of Industrial Engineering  
University of Stellenbosch  
Stellenbosch, South Africa  
Hertzog Bissett  
Research and Development,  
South African Nuclear Energy Corporation SOC Ltd,  
South Africa

Stephen Matope  
Department of Industrial Engineering,  
University of Stellenbosch,  
Stellenbosch, South Africa

Andre F van der Merwe4;  
Department of Industrial Engineering  
University of Stellenbosch,  
Stellenbosch, South Africa

**Paper ID 441 A PESTLE Analysis of Indonesia's Marine Fisheries using DEMATEL Method**



Sri Maulana Bimasakti, Djoko Sihono Gabriel  
Department of Industrial Engineering  
Universitas Indonesia (UI)  
Jakarta Raya, Indonesia

**Paper ID 486      Significance of Ergonomics in Manufacturing Companies – A Review** Md. Jisan Mahmud and Sumon Saha  
Vaibhav Kalpesh Desai  
Dr. M B Kiran  
Department of Mechanical Engineering  
Pandit Deendayal Energy University (PDEU)  
Gandhinagar, Gujarat, India

## 2:10 PM- 3:00 PM, SUNDAY

## Room 2

Session Chair:

**Industrial Engineering**

**Paper ID 366      Healthcare Service Quality Improvement Migration Strategy: A Lean Six Sigma Based Approach**  
Dr R. Mutyavavire and Mayver Ramogayane  
Department of Mechanical and Industrial Engineering (MIET)  
University of Johannesburg (UJ)  
Johannesburg, South Africa

**Paper ID 367      Implementing Industry 4.0 Teaching principles in Industrial Engineering Laboratories** Tsepo.M. Dube  
R. Mutyavavire and Nicholas Maibela  
Department of Mechanical and Industrial Engineering (MIET)  
University of Johannesburg (UJ)  
Johannesburg, South Africa

**Paper ID 312 Simulation and modeling analysis of a plant layout for bottleneck or line balancing operations using Flexsim**  
Rafiatun Ferdous Khan Lubaba, Department of Mechatronics and Industrial Engineering, Chittagong University of Engineering and Technology  
Chittagong, Bangladesh

**Paper ID 396      Analysis & Comparative Study on Different Cooling Systems of Motorbike Engines and Implementation of Thermoelectric Generator (TEG) on the Exhaust System**  
Ahnaf Sadi  
Department of Mechanical and Production Engineering  
Islamic University of Technology – IUT, OIC  
Gazipur, Bangladesh

Luthfun Nahar  
Department of Mechanical & Mechatronic Engineering  
UCSI University  
Malaysia

**Paper ID 280      Evaluation of Work-Life Balance in Women Engineers: A Review**  
M. M. Manyuchi, N. Sukdeo  
Department of Operations and Quality Management, Faculty of Engineering and the Built Environment, University of Johannesburg, South Africa  
R. Rusike  
Graduate School of Business Management, Bindura University of Science Education, Zimbabwe

## 2:10 PM- 3:00 PM, SUNDAY

## Room 3

Session Chair:

**Industrial Engineering**

**Paper ID 453      Comparing Safety Risk Identification in the Manufacturing and Non-Manufacturing Industry: Systematic Literature Review**  
Haryadi Sarjono  
BINUS Business School, Undergraduate  
Universitas Bina Nusantara  
Jakarta, Indonesia

Dalinsyah Danil  
Industrial Engineering, Bina Nusantara University  
Jakarta, Indonesia

Heppy Yohanes  
Sekolah Tinggi Teologi Bethel The Way (STTB The Way)  
Jakarta, Indonesia

Kornelius Rulli Jonathans  
Sekolah Tinggi Teologi Bethel The Way (STTB The Way)  
Jakarta, Indonesia

**Paper ID 454      Systematic Literature Review: Angklung As Cultural Manifestation**

Haryadi Sarjono  
BINUS Business School, Undergraduate  
Universitas Bina Nusantara  
Jakarta, Indonesia

Puji Lestari  
Heppy Yohanes  
Kornelius Rulli Jonathans  
Sekolah Tinggi Teologi Bethel The Way (STTB The Way)  
Jakarta, Indonesia

**Paper ID 455      Supply Chain Performance Measurement Using The Supply Chain Operation Reference Model (Scor Model) Approach In The Food Industry Study Literature Review**

Haryadi Sarjono, Chrisaldy Diwanda Markus Pattiapion  
Management Department, BINUS Business School Undergraduate Program  
Bina Nusantara University  
Jakarta, Indonesia

Heppy Yohanes  
Sekolah Tinggi Teologi Bethel The Way (STTB The Way)  
Jakarta, Indonesia

**Paper ID 457      The Role of Education in Preparing the Young Generation for the Era of the ASEAN Economic Community**

Fransisca Dwi Harjanti and Anik Kirana  
Teacher Professional Education Department  
Universitas Wijaya Kusuma Surabaya

Lusy Tunik Muharlisiani  
English Language Education Department  
Universitas Wijaya Kusuma Surabaya, Indonesia

Marmi  
Biology Education Department  
Universitas Wijaya Kusuma Surabaya, Indonesia

Friendha Yuanta  
Primary Teacher Education Department  
Universitas Wijaya Kusuma Surabaya, Indonesia

**Paper ID 463      Systematic Literature Review: Perceptions and Interest of Tourist Visitor on the Online Art of The Ramayana Ballet Art**

Haryadi Sarjono  
BINUS Business School Undergraduate  
Bina Nusantara University  
Jakarta, Indonesia

Dian Kusmawati  
Sekolah Tinggi Ilmu Ekonomi Bisnis Indonesia  
Jakarta, Indonesia

Heppy Yohanes  
Sekolah Tinggi Teologi Bethel The Way  
Jakarta, Indonesia

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## Sunday, Dec 26, 2021- Session: 3:00 PM-4:00PM

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**2:10 PM- 4:00 PM, SUNDAY**

**Room B**

Session Chair:

### Student Talk

**3:00 PM- 4:00 PM, SUNDAY**

**Room 1**

Session Chair:

### Industrial Engineering

**Paper ID 448      Facility Planning in the Context of Industry 4.0 - A Review**

M.B. Kiran  
Associate Professor,  
Department of Mechanical Engineering,  
School of Technology,  
Pandit Deendayal Energy University,

Gandhinagar, Gujarat, INDIA

**Paper ID 440      Heuristic Optimization for Job Shop Scheduling in a Flexible Manufacturing System**

Hisham Alkhalefah  
Institute Riyadh Advanced Manufacturing  
King Saud University  
11421, Saudi Arabia

Usama Umer  
Institute Riyadh Advanced Manufacturing  
King Saud University  
11421, Saudi Arabia

Mustufa Haider Abidi  
Institute Riyadh Advanced Manufacturing  
King Saud University  
11421, Saudi Arabia

Ahmed Elkaseer  
Department of Production Engineering and Mechanical Design  
Faculty of Engineering  
Port Said University  
Port Said, 42523, Egypt

Institute for Automation and Applied Informatics  
Karlsruhe Institute of Technology  
Karlsruhe, 76344 Germany

**Paper ID 408      Student Satisfaction Index on Lecturers Performance on Ambon State of Polytechnic**

Sukanta  
Universitas Singaperbangsa Karawang, Indonesia  
Dian Utami Sutiksno  
Department of Commercial Administration, Politeknik Negeri Ambon,  
Ambon, Indonesia

Agustinus Numberi  
Faculty of Economic and Business, Universitas Cendrawasih  
Papua, Indonesia

Andarias Patiran  
Universitas Ottow Geissler, Papua, Indonesia

Johanis R. Wanma  
Faculty of Economic and Business, Universitas Cendrawasih  
Papua, Indonesia

**Paper ID 409      Competitive Advantage On Higher Education Study Program In Maluku – Indonesia (Case Study)**

Irma Setyawati  
Faculty of Economics and Busines, Management Study Program  
Universitas Nasional, Jakarta, Indonesia  
Dian Utami Sutiksno  
Department of Commercial Administration, Politeknik Negeri Ambon,  
Ambon, Indonesia

Novalien. C. Lewaherilla  
Faculty of Economic and Business, Department of Management  
Universitas Pattimura  
Ambon, Indonesia

Naddynda PN  
Faculty of Teacher Training and Education,  
English Education Study Programme  
Universitas Pattimura  
Ambon, Indonesia

Victor Pattiasina  
Universitas Yapis  
Papua, Indonesia

**Paper ID 332      Utilization of Holistic Marketing Concepts on Gojek**  
Dian Kurnianingrum, Mulyani Karmagatri, Iston Dwija Utama, Nur Azmi Karim  
Entrepreneurship Department, BINUS Business School Undergraduate Program  
Bina Nusantara University,  
Jakarta, Indonesia 11480

3:00 PM- 4:00 PM, SUNDAY

Room 2

Session Chair:

**Mechanical Engineering****Paper ID 341      CFD Analysis of Fluid Flow and Heat Transfer of a Triangle Object in a Rectangular Cavity**

Anzaman Hossen, Anik Hira, Nazmus Sakib, Khandkar Aftab Hossain

Department of Mechanical Engineering

Khulna University of Engineering and Technology (KUET)

Khulna, Bangladesh

**Paper ID 348      The Effects of Dimples on Heat Transfer and Fluid Flow on a Circular Tube: A Computational Investigation**

Anzaman Hossen, Md. Shajal Chowdhury, Mohammad Ilias Inam

Department of Mechanical Engineering

Khulna University of Engineering and Technology (KUET)

Khulna, Bangladesh.

**Paper ID 361      Constructing a Circular Sawing Machine with a Belt and Pulley Mechanism by Enhancing Input Energy**

Md. Yousuf Sazid, Md. Mahmudul Hasan, Sadman Hafiz Durlov

Department of Mechanical Engineering

Khulna University of Engineering &amp; Technology (KUET)

Khulna, Bangladesh

**Paper ID 362      Modeling of Natural Gas Life Cycle: Natural Gas Supplying to a 225 MW CCPP in Bangladesh**

Mafizul Huq

Department of Mechanical and Production Engineering

Islamic University of Technology (IUT), Bangladesh

Md. NurulAbsar Chowdhury

Department of Mechanical and Production Engineering

Islamic University of Technology (IUT), Bangladesh

**Paper ID 394      Microstructural evaluation of local LES manufactured Piston**

Abdullah Al Noman, Ismail Hossein Sian, Billal Bin Amin

Department of Mechanical and Production Engineering

Ahsanullah University of Science and Technology (AUST)

Dhaka, Bangladesh

M. Azizur Rahman

Assistant Professor, Department of Mechanical and Production Engineering

Ahsanullah University of Science and Technology (AUST)

Dhaka, Bangladesh

Dr. Fazle Rabbi

Associate Professor, Department of Mechanical and Production Engineering

Ahsanullah University of Science and Technology (AUST)

Dhaka, Bangladesh

Dr. Md. Shahnawaz Bhuiyan

Associate Professor, Department of Mechanical and Production Engineering

Ahsanullah University of Science and Technology (AUST)

Dhaka, Bangladesh

Nina Aini Mahbubah

Industrial Engineering Department, Engineering Faculty, Universitas Muhammadiyah Gresik

Jl Sumatera 101 GKB Gresik, Indonesia 61121

3:00 PM- 4:00 PM, SUNDAY

Room 3

Session Chair:

**Industrial Engineering****Paper ID 463      Systematic Literature Review: Perceptions and Interest of Tourist Visitor on the Online Art of The Ramayana Ballet Art**

Haryadi Sarjono

BINUS Business School Undergraduate

Bina Nusantara University

Jakarta, Indonesia

Dian Kusmawati

Sekolah Tinggi Ilmu Ekonomi Bisnis Indonesia

Jakarta, Indonesia

Heppy Yohanes

Sekolah Tinggi Teologi Bethel The Way

Jakarta, Indonesia

**Paper ID 471      Marketing Services for Potato Export Potential in Indonesia**



Haryadi Sarjono  
Management Departement, BINUS Business School Undergraduate Program  
Bina Nusantara University  
Jakarta, Indonesia

Heppy Yohanes  
Sekolah Tinggi Teologi Bethel The Way (STTB The Way)  
Jakarta, Indonesia

**Paper ID 458 Mapping of Linguistic Diversity Research Themes: A Review**

Mega Firdaus  
English Language Education Department  
Universitas Nahdlatul Ulama Sidoarjo  
Sidoarjo 61218, Indonesia

Elsa Rosyidah  
Environmental Engineering Department  
Universitas Nahdlatul Ulama Sidoarjo  
Sidoarjo 61218, Indonesia

Hadi Ismanto  
Basic Education Department  
Universitas Negeri Malang  
Malang 61218, Indonesia

Agung Purnomo  
Entrepreneurship Department  
BINUS Business School Undergraduate Program  
Bina Nusantara University  
Jakarta 11480, Indonesia

**Paper ID 459 Business Development Strategy Formulation: Lessons Learned from Body Care Startup**

Rintany Zulfah Khoyriyah and Agung Purnomo  
Entrepreneurship Department  
BINUS Business School Undergraduate Program  
Bina Nusantara University  
Jakarta 11480, Indonesia

**Paper ID 466 Value of Biorefinery Research Mapping: A Scientometric Overview**

Andre Septianto  
Chemical Engineering Department  
Universitas Nahdlatul Ulama Sidoarjo  
Sidoarjo 61218, Indonesia

Elsa Rosyidah  
Environmental Engineering Department  
Universitas Nahdlatul Ulama Sidoarjo  
Sidoarjo 61218, Indonesia

Agung Purnomo  
Entrepreneurship Department  
BINUS Business School Undergraduate Program  
Bina Nusantara University  
Jakarta 11480, Indonesia

**Paper ID 464 A Study of TESOL in ASEAN Using Scientometric Mapping Approach**

Nur Afia and Nuzula Firdausi  
English Language Education Department  
Universitas Nahdlatul Ulama Sidoarjo  
Sidoarjo 61218, Indonesia

Elsa Rosyidah  
Environmental Engineering Department  
Universitas Nahdlatul Ulama Sidoarjo  
Sidoarjo 61218, Indonesia

Fatkul Anam  
Teacher Professional Education Department  
Universitas Wijaya Kusuma Surabaya  
Surabaya 60225, Indonesia

Agung Purnomo  
Entrepreneurship Department  
BINUS Business School Undergraduate Program  
Bina Nusantara University  
Jakarta 11480, Indonesia

## Sunday, Dec 26, 2021- Session: 4:00 PM-5:00 PM

4:00 PM- 5:00 PM, SUNDAY

Room 1

Session Chair:

Industrial Engineering

**Paper ID 340 The impact of location decision: A review**

Alice Kabamba Lumbwe, Eveth Nwobodo-Anyadiegwu, Charles Mbohwa  
 Department of Quality and Operations Management  
 University of Johannesburg  
 Johannesburg, South Africa

**Paper ID 343 Benchmarking as a tool for improvement of production management within the manufacturing sector**

Mthethwa SG, Lumbwe AK, Nwobobo-Anyadiegwu EN  
 Department of Quality and Operations management  
 University of Johannesburg  
 Johannesburg, South Africa

**Paper ID 344 The Importance and Satisfaction of Location Decision Factors of Manufacturing and Services SMMES in Johannesburg**

Alice Kabamba Lumbwe, Eveth Nkeiruka Nwobodo-Anyadiegwu, Charles Mbohwa  
 Department of Quality and Operations Management  
 University of Johannesburg  
 Johannesburg, South Africa

**Paper ID 417 Application of Delphi Technique in Predicting Total Quality Management Constructs in Ghanaian Construction Industry**

Samuel Kwame Ansah  
 Department of Building Technology, School of Built and Natural Environment, Cape Coast Technical University, Cape Coast, Ghana  
 Department of Construction Management and Quantity Surveying, Faculty of Engineering and Built Environment, University of Johannesburg,  
 Johannesburg, Gauteng, South Africa  
 Wellington Didibhuku Thwala and Clinton Ohis Aigbavboa  
 Department of Construction Management and Quantity Surveying, Faculty of Engineering and Built Environment, University of Johannesburg,  
 Johannesburg, Gauteng, South Africa

**Paper ID 418 Influence of Organizational Factors on Total Quality Management Implementation in the Ghanaian Construction Industry**

Samuel Kwame Ansah  
 Department of Building Technology, School of Built and Natural Environment, Cape Coast Technical University, Cape Coast, Ghana  
 Department of Construction Management and Quantity Surveying, Faculty of Engineering and Built Environment, University of Johannesburg,  
 Johannesburg, Gauteng, South Africa  
 Wellington Didibhuku Thwala and Clinton Ohis Aigbavboa  
 Department of Construction Management and Quantity Surveying, Faculty of Engineering and Built Environment, University of Johannesburg,  
 Johannesburg, Gauteng, South Africa

4:00 PM- 5:00 PM, SUNDAY

Room 2

Session Chair:

Industrial Engineering

**Paper ID 308 Analyzing Musculoskeletal Discomforts of the Selected Bangladeshi University Students Using Laptops**

Mohammad Iqbal, Qawsar Ali and Konkon Das  
 Department of Industrial and Production Engineering  
 Shahjalal University of Science and Technology  
 Sylhet-3114, Bangladesh

**Paper ID 328 A Review of Neuroeconomic Research Using Bibliometric Analysis**

Agung Purnomo and Mardhatillah Shanti  
 Entrepreneurship Department  
 BINUS Business School Undergraduate Program  
 Bina Nusantara University  
 Jakarta 11480, Indonesia

Nuzula Firdausi  
 Institute for Research and Community Services  
 Universitas Nahdlatul Ulama Sidoarjo  
 Sidoarjo 61218, Indonesia

Dian Utami Sutiksno  
 Business Administration Department  
 Politeknik Negeri Ambon  
 Ambon 97233, Indonesia

**Paper ID 374 The Optimization Production of SMEs Based on Ergonomics Perspective**

Anang Ramadhan Feri Pratama, Kuku Lukiyanto, R. Aditya Kristamtomo Putra, and Agung Purnomo  
 Entrepreneurship Department  
 BINUS Business School Undergraduate Program  
 Bina Nusantara University  
 Jakarta 11480, Indonesia

**Paper ID 398 Mapping of Green Jobs Research Themes: A Review**

Agung Purnomo  
 Entrepreneurship Department  
 BINUS Business School Undergraduate Program  
 Bina Nusantara University  
 Jakarta 11480, Indonesia

Nur Afia  
 Institute for Research and Community Services  
 Universitas Nahdlatul Ulama Sidoarjo  
 Sidoarjo 61218, Indonesia

Elsa Rosyidah  
 Environmental Engineering Department  
 Universitas Nahdlatul Ulama Sidoarjo  
 Sidoarjo 61218, Indonesia

Robertus Tang Herman  
 Management Department  
 BINUS Business School Undergraduate Program  
 Bina Nusantara University  
 Jakarta 11480, Indonesia

**Paper ID 407 Green Product Overview Using The Bibliometric Mapping Analysis**

Agung Purnomo  
 Entrepreneurship Department  
 BINUS Business School Undergraduate Program  
 Bina Nusantara University  
 Jakarta 11480, Indonesia

Mega Firdaus  
 Institute for Research and Community Services  
 Universitas Nahdlatul Ulama Sidoarjo  
 Sidoarjo 61218, Indonesia

Elsa Rosyidah and Laily Noer Hamidah  
 Environmental Engineering Department  
 Universitas Nahdlatul Ulama Sidoarjo  
 Sidoarjo 61218, Indonesia

**4:00 PM- 5:00 PM, SUNDAY****Room 3****Session Chair:****Industrial Engineering****Paper ID 483 Case Study of Enterprise Resource Planning System Implementation in Small Medium Business**

Haryadi Sarjono  
 Rizky Aditya Nugroho, Awang Andhyka, Catur Lega Wibisono, Syahri Mu'min,  
 and Arief Saputro  
 Information Systems Department  
 Universitas Nahdlatul Ulama Sidoarjo  
 Sidoarjo 61218, Indonesia

**Paper ID 484 Student Discipline Information System in Higher Education Using K-Nearest Neighbors Algorithm**

Arief Saputro, Achmad Alif Ubaidillah, Awang Andhyka, Syahri Mu'min,  
 Rizky Aditya Nugroho, and Catur Lega Wibisono  
 Information Systems Department  
 Universitas Nahdlatul Ulama Sidoarjo  
 Sidoarjo 61218, Indonesia

**Paper ID 487 Eco-Pesantren: Islamic Boarding School Transformation Program to Support Natural Sustainability and Sustainable Development**

Wahyu Eko Pujiyanto, Ayu Lucy Larassaty, Muhafidhah Novie, and Laily Muzdalifah  
 Management Department  
 Universitas Nahdlatul Ulama Sidoarjo  
 Sidoarjo 61218, Indonesia

Elsa Rosyidah

Environmental Engineering Department  
Universitas Nahdlatul Ulama Sidoarjo  
Sidoarjo 61218, Indonesia

**Paper ID 492 Bibliometric Analysis of Tourism Industry Resilience Through Immersive Media During Pandemic**

Trias Widha Andari  
Athika Dwi Wiji Utami  
Sonhaji Arif  
Putra Uji Deva Satrio  
Visual Communication Design Department  
Universitas Nahdlatul Ulama Sidoarjo  
Sidoarjo, Indonesia

**Paper ID 358 Electrode Probe-Tissue Stress Analysis Using Finite Element Method**

Intiajur Rahman  
Department of Industrial and Production Engineering  
Shahjalal University of Science and Technology (SUST)  
Sylhet, Bangladesh

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## Sunday, Dec 26, 2021- Session: 6:00PM-7:00PM

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### Keynote Speakers

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#### 6:00 PM-6:30 PM- Room 1

Keynote IV: Professor Dr.Md. Haider Ali Biswas  
Mathematics Discipline, Science Engineering and Technology School  
Khulna University - Room 1

#### 6:30 PM-7:00 PM - Room 1

Keynote V: Professor Mohammad N Patwary  
Faculty of Science and Engineering, University of Wolverhampton  
Wolverhampton, UK - Room 1

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## Sunday, Dec 26, 2021- Session: 7:00PM-8:00PM

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### Conference Buffet Dinner

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## Sunday, Dec 26, 2021- Session: 9:00PM - 10:30PM

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### Panel Session on Entrepreneurship, Innovation and Engineering Education

#### Professor Donald M. Reimer

Director of Membership and Chapter Development – IEOM Society  
President, The Small Business Strategy Group, Detroit, Michigan, USA  
Adjunct Faculty – A. Leon Linton Department of Mechanical, Robotics and Industrial Engineering  
Lawrence Technological University, Southfield, Michigan, USA

#### Ahad Ali, Ph.D.

Associate Professor  
Director, Bachelor of Science in Industrial Engineering  
Director, Master of Science in Industrial Engineering  
Director, Graduate Certificate in Lean Six Sigma  
Director, Smart Manufacturing and Lean Systems Research Group  
Coordinator, Siemens Electro-Matic Industrial Engineering Lab  
A. Leon Linton Department of Mechanical, Robotics and Industrial Engineering  
Lawrence Technological University  
Southfield, Michigan, MI 48075, USA  
Executive Director – IEOM Society International



**Professor Mazharul Islam, PhD**

P.Eng. (APEGA, Canada), Fellow (IEB), Member (ASME)  
 Department of Mechanical and Production Engineering  
 Ahsanullah University of Science and Technology  
 Tejgaon Industrial Area, Dhaka-1208, Bangladesh

**Md Kawsar Ali**

Chief Operating Officer  
 Comfit Composite Knit LTD  
 Gorai, Mirzapur, Tangail  
 Dhaka, Bangladesh

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## Monday, Dec 27, 2021- Session: 6:00 AM-8:00 AM

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**6:00 AM-8:00 AM, MONDAY****Room 1****Quality Competition**

**ID 508 Distribution of COVID-19 Personal Protective Equipment by California County Population**  
 Kayla Akey, Lawrence Technological University, Southfield, Michigan, USA

**ID 509 Analyzing the Quality of Drilled Profiles in Hybrid Composites Using Minitab**  
 Karthik Dhandapani, Lawrence Technological University, Southfield, Michigan, USA

**ID 510 The Impact of Quality Control in Building Construction for Measurably Control Defects**  
 Sean Pratt, Lawrence Technological University, Southfield, Michigan, USA

**ID 511 Is Going Green the Way of the Future for Vehicles?**  
 Joshua Stein, Lawrence Technological University, Southfield, Michigan, USA

**ID 512 Improving Plastic Part Shrinkage through Design of Experiments in Automotive Injection Molding**  
 Cory Williams, Lawrence Technological University, Southfield, Michigan, USA

**ID 513 Quality Improvement of EHPS – electronic hydraulic power steering**  
 Leyang Xu, Lawrence Technological University, Southfield, Michigan, USA

**6:00 AM-8:00 AM, MONDAY****Room 2****Simulation Contest**

**ID 514 Airport Security Check-In Modeling Using Arena**  
 Lauren Wasiak, Lawrence Technological University, Southfield, Michigan, USA

**ID 515 Improvement of a Manufacturing Process Using Arena Simulation and DOE**  
 Sanu Kuriakose Thomas, Lawrence Technological University, Southfield, Michigan, USA

**ID 516 Simulation Analysis of Brake Lining Manufacturing**  
 Karthik Dhandapani, Lawrence Technological University, Southfield, Michigan, USA

**ID 517 Simulation Analysis of Ordering and Managing System of Cricket Set**  
 Vishesh Mahendrabhai Joshi, Lawrence Technological University, Southfield, Michigan, USA

**ID 518 Improving Covid-19 Testing Processes**  
 Sean Pratt, Lawrence Technological University, Southfield, Michigan, USA

**ID 519 Improving Throughput in Manufacturing Bottleneck Area Using Simulation**  
 Kevin McCabe, Lawrence Technological University, Southfield, Michigan, USA

**ID 520 Simulation Analysis and Optimization of a Quality Inspection and Engineering Services Company**  
 Fayed Akbar, Lawrence Technological University, Southfield, Michigan, USA

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## Monday, Dec 27, 2021- Session: 8:00 AM-8:30 AM

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**8:00 AM- 8:30 AM, MONDAY****Room 1**

Session Chair:

**Industrial and Mechanical Engineering****Paper ID 345 Development of A Desktop-mounted Rehabilitation Robot For Upper Extremities**

Md Mahafuzur Rahaman Khan  
Department of Mechanical Engineering  
University of Wisconsin-Milwaukee  
Milwaukee, USA

Tanvir Ahmed  
Department of Biomedical Engineering  
University of Wisconsin-Milwaukee  
Milwaukee, USA

Jaime Rafael Hernandez Pallares  
Department of Mechanical Engineering  
University of Wisconsin-Milwaukee  
Milwaukee, USA

Md Rasedul Islam  
Richard J. Resch school of engineering  
University of Wisconsin-Green Bay  
Green Bay, WI, USA

Brahim Brahmi  
Department of Electrical and Computer Engineering  
Miami University  
Oxford Ohio, USA

Mohammad Habibur Rahman  
Department of Mechanical Engineering  
University of Wisconsin-Milwaukee  
Milwaukee, USA

**Paper ID 450 Mapping and Localization in 3D Space for Vision-based Robot Manipulation**

Md Tanzil Shahria and Md Samiul Haque Sunny  
Department of Computer Science  
University of Wisconsin-Milwaukee  
Wisconsin, United States

Md Ishrak Islam Zarif and Sheikh Iqbal Ahamed  
Department of Computer Science  
Marquette University  
Wisconsin, United States

Mohammad H. Rahman  
Department of Mechanical Engineering  
University of Wisconsin-Milwaukee  
Wisconsin, United States

**Paper ID 488 Kinematics and Workspace Analysis of xArm6 Robot for Activities of Daily Living**

Elias Munoz, Md Samiul Haque Sunny, Ivan Rulik, Javier D. Sanjuan De Caro, and Mohammad H. Rahman  
Department of Mechanical Engineering  
University of Wisconsin-Milwaukee  
Milwaukee, USA

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## Monday, Dec 27, 2021- Session: 8:30 AM-11:00 AM

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### Keynote Speakers

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**8:30 AM-9:00 AM- Room A**

Keynote VI: David A. Harry  
Chief Executive Officer and Black Belt Trainer  
Process Whisperer® Consultants LLC  
Former University of Tennessee, Knoxville  
Greeneville, Tennessee U.S.A

**9:00 AM-9:30 AM-Room A**

Keynote VII: Professor Dr Mohammad Sarwar Morshed

Professor, Mechanical and Production Engineering  
Ahsanullah University of Science and Technology (AUST)

**9:30 AM-10:00 AM-Room A**

Keynote VIII: Uttam Kumar Chakravarty, Ph.D.  
Associate Professor, Department of Mechanical Engineering  
University of New Orleans  
New Orleans, Louisiana, USA

**10:00 AM-10:30 AM-Room A**

Keynote IX: Dr Md Nurul Absar Chowdhury  
Professor, Department of Mechanical and Production Engineering  
Islamic University of Technology (IUT), Dhaka Bangladesh (an organ of OIC)

**10:30 AM-11:00 AM-Room A**

Keynote X: Dr. Sankar Kumar Roy  
Professor, Department of Applied Mathematics with Oceanology and Computer Programming  
Vidyasagar University, Midnapore-721102, West Bengal, India

## Monday, Dec 27, 2021- Session: 11:00 AM-12:00 PM

**11:00 AM- 12:00 PM, MONDAY**

**Room 1**

Session Chair:

**Industrial Engineering**

**Paper ID 381 PLC Based Monitoring and Prediction: A Case Study of Injection Molding**

Saif Abdul Alif, Md. Amirul Islam Sakib, Md Shihab Shakur, Shekh Rafin Bin Alam, M. Azizur Rahman  
Department of Mechanical and Production Engineering  
Ahsanullah University of Science and Technology (AUST)  
Dhaka, Bangladesh

**Paper ID 389 A Case Study on an Approach to Minimizing Inventory Cost through categorization of Items and forecasting Uncertain Demand**

Robin Saha, Esteak Ahmed, Md. Sazol Ahmmmed, Fuad Ahmed Choyon  
Department of Industrial & Production Engineering (IPE)  
Rajshahi University of Engineering & Technology (RUET)  
Rajshahi, Bangladesh

**Paper ID 383 Identifying Employees Productivity Performance Factors and Evaluating their Interrelationship: An Exploratory Case Study in Bangladesh Automobile Assembly Industry**

Md. Aqib Aman  
Department of Industrial and Production Engineering (IPE)  
National Institute of Textile Engineering and Research (NITER)  
Dhaka, Bangladesh

Golam Sakaline  
Department of Industrial and Production Engineering (IPE)  
Bangladesh University of Engineering and Technology (BUET)  
Dhaka, Bangladesh

Md. Mahraj Uddin and Dr. Mohammad Iqbal  
Department of Industrial and Production Engineering (IPE)  
Shahjalal University of Science and Technology (SUST)  
Sylhet, Bangladesh

**Paper ID 386 Performance Analysis of Some Independent Variables in Unreliable Manufacturing Industry**

Anupom Barua  
PhD student, ME dept., CUET, Bangladesh  
Dr. Md. Tazul Islam, Dr. Sajal Chandra Banik and Dr. Md. Sanaul Rabbi  
Professor, ME dept., CUET, Bangladesh

**Paper ID 379 Prioritization of the Machines for Maintenance in a Pharmaceuticals Industry Using Fuzzy ART FMEA**

Zahidul Islam Sayeem  
Hasan Mohammad Samiul  
Md. Ariful Haque  
Shahed Mahmud

Department of Industrial & Production Engineering (IPE)  
Rajshahi University of Engineering & Technology (RUET)  
Rajshahi, Bangladesh

**11:00 AM- 12:00 PM, MONDAY****Room 2**

Session Chair:

**Industrial Engineering****Paper ID 442 The Determination of Cost of Goods Sold with Full Costing Method: A Case Study of Waste Recycling Company**

Arizqi Kurnia Septin, Kafidin Muzakki, Erlyna Tri Rohmiatun, Dian Fahriani, Mohammad Taufiq, and Chairil Anwar  
Accounting Department  
Universitas Nahdlatul Ulama Sidoarjo  
Sidoarjo 61218, Indonesia

Nur Asitah  
Institute for Research and Community Services  
Universitas Nahdlatul Ulama Sidoarjo  
Sidoarjo 61218, Indonesia

**Paper ID 443 Internal Control Effectiveness: A Case Study on Drug Supply in A Health Clinic**

Mila Inggarta, Chairil Anwar, Kafidin Muzakki, Mohammad Taufiq,  
Dian Fahriani, and Erlyna Tri Rohmiatun  
Accounting Department  
Universitas Nahdlatul Ulama Sidoarjo  
Sidoarjo 61218, Indonesia

Nur Asitah  
Institute for Research and Community Services  
Universitas Nahdlatul Ulama Sidoarjo  
Sidoarjo 61218, Indonesia

**Paper ID 445 Developing and Implementing Classroom Optimization Model**

Dr. Azizur Rahman  
Faculty of Science Engineering and Technology  
Swinburne University of Technology  
Melbourne, Victoria, Australia

Ahnaf Tahmid and Mohammad Farhan Akif  
Department of Industrial Engineering and Management  
Khulna University of Engineering & Technology  
Khulna- 9203, Bangladesh

**Paper ID 449 Mathematical analysis of predator-prey type tumor cells growth model with saturated incidence**

Md. Ahsan Ullah, Tahera Parvin and Md. Haider Ali Biswas  
Mathematics Discipline  
Science Engineering and Technology School  
Khulna University, Khulna-9208  
Bangladesh

**Paper ID 305 Essentiality of MIS in Data Analytics & Cloud Computing for Sustainable Revolution of Bangladesh RMG Industry Through Production Monitoring**

Shanjoy Chowdhury  
Department of Industrial & Production Engineering  
Rajshahi University of Engineering & Technology (RUET)  
Rajshahi, Bangladesh

Md. Shahid Uz Zaman  
Department of Computer Science & Engineering  
Rajshahi University of Engineering & Technology (RUET)  
Rajshahi, Bangladesh

**11:00 AM- 12:00 PM, MONDAY****Room 3**

Session Chair:

**Industrial Engineering****Paper ID 411 Lean Applications in Bangladesh Garment Industry to Reduce Accident and Improve Productivity using 5S and VSM**

Rubana Ahmed  
MBA Student, Central Women's University  
Dhaka, Bangladesh

Roshna Ahmed



Ph.D. Student in Technology Management  
Universiti Tun Hussein Onn Malaysia

Ahad Ali  
Associate Professor and Director of IE  
Lawrence Technological University, USA

**Paper ID 315 Factors Supporting Use and Satisfaction Of Mobile Banking in Indonesia**

Inayatulloh  
Information Systems Department  
School of Information system  
Bina Nusantara University  
Jakarta, Indonesia 11480

Prasetya Cahya Saputra  
Information Systems Department  
School of Information system  
Bina Nusantara University  
Jakarta, Indonesia 11480

Deny Jollyta  
Institut Bisnis Dan Teknologi  
Pelita Indonesia

Enggal Sriwardiningsih,  
Management Department,  
Binus Business School,  
Bina Nusantara University,  
Jakarta, Indonesia

Indra Kusumadi Hartono  
Information Systems Department  
School of Information system  
Bina Nusantara University  
Jakarta, Indonesia 11480

Rozali Toyib  
Universitas Muhammadiyah  
Bengkulu, Indonesia

Murthada  
STKIP Muhammadiyah  
Aceh Tengah, Indonesia

**Paper ID 485 A Mathematical Model Applied to Understand the Dynamical Behavior of Corruption in Bangladesh**

Kazi Nurat Islam  
Department of Mathematics  
Science Engineering and Technology School  
Khulna University, Bangladesh

Md. Haider Ali Biswas  
Department of Mathematics  
Science Engineering and Technology School  
Khulna University, Bangladesh

**Paper ID 503 Developing Alternative Business Strategy: Analysis and Formulation Process in Distribution Company**

Febby Candra Pratama, Priscilla Eka Febriana, Chelsea Aisiyah Ramadhan, Syani Tanhar and Agung Purnomo  
Entrepreneurship Department  
BINUS Business School Undergraduate Program  
Bina Nusantara University  
Jakarta 11480, Indonesia

**Paper ID 504 Building Alternative Strategies in Pharmacies: Analyze, Formulate, and Priority Determination**

Febby Candra Pratama, Griselda Angelin L Wangi, Jeannyfer Gladys Violetta, Cindy Monica, and Agung Purnomo  
Entrepreneurship Department  
BINUS Business School Undergraduate Program  
Bina Nusantara University  
Jakarta 11480, Indonesia

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**Monday, Dec 27, 2021- Session: 12:00 PM-1:00 PM**

**12:00PM – 1:00PM, MONDAY**

**Room 1**

Session Chair:

**Industrial Engineering**

**Paper ID 346      Menu Planning of Bento Meals Based on Mathematical Optimization Considering the Similarity of Dishes and Ingredients**

Kazumasa Sugawara and Kazuki Ota  
The field of Industrial Engineering and Management  
Course of Engineering  
Graduate School of Engineering  
Kanagawa University

Hideki Katagiri  
Department of Industrial Engineering and Management  
Faculty of Engineering  
Kanagawa University

**Paper ID 349      Reliability Assessment of Heat Exchange of Accident Tolerant Fuel with Sic Cladding in the Reactor Core for Use in VVER 1200**

Md Zadid Iqbal  
Department of Mechanical Engineering  
Sonargaon University (SU)  
Dhaka, Bangladesh

Kirill V. Kutsenko  
Department of Nuclear Physics and Technologies  
National Research Nuclear University, MEPhI.  
Moscow, Russia

Dmitriy M. Kuzmenkov  
Department of Nuclear Physics and Technologies  
National Research Nuclear University, MEPhI.  
Moscow, Russia.

**Paper ID 412      Analysis Practice of Risk Management Strategy in Indonesia Manufacturing Industry due to Disruption of COVID-19 in Supply Chain Resilience and Robustness**

Muhammad Fadhlis Syakur, Farizal  
Department of Industrial Engineering  
University of Indonesia  
Salemba, Jakarta, Indonesia

**Paper ID 426      Modern Monetary Theory: Academic Insights from Scientometric Analysis Visualizing**

Agung Purnomo  
Entrepreneurship Department  
BINUS Business School Undergraduate Program  
Bina Nusantara University  
Jakarta 11480, Indonesia

Nur Asitah  
Institute for Research and Community Services  
Universitas Nahdlatul Ulama Sidoarjo  
Sidoarjo 61218, Indonesia

Riyan Sisiawan Putra  
Management Department  
Nahdlatul Ulama University of Surabaya  
Surabaya 60237, Indonesia

Budi Wahyu Mahardhika  
Management Department  
Universitas Muhammadiyah Surabaya  
Surabaya 60113, Indonesia

**Paper ID 435      Exploration of Parents Purchase Decisions for Child Snacks**

Gabriella Debora Oemar Said, Kukuh Lukiyanto, R. Aditya Kristamtomo Putra, and Agung Purnomo  
Entrepreneurship Department  
BINUS Business School Undergraduate Program  
Bina Nusantara University  
Jakarta 11480, Indonesia

**Paper ID 436      Sustainable Development Goals in ASEAN: A Publication Mapping through Scientometric Perspective**

Agung Purnomo  
Entrepreneurship Department  
BINUS Business School Undergraduate Program  
Bina Nusantara University  
Jakarta 11480, Indonesia

Andre Septianto  
Chemical Engineering Department  
Universitas Nahdatul Ulama Sidoarjo

Sidoarjo 61218, Indonesia

Elsa Rosyidah  
Environmental Engineering Department  
Universitas Nahdlatul Ulama Sidoarjo  
Sidoarjo 61218, Indonesia

Muhammad Muharrom Al Haromainy  
Information Department  
Universitas Nahdlatul Ulama Sidoarjo  
Sidoarjo 61218, Indonesia

## 12:00PM – 1:00PM, MONDAY

## Room 2

Session Chair:

### Mechanical Engineering

**Paper ID 365 Experimental Investigation for The Heat Transfer Enhancement in A Tube by Using MgO Nanofluid**

Gogan Dhar, Mohammad Nezam Uddin Chy, Jamal Uddin Ahamed, K. M. Arafatul Kabir  
Department of Mechanical Engineering, CUET, Chattogram-4349, Bangladesh

**Paper ID 470 Effect of Front Right Toe-out Angles on Fuel Consumption for a Light Vehicle**

Riton Kumer Das, Md. Abu Mowazzem Hossain, Md. Tazul Islam and Sajal Chandra Banik  
Department of Mechanical Engineering  
Chittagong University of Engineering and Technology, Chattogram, Bangladesh.

**Paper ID 342 Design and Development of Robotic Manipulator and Conveyor System for Automated Industrial Process**

Shamim Ahmed  
S. M. Mahabub Ul Alam Shuvo  
Muammer Din Arif  
Department of Mechanical Engineering (ME)  
Military Institute of Science and Technology (MIST)  
Dhaka, Bangladesh

**Paper ID 456 Design and Development of Robotic Manipulator and Conveyor System for Automated Industrial Process**

Shamim Ahmed  
S. M. Mahabub Ul Alam Shuvo  
Muammer Din Arif  
Department of Mechanical Engineering (ME)  
Military Institute of Science and Technology (MIST)  
Dhaka, Bangladesh

**Paper ID 432 Development of a Linear Programming Model for the Diet Plan of University Students**

Abul Mukid Md. Mukaddes, Ishtiyak Ahmed and Arup Sarker  
Department of Industrial and Production Engineering  
Shahjalal University of Science and Technology

**Paper ID 423 Combined Effect of Reynolds and Grashof Numbers on Mixed Convection Heat Transfer in Turbulent Pipe Flow**

Kazi Afif Salam and Sumon Saha  
Department of Mechanical Engineering  
Bangladesh University of Engineering and Technology (BUET)  
Dhaka, Bangladesh

**ID 451 Effect of Metabolic Heat Generation and Ambient Temperature on the Body Temperature - A Finite Element Study**

Kanta Das Purkayasta and A M M Mukaddes  
Department of Industrial and Production Engineering  
Shahjalal University of Science and Technology  
Sylhet, Bangladesh

## 12:00PM – 1:00PM, MONDAY

## Room 3

Session Chair:

### Industrial Engineering

**ID 523 An IoT Integrated Cybernetic System for Machine Control Operations on Industry 4.0**

Abdullah Ali Mamun Anik  
Department of Industrial and Production Engineering (IPE)  
Military Institute of Science and Technology (MIST)  
Dhaka, Bangladesh

Shuvodip Adhikary  
Department of Industrial and Production Engineering (IPE)  
Military Institute of Science and Technology (MIST)  
Dhaka, Bangladesh

Md. Istiak Habib  
Department of Industrial and Production Engineering (IPE)  
Military Institute of Science and Technology (MIST)  
Dhaka, Bangladesh

Dr. Abdul Gafur  
Bangladesh Council of Scientific and Industrial Research (BCSIR)  
Dhanmondi, Dhaka, Bangladesh

**ID 314 Development of Disaster E-Logistics Model Based on Geographical Information System**

Inayatulloh  
Information Systems Department  
School of Information system  
Bina Nusantara University  
Jakarta, Indonesia 11480

Deny Jollyta  
Institut Bisnis Dan Teknologi  
Pelita Indonesia

Sastya Hendri Wibowo  
Informatics Engineering Study Program, Faculty of Engineering,  
University of Muhammadiyah Bengkulu, Indonesia

Emi Suwarni  
Universitas Teknokrat Indonesia

M. Haviz  
IAIN Batusangkar, Sumatera Barat, Indonesia

Muhammad Abrar Kasmin  
Universitas. Potensi Utama

Eka Sasmita Mulya, ST. Msi  
Politeknik Negeri Jakarta-Teknik Sipil

**ID 528 Investigation of Control Factors for Water Absorption of Natural Fiber Reinforced Composite**

Md. FirozKabir and Md. Mosharraf Hossain  
Department of Industrial and Production Engineering  
Rajshahi University of Engineering & Technology  
Rajshahi, Bangladesh

**ID 529 Scenario of Implementation of Lean Six-Sigma in Ready-made Garment Manufacturing Industry of Bangladesh**

Shanjoy Chowdhury and Md. Mosharraf Hossain  
Department of Industrial and Production Engineering  
Rajshahi University of Engineering & Technology  
Rajshahi, Bangladesh

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## Monday, Dec 27, 2021- Session: 1:00 PM-1:30 PM

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Lunch and Prayer Break

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## Monday, Dec 27, 2021- Session: 1:30 PM-2:30 PM

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### Keynote Speakers

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**1:30 PM-2:00PM- Room A**

Keynote XI: Prof Hannelie Nel  
Postgraduate School of Engineering Management  
University of Johannesburg, South Africa

**2:00PM-2:30 PM-Room A**

Keynote XII: Dr. Patrick Dallasega  
Faculty of Science and Technology



Free University of Bolzano  
39100 Bolzano, Italy

## Monday, Dec 27, 2021- Session: 2:30 PM-3:30 PM

**2:30PM – 3:30PM, MONDAY****Room 1**

Session Chair:

**Industrial Engineering**

**Paper ID 400      Natural Gas Pipeline Failure Risk Consequences Modeling: A Potential Threat to the Airport and Its Surrounding Infrastructures**

Sk Kafi Ahmed  
Department of Industrial Systems Engineering  
University of Regina  
Regina, Canada

Shahrukh Khan  
School of Mechanical Manufacturing  
and Automation Engineering  
Beihang University  
Beijing, P.R. China

Sumaiya Rahman  
Department of Civil Engineering  
University of Asia Pacific  
Dhaka, Bangladesh

Md Asifuzzaman Khan  
School of Aerospace Engineering  
Shenyang Aerospace University  
Shenyang, P.R. China

**Paper ID 430      Evaluating the Flexibility Dimensions in a Supply Chain by Developing a Decision-Making Framework Through Fuzzy-TOPSIS Approach**

A. B. M. Abdul Malek, Md. Farhad Hossain, and Md. Aminul Islam Tuhin  
Department of Industrial and Production Engineering  
Shahjalal University of Science and Technology  
Sylhet, Bangladesh

**Paper ID 431      Assessment of Medical Wastes in Sylhet City: A Case Study in Selected Healthcare Facilities**

A.B.M. Abdul Malek, Mohammad Iqbal and Mohammad Sabur Khan  
Department of Industrial and Production Engineering  
Shahjalal University of Science and Technology  
Sylhet, Bangladesh

**Paper ID 372      Web-based Networking Process of Supply Chain in Additive Manufacturing**

Fatema Tuz Zohra  
Department of Mechanical and Production Engineering  
Ahsanullah University of Science and Technology (AUST)  
Dhaka, Bangladesh

Faysal Talukder  
Department of Mechanical and Production Engineering  
Ahsanullah University of Science and Technology (AUST)  
Dhaka, Bangladesh

Ummey Kulsum Shanta  
Department of Mechanical and Production Engineering  
Ahsanullah University of Science and Technology (AUST)  
Dhaka, Bangladesh

Binoy Debnath  
Department of Industrial and Production Engineering  
Bangladesh University of Engineering and Technology (BUET)

M. Azizur Rahman  
Department of Mechanical and Production Engineering  
Ahsanullah University of Science and Technology (AUST)  
Dhaka, Bangladesh

**Paper ID 401      An aquaculture-based study for optimizing fish production**

Md. Nazmul Hudha, Md. Sohel and Munnujahan Ara  
Mathematics Discipline

Science Engineering and Technology School  
Khulna University, Khulna-9208  
Bangladesh

**2:30PM – 3:30PM, MONDAY****Room 2**

Session Chair:

**Mechanical Engineering****Paper ID 350 Comparison of Mixing Performance of Different Types of Passive Micromixers Using Numerical Analysis**

Tanveer Rahman, S M Faisal Ahmmed, Zubairul Alam, Moddassir Khan Nayeem  
Department of Industrial & Production Engineering  
Military Institute of Science & Technology, MIST  
Dhaka, Bangladesh

**Paper ID 351 Development of a power generation system based on kinetic energy generated during the active and passive phases**

Sadman Hafiz Durlav, Md. Arif Iqbal Khan, Md. Najmus Salehin, Md. Yousuf Sazid  
Department of Mechanical Engineering  
Khulna University of Engineering & Technology (KUET)  
Khulna, Bangladesh

**Paper ID 356 Experimental Investigation on The Performance of Air Humidifying System with Desiccant Regenerator Using Solar Water Heater**

Gogan Dhar, Md. Tazul Islam, Pramit Ghosh, Prasenjit Chakraborty  
Department of Mechanical Engineering, CUET, Chattogram-4349, Bangladesh

**Paper ID 427 Design of an Automatic Poultry Feeding System for Small to medium scale farming**

Tafadzwa. N. Chingombe  
Department of Industrial and Mechatronics Engineering  
University of Zimbabwe  
Harare, Zimbabwe

Roy N. Mushonga  
Department of Industrial and Mechatronics Engineering  
University of Zimbabwe  
Mt Pleasant, Zimbabwe

Loice K. Gudukeya  
Faculty of Engineering & the Built Environment  
University of Johannesburg  
Johannesburg, South Africa

**Paper ID 428 Design of a Plant for the Treatment, Management and Reuse of Water Collected in Septic Tanks. Case Study: Harare Company**

Rutendo A. Nengwe  
Department of Industrial and Mechatronics Engineering  
University of Zimbabwe  
Mt Pleasant,  
Harare, Zimbabwe

Loice K. Gudukeya  
Faculty of Engineering & the Built Environment  
University of Johannesburg  
Johannesburg, South Africa  
Roy N. Mushonga  
Department of Industrial and Mechatronics Engineering  
University of Zimbabwe  
Mt Pleasant, Zimbabwe

**Paper ID 428 Onset of Transition from Laminar to Turbulent Heat Transfer for Laminar Flow Over a Flat Plate**

Md. Jisan Mahmud and Sumon Saha  
Department of Mechanical Engineering  
Bangladesh University of Engineering and Technology (BUET)  
Dhaka, Bangladesh

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**Monday, Dec 27, 2021- Session: 3:30 PM-4:00 PM****Closing Ceremony**

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# IEOM

## International Journal of Industrial Engineering and Operations Management





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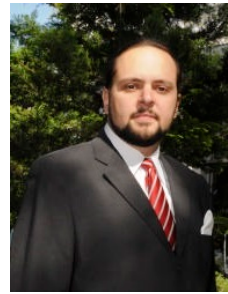
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**Professor Charles Mbohwa**  
Pro-Vice Chancellor Strategic  
Partnerships and Industrialisation  
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Mt Pleasant, Harare, Zimbabwe



**Professor Abdul Talib Bon, Ph.D.**  
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Head of the Centre for Supply  
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King Fahd University of  
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Graduate Program Coordinator  
Professor, Department of Industrial  
and Systems Engineering  
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Greensboro, North Carolina, USA



**Dr. Ilham Kissani**  
Assistant Professor of Engineering  
& Management Science  
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Ifrane, Morocco



**Professor Abu Masud, Ph.D., P.E.**  
Emeritus Professor  
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Kansas, USA



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University of New Brunswick  
Fredericton, NB, Canada



**Professor Hamid Parsaei, Ph.D., PE**  
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Engineering  
Texas A&M University (College  
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USA



**Professor Bernardo Villarreal, Ph.D.**  
Professor, Department of  
Engineering  
Universidad de Monterrey  
San Pedro Garza Garcia, NL  
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42.	Bahir Dar Institute of Technology	
<b>Finland</b>		
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<b>France</b>		
44.	IESEG School of Management	
45.	Lorraine University, Metz	
<b>Greece</b>		
46.	Accra Technical University	
<b>Ghana</b>		
47.	Technological Education Institute (TEI), Thessaly, Larissa	
<b>Haiti</b>		
48.	Université Quisqueya	
<b>India</b>		
49.	College of Engineering and Technology, Bhubaneswar, Odisha, India	
50.	College of Engineering Guindy (Anna University), Chennai	
51.	Guru Nanak Dev Engineering College, Ludhiana, Punjab	
52.	Pandit Dendayal Petroleum Univ., Ahmedabad, Gujrat	
53.	P.D.A. College of Engineering, Gulbarga, Karnataka, India	
54.	Vellore Institute of Technology	
55.	Vidya Jyothi Institute of Technology, Hyderabad	
<b>Indonesia</b>		
56.	Atma Jaya Catholic University	
57.	Bina Nusantara University (Binus), Indonesia	
58.	Institut Teknologi Bandung	
59.	Institut Teknologi Sepuluh Nopember (ITS)	
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<b>Jordan</b>		
74.	Hashemite University	
<b>Kenya</b>		
75.	Kenyatta University, Nairobi	
<b>Libya</b>		
76.	Libyan Academy	
<b>Malaysia</b>		
77.	Universiti Malaysia Sabah (UMS)	
78.	Universiti Putra Malaysia (UPM)	
79.	Universiti Teknologi Malaysia (UTM)	
80.	Universiti Tun Hussein Onn Malaysia (UTHM)	
81.	Universiti Utara Malaysia (UUM)	
<b>Morocco</b>		
82.	Akhawayn University	
83.	Ecole Mohammadia d'Ingénieurs (EMI)	
84.	Sidi Mohamed Ben Abdellah University of Fez, Morocco	
85.	National School of Applied Sciences Kenitra, Ibn Tofail University	
<b>Namibia</b>		
86.	National Univ. of Sci. and Tech. in Windhoek, Namibia	
<b>Nepal</b>		
87.	Kathmandu University	
88.	Tribhuvan University	
<b>Nigeria</b>		
89.	Covenant University	
90.	University of Ibadan	
<b>Oman</b>		
91.	Sultan Qaboos University	
92.	Middle East College	
<b>Pakistan</b>		
93.	Dawood University of Engineering and Technology, Karachi	
94.	Government College University Faisalabad	
95.	Mehran University of Engineering and Technology, Jamshoro, Sindh	
96.	Riphah International University, Lahore Campus	
97.	University of Engineering and Technology, Lahore	
98.	UOT – Nowshera	
<b>Papua New Guinea</b>		
99.	Papua New Guinea University of Technology	
<b>Paraguay</b>		
100.	National University	
<b>Peru</b>		
101.	National University of San Antonio Abad, Cusco, Peru	
<b>Philippines</b>		
102.	Bulacan State University, Malolos City, Bulacan	
103.	LPU Laguna	
104.	Mapua University	
<b>Qatar</b>		
105.	Qatar University	
<b>Saudi Arabia</b>		
106.	Alfaisal University	
107.	Effat University	
108.	King Abdulaziz University (KAU)	
109.	King Abdulaziz University, Rabigh	
110.	King Fahd University of Petroleum and Minerals (KFUPM)	
111.	King Saud University (KSU)	
112.	Umm Al-Qura University (UQU)	
113.	Princes Nourah University (PNU)	
114.	Prince Sattam Bin Abdulaziz University (PSAU)	
115.	Prince Sultan University (PSU)	
116.	Taibah University	
117.	University of Tabuk	
118.	Taibah University	
<b>South Africa</b>		
119.	Durban University of Technology (DUT)	
120.	Tshwane University of Technology (TUT)	
121.	University of Johannesburg (UJ)	
122.	University of South Africa (UNISA)	
123.	Vaal University of Technology (VUT)	
<b>Sri Lanka</b>		
124.	University of Kelaniya	
125.	University of Peradeniya	
<b>Sudan</b>		
126.	Sudan University of Science and Technology, Khartoum	
<b>Thailand</b>		
127.	Chulalongkorn University, Bangkok	
128.	Chiang Mai University	
<b>UAE</b>		
129.	University of Science & Technology of Fujairah (USTF)	
<b>UK</b>		
130.	University of Derby	
131.	University of the West of England (UWE), Bristol	
<b>USA</b>		
132.	Central Connecticut State University	
133.	Eastern Michigan University	
134.	Lawrence Technological University, Michigan, USA	
<b>Venezuela</b>		
135.	Catholic University Andrés Bello (UCAB), Caracas	
<b>Zambia</b>		
136.	University of Zambia	
137.	Copperbelt University	
138.	Evelyn Hone College	
<b>Zimbabwe</b>		
139.	University of Zimbabwe, Harare	
140.	National University of Science and Technology	

# Upcoming Events

## 12<sup>th</sup> Annual IEOM Conference

Istanbul, Turkey, March 8-10, 2022

**Host & Venue:** Kadir Has University in collaboration with Sabanci University

**Conference Website:** [www.ieomsociety.org/istanbul2022/](http://www.ieomsociety.org/istanbul2022/)



Fourth African Conference on  
**Industrial Engineering and  
Operations Management**

Nsukka, Nigeria, April 5-7, 2022

**Host:** University of Nigeria, Nsukka



3rd South American Conference on  
**Industrial Engineering &  
Operations Management**

**IEOM Society** Asuncion, Paraguay, May 10-12, 2022



7<sup>th</sup> North American Conference on  
**Industrial Engineering and  
Operations Management**

**IEOM Society** June 12-14 2022, Orlando, Florida, USA

**Venue:** Holiday Inn & Suites Across from Universal Orlando



5<sup>th</sup> European Conference on  
**Industrial Engineering &  
Operations Management**

Rome, Italy, July 26-28, 2022

**IEOM Society** **Host:** Sapienza – University of Rome



**SAPIENZA**  
UNIVERSITÀ DI ROMA



2<sup>nd</sup> Indian International Conference on  
**Industrial Engineering and  
Operations Management**

August 16-18, 2022, Warangal, India

**IEOM Society** **Host:** National Institute of Technology, Warangal



**NIT**  
warangal

Industrial Engineering and Operations Management Society International

**IEOM Society International**

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# **IEOM Bangladesh Chapter**



Industrial Engineering and Operations Management (IEOM) Society of Bangladesh, abbreviated as IEOM BD was founded in 2015-16. It is Bangladesh country chapter, also known as professional section of Industrial Engineering and Operations Management (IEOM) Society.

**Website:** <http://ieomsociety.org/bangladesh/>  
**Facebook page:** <https://www.facebook.com/ieombd/>

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IEOM Society International

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