## **PROGRAMME**



| TIME SESSIC                | ON TITLE    | SESSION<br>CHAIRPERSON                                      | PAPER AND SUBJECT  |
|----------------------------|-------------|---|--|
|                            | DAY (       | ONE(1) WEDNES   | DAY 25 <sup>TH</sup> NOVEMBER 2020   |
| 08.00 - 09.00 <b>REGIS</b> | TRATION     | IEK SECRETARIAT   |  |
| 09.00 – 10.30 OPENI        | ING SESSION | Eng. Margaret W.N.<br>Ogai, CE, FIEK<br>Hon. Secretary, IEK | CONFERENCE MESSAGE: Eng. Collins Juma, CE, FIEK, MBS - Conference Committee Chair  ADDRESS: Prof. Dr. Gong Ke, WFEO President  ADDRESS Eng. Martin Manuhwa-FAEO President;  ADDRESS Eng. Mustafa Shehu, FNSE-WFEO Executive Vice President  ADDRESS: Eng. Erastus K. Mwongera, CE, FIEK - Chairman EBK  WELCOME ADDRESS: Eng. Nathaniel Matalanga, CE, FIEK - President IEK  ADDRESS & INVITE THE CHIEF GUEST: Prof. Arch. Paul M. Maringa (PHD), CBS, Corp. Arch, MAAK, MKIP Principal Secretary State Department of Infrastructure  OFFICIAL OPENING: Chief Guest Mr. James Wainaina Macharia, EGH  Cabinet Secretary for Transport, Infrastructure, Housing and Urban |

#### **10.30 – 10.35: GROUP PHOTO SESSION**

|                                     | 10.35 - 11.00: TEA BREAK |   |   |  |  |  |
|-------------------------------------|--------------------------|---|---|--|--|--|
| 11.00 - 11.25                       | KEY NOTE<br>SPEAKERS     | KEY NOTE PAPERS Session Chair Eng. Rosemary Kungu CE, FIEK Assistant Chair Eng. Erick Ohaga, CE, FIEK | 11.00 - 11.30: KEY NOTE PAPER 1  Dr. Marlene Kanga WFEO IPP |  |  |  |
| 11.25 - 11.30: Break to two streams |                          |   |   |  |  |  |











| TIME          | SESSION TITLE                  | SESSION<br>CHAIRPERSON                       | PAPER AND SUBJECT  |
|---------------|--------------------------------|--|--|
|               |                                | STREAM                                       | 1: ARABUKO   |
| 11.30 – 13.00 | SESSION 1 (ONE)                | SESSION 1                                    | 11.30 – 11.55: Paper 1   |
|               | Sub-Theme1:                    | Session Chair                                | Session 1(S1) - 1.1  |
|               | Engineering<br>the Sustainable | Eng. Jane Mutulili,<br>CE, FIEK              | Process Modeling of a Medical Ventilator Using Cyber-<br>Physical Systems  |
|               | Development Goals<br>(SDGs)    | <b>Assistant Chair</b><br>Eng. Lucy Wanjiku, | J.B Byiringiro, P.N Kioni, A.C Kibor, P.K Rono, H. Smajic, F.I Maina<br>Dedan Kimathi University of Technology   |
|               |                                | PE, MIEK                                     | 11.55 – 12.20: Paper 2   |
|               |                                |  | Session 1(S1) — 1.2  |
|               |                                |  | Pump Stations: Dealing with the Non-Revenue Power in Water   |
|               |                                |  | Dick Ndiewo Ditech Engineering Limited   |
|               |                                |  | 12.20 – 12.45 : Paper 3  |
|               |                                |  | Session 1(S1) — 1.3  |
|               |                                |  | Design of Durable Concrete Mixes for Reinforced Concrete Structures  |
|               |                                |  | Gladwell Wanjiku Nganga, Siphila Wanjiku Mumenya and Silvester<br>Ochieng Abuodha <i>Department of Civil and Construction Engineering,</i><br><i>University of Nairobi</i> |
|               |                                |  | 12.45 – 13.00: Question and Answer   |

| 13.00 - 14:00 LUNCH BREAK            |                         |   |   |  |  |
|--------------------------------------|-------------------------|---|---|--|--|
| 14.00 – 14.55                        | 14.55 KEY NOTE SPEAKERS | <b>Session Chair</b><br>Eng. Prof Silvester<br>Abuodha CE, FIEK | 14.00 – 14.30: KEY NOTE PAPER 2 Engr. Mustafa Balarabe Shehu, FNSE- WFEO Executive Vice President |  |  |
|                                      |                         |   | <b>14.30 – 14.55: KEY NOTE PAPER 3</b> Prof. Dr. José Manuel Vieira , <i>WFEO President Elect</i> |  |  |
| 14.55 - 15:00 : Break to two streams |                         |   |   |  |  |











| TIME                  | SESSION TITLE                  | SESSION<br>CHAIRPERSON                                     | PAPER AND SUBJECT   |
|-----------------------|--------------------------------|--|---|
|                       |                                | STREAM   | M 1: ARABUKO  |
| 15.00 – 16.40         | SESSION 2 (TWO)-               | SESSION 2  | 15.00 – 15.25 : Paper 4   |
|                       | Sub-Theme1:                    | Session Chair  | Session 2(S1) – 2.1   |
|                       | Engineering<br>the Sustainable | Eng. Grace Onyango<br>PE, MIEK                             | Paradigm Shift in Linking Engineering with the Roots;<br>Engineering the Food Security Agenda   |
| Development<br>(SDGs) | Development Goals (SDGs)       | Assistant Chair<br>Prof. Emmanuel C.<br>Kipkorir, PE, PhD, | Eng. Ndambuki Kilonzo, Eng. Paul Karara Ngunjiri, Nathan Yego Kenyatta University, Oville Associates, Jomo Kenyatta University of Agriculture and Technology, |
|                       |                                | MIEK   | 15.25 – 15.50: Paper 5  |
|                       |                                |  | Session 2(S1) – 2.2   |
|                       |                                |  | Underground Spaces Construction Technology and its<br>Impact Post COVID-19 Pandemic in Kenya  |
|                       |                                |  | D. Maina, D. Mauti, J. Muchiri, B.Alunda, V.Rono<br>Taita Taveta University, Athi Water Works Development Agency,<br>Tunnelling Association of Kenya          |
|                       |                                |  | 15.50 – 16.15: Paper 6  |
|                       |                                |  | Session 2(S1) – 2.3   |
|                       |                                |  | Role of Nuclear Energy in Combating Climate Change  |
|                       |                                |  | Eng. Collins Gordon Juma, Chesire Kipkemboi Edwin, Nuclear Power and Energy Agency  |
|                       |                                |  | 16.15 – 16.40 : Question and Answer   |

| 16.40 – 17.00 HEALTH BREAK |           |                   |                                   |  |  |
|----------------------------|-----------|-------------------|-----------------------------------|--|--|
| 17.00-18.00                | FREE TIME |                   |                                   |  |  |
| 18.00-19.00                |           | EAFEO Secretariat | EAFEO Executive Committee meeting |  |  |
| 19.00-:                    | COCKTAIL  | IEK SECRETARIAT   |                                   |  |  |











| TIME  | SESSION TITLE | SESSION<br>CHAIRPERSON | PAPER AND SUBJECT |  |
|---|---------------|------------------------|-------------------|--|
| DAY ONE(1) WEDNESDAY 25 <sup>TH</sup> NOVEMBER 2020 |               |                        |                   |  |

#### **STREAM 2: SHIMBA**

| 11.30 – 13.00 | SESSION 1 (ONE)            | SESSION 1  | 11.30 – 11.55: Paper 18   |  |  |
|---------------|----------------------------|--|---|--|--|
|               | Sub-Theme 5:               | Session Chair  | Session 1(S2) - 1.1   |  |  |
|               | 4 <sup>th</sup> Industrial | Eng. Francis<br>Ngokonyo, CE, FIEK   | Industry 4.0 and Potential Opportunities  |  |  |
|               | Revolution and             | ngononyo, cz, mzn  | Eng. Andrew Masila  |  |  |
|               | Industry 4.0               | Assistant Chair<br>Eng. Roseline Jilo,                                       | Telecommunications and Technology Expert  |  |  |
|               |                            | PE, FIEK   | 11.55 – 12.20 : Paper 19  |  |  |
|               |                            | ,  | Session 1(S2) — 1.2   |  |  |
|               |                            |  | Exploring the Applicability and Challenges of Implementing Industry 4.0 Technologies in the Small and |  |  |
|               |                            |  | Medium Sized Industries in Kenya  |  |  |
|               |                            |  | Obadiah Burugu Nganga   |  |  |
|               |                            |  | Faculty of Engineering, University of Auckland  |  |  |
|               |                            |  | 12.20 – 12.45: Paper 20   |  |  |
|               |                            |  | Session 1(S2) — 1.3   |  |  |
|               |                            |  | Implementation of Drone Technology in the Kenyan Construction Industry                                |  |  |
|               |                            | Mercy Akinyi Asuna<br>Jomo Kenyatta University of Agriculture and Technology |   |  |  |
|               |                            |  | 12.45 – 13.00: Question and Answer  |  |  |
|               |                            | End of t   | the two streams   |  |  |

#### 13.00 - 14:00 LUNCH BREAK

| 14.00 – 15.00 |  | <b>Session Chair</b><br>Eng. Prof Silvester<br>Abuodha CE, FIEK | 14.00 – 14.30: KEY NOTE PAPER 2 Engr. Mustafa Balarabe Shehu, FNSE- WFEO Executive VP |
|---------------|--|---|---|
|               |  |   | 14.30 – 14.55: KEY NOTE PAPER 3   |
|               |  |   | Prof. Dr. José Manuel Vieira , WFEO President Elect                                   |

14.55 - 15.00: Break to two streams











| TIME          | SESSION TITLE   | SESSION<br>CHAIRPERSON   | PAPER AND SUBJECT   |  |  |  |  |
|---------------|---|--|---|--|--|--|--|
|               | STREAM 2: SHIMBA  |  |   |  |  |  |  |
| 15.00 – 16.40 | SESSION 2 (TWO)-  | SESSION 2  | 15.00 – 15.25: Paper 21   |  |  |  |  |
|               | Sub-Theme 3:<br>Smart cities<br>and Intelligent<br>infrastructure | Session Chair Eng. Larry Gumbe, CE, FIEK  Assistant Chair Eng. Michael Kamau, PE, MIEK | Session 2(S2) – 2.1 Intelligent Transportation Systems Infrastructure gap in Nairobi City James Ogutu Aloo NAS International Holdings Limited  15.25 – 15.50: Paper 22 Session 2(S2) – 2.2 Machine Learning Use Cases in Electricity Distribution Adrian Onsare. Utility Management & Consultancy Department, KPLC  15.50 – 16.15: Paper 23 Session 2(S2) – 2.3 Intelligent Infrastructure Integration for Smart Cities Nyagaka Charles; Fiber Networks Planner |  |  |  |  |
|               |   |  | 16.15 – 16.40 : Question and Answer   |  |  |  |  |
|               |   | End of t   | the two streams   |  |  |  |  |
|               |   | 16.40 – 17   | .00 HEALTH BREAK  |  |  |  |  |
| 17.00-18.00   | FREE TIME   |  |   |  |  |  |  |
| 18.00-19.00   |   | EAFEO Secretariat  | EAFEO Executive Committee meeting   |  |  |  |  |
| 19.00-:       | COCKTAIL  | IEK SECRETARIAT  |   |  |  |  |  |













| TIME                             | SESSION TITLE                            | SESSION<br>CHAIRPERSON | PAPER AND SUBJECT  |  |
|----------------------------------|--|------------------------|--|--|
|                                  | DA                                       | Y TWO(2) THURSI        | DAY 26 <sup>™</sup> NOVEMBER 2020                        |  |
| 8.00 - 8.40                      | KEY NOTE                                 | Session Chair          | 8.00 - 8.20: KEY NOTE PAPER 4                            |  |
|                                  | SPEAKERS Eng. Joel Wanyoike,<br>CE, FIEK | •                      | Eng. Nicholas Musuni EBK Registrar/CEO                   |  |
|                                  |  |                        | 8.20 – 8.40: KEY NOTE PAPER 5                            |  |
|                                  |  |                        | Ezra Odhiambo,<br>Chairman-Nuclear Power & Energy Agency |  |
| 8.40 — 8.45 Break to two streams |  |                        |  |  |

#### **STREAM 1: ARABUKO**

| 08.45 - 10.20 | OB.45 – 10.20 SESSION 3(THREE): SESSION 3 Session Chair Sub-Theme 2: Big four Agenda and Vision 2030  SESSION 3 CE, FIEK |  | 8.45 – 9.10: Paper 7  |  |  |
|---------------|--|--|---|--|--|
|               |  |  | Session 3(S1) - 3.1   |  |  |
|               |  | Applicability of Public Private Partnerships in Development of<br>Low-cost Housing to Meet Kenya Vision 2030 and Related Goals |   |  |  |
|               |  | <b>Assistant Chair</b><br>Eng. Justus Otwani ,   | Dr. Daniel Mutegi Giti Principal Housing Officer, State Department for Housing, Nairobi.  |  |  |
|               |  | CE, MIEK   | 9.10 – 9.35 : Paper 8   |  |  |
|               |  |  | Session 3(S1) - 3.2   |  |  |
|               |  |  | KenGen CSR Project to Expand Naivasha Hospital during the Covid-19 Pandemic by Construction of an Outpatient Departmental Complex.                      |  |  |
|               |  |  | Eng. Moses Nthiga Project Manager, KenGen   |  |  |
|               |  |  | 9.35 – 10.00 : Paper 9  |  |  |
|               |  |  | Session 3(S1) - 3.3   |  |  |
|               |  |  | Post-COVID Economic Recovery: Rethinking Kenya's Road<br>Infrastructure Development Model   |  |  |
|               |  |  | Margaret Ogai; Timothy Oketch; Evelyne Kihiu; James Gachanja<br>General Manager Planning & Programming,<br>Kenya Roads Board; TIMCON Associates; KIPPRA |  |  |
|               |  |  | 10.00 – 10.20 : Question and Answer   |  |  |

| 10.20 - 10.40: TEA BREAK |          |                       |                                    |  |  |
|--------------------------|----------|-----------------------|------------------------------------|--|--|
| 10.40-11.20              | KEY NOTE | Session Chair         | 10.40 - 11.00: KEY NOTE PAPER 6    |  |  |
|                          | SPEAKERS | Ing. Leslie Alex Ayeh | Pavel Oimeke, DG, EPRA             |  |  |
|                          |          |                       | 11.00 - 11.20: KEY NOTE PAPER 7    |  |  |
|                          |          |                       | The Likoni Floating Bridge Project |  |  |
|                          |          |                       | Eng. Peter Mundinia, DG, KeNHA     |  |  |











| TIME                                | SESSION TITLE    | SESSION<br>CHAIRPERSON | PAPER AND SUBJECT       |  |  |  |
|-------------------------------------|------------------|------------------------|-------------------------|--|--|--|
| 11.20 - 11.25: Break to two streams |                  |                        |                         |  |  |  |
| STREAM 1: ARABUKO                   |                  |                        |                         |  |  |  |
| 11.25 – 13.00                       | SESSION 4(FOUR): | SESSION 4              | 11.25 – 11.45: Paper 10 |  |  |  |

|               |  | SINLAN  | I I. ARADURU  |
|---------------|--|---|---|
| 11.25 – 13.00 | SESSION 4(FOUR): Sub-Theme 7: Climate Change Resilience Sub-Theme 4: | SESSION 4 Session Chair Ing. Leslie Alex Ayeh Assistant Chair Eng. Shammah Kiteme, PE, MIEK | 11.25 – 11.45: Paper 10   |
|               |  |   | Session 4(S1) — 4.1   |
|               |  |   | Are Rainfall Intensities Changing, Could it be Climate Change and what could be the Impact on Engineering Hydrologic Design and Structures?                           |
|               | Development of<br>National, County and                               |   | Joshua Kiprotich Kibii and Emmanuel C. Kipkorir Department of Civil and Structural Engineering, Moi University  |
|               | Regional value chains  |   | 11.45 – 12.05 : Paper 11  |
|               |  |   | Session 4(S1) – 4.2 Climate Resilience for Hydro Power Projects at Project Development Stage Eng. Michael Kalumbu Nsefu Zambia Metrology Agency /University of Lusaka |
|               |  |   | 12.05 – 12.25 : Paper 12  |
|               |  |   | Session 4(S1) — 4.3   |
|               |  |   | Formulation of Sustainable Road Maintenance Policies in Counties; A Study of Bomet County   |
|               |  |   | Adeline Cheptoo Nyole County Government of Bomet  |
|               |  |   | 12.25 – 12.45 : Paper 13  |
|               |  |   | Session 4(S1) - 4.4   |
|               |  |   | Integrity: A Tool for Competitive Advantage for Engineers in Post Pandemic  |
|               |  |   | Joel Alfred Mwendwa   |
|               |  |   | 12.45 – 13.00 : Question and Answer   |

| 13.00 - 14.00: LUNCH BREAK             |          |  |   |  |
|--|----------|--|---|--|
| 14.00 – 15.00                          | KEY NOTE | Session Chair<br>Eng. Collins Juma, CE,      | 14.00 – 14.20: KEY NOTE PAPER 8                       |  |
|  | SPEAKERS |  | Eng. Martin Manuhwa, FAEO President                   |  |
|  |          | FIEK, MBS                                    | 14.20 – 14.40: KEY NOTE PAPER 9                       |  |
|  |          |  | Irrigation and sustainable land productivity in Kenya |  |
|  |          |  | Eng. Wangai Ndirangu                                  |  |
|  |          |  | Chairman, KeNHA                                       |  |
|  |          | 14.40 – 15.00: IEK COVID- 19 CSR INITIATIVES |   |  |
|  |          |  | Eng. Grace Kagondu                                    |  |
| 15.00 - 15:15 TEA BREAK                |          |  |   |  |
| 15 15 - 15 · 20 · Broak to two stroams |          |  |   |  |











## DAY TWO(2) THURSDAY 26 TH NOVEMBER 2020

| TIME          | SESSION TITLE   | SESSION<br>CHAIRPERSON   | PAPER AND SUBJECT   |
|---------------|---|--|---|
|               |   | STREA  | M 1: ARABUKO  |
| 15.20 – 17.10 | SESSION 5 (FIVE):  Sub-Theme 2: Big four Agenda and Vision 2030 | SESSION 5 Session Chair Eng. Babagana Mohammed, FNSE, President NSE  Assistant Chair Eng. Christine Ogut, PE, MIEK | 15.20 – 15.45: Paper 14  Session 5(S1) – 5.1  Role of Big Four Agenda and Vision 2030 for Kenya's Sustainable Development  Eng. Peter Mutinda  15.45 – 16.10: Paper 15  Session 5(S1) – 5.2  Plant Commissioning Post COVID-19; Remote Commissioning  Eng. Fanuel Kiwinga Mwashigadi  16.10 – 16.35: Paper 16  Session 5(S1) – 5.3  Mobile GIS based Traffic Count using AR-Traffic Count |
|               |   |  | Eng. A. Kilaini (GIS & Software Developer) & Eng. R. Kachhepati (Database & Software Developer)  Tanzania  16.35 – 17.00: Paper 17  Session 5(S1) – 5.4  The Potential Application of Solar Thermal Powered Adsorption Chillers for Cooling Buildings in Nairobi County-Kenya  Dickson Giconi Kivindu  Murang'a University of Technology  17.00 – 17.30: Question and Answer              |
|               |   | End of   | the two streams   |
|               |   | 17.30 -  | 18:00 TEA BREAK   |
| 10 00 10 00   |   | ENEEN Cocrotariat  | EACEO Conoral Accombly  |

| 17.30 - 18:00 TEA BREAK |                   |                        |  |
|-------------------------|-------------------|------------------------|--|
| 18.00 – 19.00           | EAFEO Secretariat | EAFEO General Assembly |  |











| TIME        | SESSION TITLE        | SESSION<br>CHAIRPERSON                          | PAPER AND SUBJECT  |
|-------------|----------------------|---|--|
|             | DA                   | Y TWO(2) THURS                                  | DAY 26 <sup>™</sup> NOVEMBER 2020  |
| 8.00 – 8.40 | KEY NOTE<br>SPEAKERS | Session Chair<br>Eng. Joel Wanyoike<br>CE, FIEK | 8.00 - 8.20: KEY NOTE PAPER 4 Eng. Nicholas Musuni EBK Registrar/CEO                 |
|             |                      |   | 8.20 – 8.40: KEY NOTE PAPER 5  Ezra Odhiambo, Chairman-Nuclear Power & Energy Agency |

8.40 - 8.45: **Rreak to two streams** 

| 8.40 — 8.45: Break to two streams |  |   |  |  |
|-----------------------------------|--|---|--|--|
|                                   | STREAM 2: SHIMBA   |   |  |  |
| 08.45 - 10.00                     | SESSION 3 (THREE):   | SESSION 3   | 8.45 – 9.10: Paper 24  |  |
|                                   | Sub-Theme 6: Academia, Research and Development  Session Chair Eng. Prof. Richard Onchiri PE, MIEK  Assistant Chair Eng. Grace Kagondu, PE, MIEK | Session 3(S2) – 3.1  A Survey of Engineers' and Engineering Students' Perceptions on Ethical Behavior Emmanuel C. Kipkorir, Sum Kipyego, and Rioba Oteki Department of Civil and Structural Engineering, School of Engineering, Moi University  9.10 – 9.35: Paper 25 |  |  |
|                                   |  |   | Session 3(S2) - 3.2  |  |
|                                   |  |   | Academia & Practice: Retrofitting Columns with CFRP  |  |
|                                   |  |   | Muthomi Munyua, Siphila Mumenya, John Mwero, Sixtus Mwea & George<br>Kyalo<br>School of Engineering, University of Nairobi and<br>CGP Consulting Engineers |  |
|                                   |  |   | 9.35 – 10.00: Paper 26   |  |
|                                   |  |   | Session 3(S2) - 3.3  |  |
|                                   |  |   | Influence of Public Private Partnership on Implementation of<br>Railway Transport Project in Kenya: a Case of Standard Gauge<br>Railway in Nairobi         |  |
|                                   |  |   | Rose Wanja Kinyua<br>School of Open Distance Learning, University of Nairobi   |  |
|                                   |  |   | 10.00 - 10.20 : Question and Answer  |  |
|                                   |  | End of t  | he two streams   |  |

10.20 - 10.40: TEA BREAK











## DAY TWO(2) THURSDAY 26 TH NOVEMBER 2020

| TIME        | SESSION TITLE | SESSION<br>CHAIRPERSON | PAPER AND SUBJECT   |
|-------------|---------------|------------------------|---|
| 10.40-11.20 |               | Ing. Lislie Alex Ayew  | <b>10.40 – 11.00: KEY NOTE PAPER 6</b> Pavel Oimeke, <i>DG, EPRA</i>                                |
|             |               |                        | 11.00 – 11.20: KEY NOTE PAPER 7  The Likoni Floating Bridge Project  Eng. Peter Mundinia, DG, KeNHA |

11.20 - 11.25: Break to two streams

| STREAM 2: SHIMBA |   |           |   |
|------------------|---|-----------|---|
| 11.25 – 13.00    | SESSION 4(FOUR):  | SESSION 4 | 11.25 – 11.45: Paper 27   |
| 11.25 – 13.00    | SESSION 4(FOUR):  Sub-Theme 6: Academia, Research and Development |           |   |
|                  |   | End of    | Session 4(S2) – 4.3  Sustainable Infrastructure in Kenya; Effect of local mixing methods on properties of concrete with low water/binder ratio  Eng. Isaiah Kiburi Achini  School of Engineering, University of Nairobi and Kenya Ports Authority.  12.25 – 12.45: Paper 30  Session 4(S2) – 4.4  The Missing Link for Graduate Engineers: Transferring Academia into a Practical Engineering World.  Michael Odero and Philomena Muthoni  12.45 – 13.00: Question and Answer |

13.00 - 14.00: LUNCH BREAK











### DAY TWO(2) THURSDAY 26 TH NOVEMBER 2020

| TIME          | SESSION TITLE        | SESSION<br>CHAIRPERSON                               | PAPER AND SUBJECT   |
|---------------|----------------------|--|---|
| 14.00 – 15.00 | KEY NOTE<br>SPEAKERS | Session Chair<br>Eng. Collins Juma, CE,<br>FIEK, MBS | 14.00 – 14.20: KEY NOTE PAPER 8 Eng. Martin Manuhwa, FAEO President  14.20 – 14.40: KEY NOTE PAPER 9 Irrigation and sustainable land productivity in Kenya Eng. Wangai Ndirangu, Chairman, KeNHA  14.40 – 15.00: IEK COVID- 19 CSR INITIATIVES Eng. Grace Kagondu |

#### 15.00 - 15:15 TEA BREAK

#### 15.15 - 15:20 Break to two streams STREAM 2: SHIMBA 15.20 - 17.10 **SESSION 5 (FIVE): SESSION 5** 15.20 - 15.45: Paper 31 Session 5(S2) - 5.1 **Session Chair** Sub-Theme 5: Eng. Prof Alex Muumbo, **Exploring Africa's Readiness for The Fourth Industrial Revolution** 4th Industrial Revolution PE, PhD, MIEK and Industry 4.0 Eng. Gilbert Tindivale Nduguyu Kenya Pipeline Company Limited **Assistant Chair** 15.45 - 16.10: Paper 32 Eng. Caren Oyola, PE, MIEK Session 5(S2) - 5.2 Impact of COVID-19 on Industry 4.0 and Implications for Kenyan Manufacturing Eng. Jennifer A. Gache EAC Regional Expert 16.10 - 16.35: Paper 33 Session 5(S2) - 5.3 **Capacitive Sensing Car-Call in Elevators** Wambua Sheila Mwongeli Dedan Kimathi University of Technology 16.35 - 17.00: Paper 34 Session 5(S2) - 5.4 Design Consideration and Eco-Environmental Assessment for Electric Propulsion Ships: Case Study - Cruise Ship. Omar A. Abdulrehman Al-Baity <sup>1</sup>. Ibrahim S. Seddiek <sup>2</sup>. Mohamed M. ElGohary <sup>3</sup>. <sup>1</sup>Department of Naval Architecture & Marine Engineering, Faculty of Engineering, Alexandria University, 21544 Alexandria, Egypt. <sup>2</sup>PhD, Vice Dean for Postgraduate Studies & Scientific Research, College of Maritime Transport & Technology, Arab Academy for Science, Technology & Maritime Transport, Alexandria, Egypt, <sup>3</sup> Professor, Chairman, Department of Naval Architecture & Marine Engineering, Faculty of Enginering, Alexandria University, 21544 Alexandria, Egypt. 17.00 - 17.30 : Question and Answer End of the two streams

17.30 - 18:00 TEA BREAK

| 18.00 – 19.00 |          | EAFEO Secretariat | EAFEO General Assembly |
|---------------|----------|-------------------|------------------------|
| 19.00 -       | FREETIME |                   |                        |











# DAY 3

| TIME  | SESSION TITLE                                      | SESSION CHAIRPERSON   | PAPER AND SUBJECT   |  |  |
|---|--|---|---|--|--|
| DAY THREE (3) FRIDAY 27 <sup>Th</sup> NOVEMBER 2020 |  |   |   |  |  |
| 8.00 – 9.00   | KEY NOTE<br>SPEAKERS                               | Session Chair<br>Eng. Godfrey Marambe, PE,<br>MIEK  | 8.00 – 8.30: KEY NOTE PAPER 10 Unveiling the Engineers Identification Card, Eng. Nicholas Musuni, EBK Registrar/CEO   |  |  |
|   |  |   | 8.30 – 9.00: KEY NOTE PAPER 11  |  |  |
|   |  |   | Expanded Polystyrene (EPS) Technology   |  |  |
|   |  |   | Hon. Eng. Stephen Ngare-Chairman<br>National Housing Corporation  |  |  |
| 9.00 – 9.30:  | Panel Discussion                                   | <b>Moderator</b><br>Eng. Grace Onyango PE, MIEK   | Discussion on Post Covid-19 Impact on Energy,<br>Transportation, Water, Manufacturing and the Way Forward<br>Eng. Joseph Kamau, Chief Manager, Water Works, Athi Water Works<br>Development Agency<br>Eng. Isaac Kiva, Secretary, Renewable Energy, Ministry of Energy<br>Eng. Samuel Ogege, Deputy Director, Roads, KenHA  |  |  |
| 9.30 – 9.55   | SESSION 6<br>(SIX):                                | Session Chair<br>Eng. Godfrey Marambe, PE,<br>MIEK  | 9.30 – 9.55: Paper 35   |  |  |
|   |  |   | Session 6 – 6.1 COVID19 crisis and engineering in Sub-Saharan Africa: what response and what is next? Olivia Geymond Ecorys and Royal Academy of Engineering, UK  |  |  |
|   |  |   | 9.55 – 10.20: Paper 36  |  |  |
|   |  |   | Session 6 – 6.2 Integration of P.V. floating with hydroelectric power plants Henry Mwangi Githinji Jomo Kenyatta University of Agriculture and Technology   |  |  |
|   |  |   | 10.20 – 10.25: Question and Answer  |  |  |
| 10.25 – 10.40 TEA BREAK                             |  |   |   |  |  |
| 10.40 – 12.25                                       | SESSION 7<br>(SEVEN):<br>Students<br>Presentations | STUDENTS PRESENTATIONS  SESSION 7  Session Chair Eng. Godfrey Marambe, PE, MIEK  Assistant Chair Eng. Doreen Kirima, PE, MIEK | 10.40 – 10.55: Paper 37  Session 7 – 7.1  A Low-Cost Mechanical Ventilator with Remote Ventilation Capabilities  Fidel Makatia Omusilibwa, Cynthia Ruguru Thuo, Allan Kipkurui Koech, Eric Odhiambo and Steve Kinaro Ogeto  Kenyatta University, Departments of Electrical and Electronics  Engineering, Biomedical Engineering and Civil and Structural Engineering  10.55 – 11.10: Paper 38  Session 7 – 7.2  A vision for Africa: An Integration of Clean Environment and Clean Energy  Maina Kelvin Muriuki, Maina Patrick Kinyua, Consol Glass Limited and Coast Cable Limited |  |  |











## DAY THREE (3) FRIDAY 27<sup>Th</sup> NOVEMBER 2020

| TIME          | SESSION TITLE          | SESSION CHAIRPERSON  | PAPER AND SUBJECT   |
|---------------|------------------------|--|---|
|               |                        |  | 11.10 – 11.25: Paper 39   |
|               |                        |  | Session 7 – 7.3   |
|               |                        |  | Better Approach to Marginalized Area Networks (B.A.T.M.A.N.)  |
|               |                        |  | Lumumba Irvine, <i>Huawei Kenya</i>   |
|               |                        |  | 11.25 – 11.40: Paper 40   |
|               |                        |  | Session 7 – 7.4   |
|               |                        |  | Runoff Estimation for Nzoia Basin Using Nasa's Geos-5<br>Satellite Data   |
|               |                        |  | Stephen Mureithi<br>Department of Civil and Structural Engineer; Moi University   |
|               |                        |  | 11.40 – 11.55 : Paper 41  |
|               |                        |  | Session 7 – 7.5   |
|               |                        |  | Application of Internet of Things in Improving Energy Efficiency and in Smart Grids   |
|               |                        |  | Harriet Bosibori Ontiri and Victor Mungai Kamau<br>Department of Electrical and Electronics Engineering, University of<br>Nairobi |
|               |                        |  | 11.55 – 12.10: Paper 42   |
|               |                        |  | Session 7 – 7.6   |
|               |                        |  | Sustainable Transportation: Use of Intelligent Transport Systems  |
|               |                        |  | Henry Mwangi Githinji, Mercy Akinyi Asuna<br>Jomo Kenyatta University of Agriculture and Technology                               |
|               |                        |  | 12.10 – 12.25: Paper 43   |
|               |                        |  | Session 7 – 7.7   |
|               |                        |  | Engineering a Green Future  |
|               |                        |  | Esther Nelima Simiyu, Rahab Wambui Njung'e, Fiona Atieno Ombima,<br>Lydia Chepngeno Motwana,<br>Kenyatta University               |
|               |                        |  | 12.25 – 12.35: Question and Answer  |
| 12.35 – 13.15 | CLOSING<br>CEREMONY    | Eng.Margaret W.N. Ogai, CE,<br>FIEK<br>Hon. Secretary, IEK | 12.35 – 13.15: RESOLUTION   |
|               |                        |  | Chief Repporteour: Prof.Eng Larry Gumbe   |
|               |                        |  | Assistant: Patricia Onundo,   |
|               |                        |  | Technical University of Mombasa (TUM)   |
|               |                        |  | Address and to invite the Chief Guest   |
|               |                        |  | Eng. Nathaniel Matalanga, <i>CE, FIEK-President IEK</i> <b>12.35</b> – <b>13.15: OFFICIAL CLOSING</b>                             |
|               |                        |  |   |
|               |                        | 10 15 14   | Chief Guest<br>1.15 LUNCH   |
| 14.15 – 16.00 | VIRTUAL                | IEK SECRETARIAT  | Geothermal Development Company (GDC)  |
| 10.00         | INDUSTRIAL VISIT       | ILI JECHEIANIAI  | Konza Technology City (KONZA)   |
| 16.00 - 19.00 | FREE TIME              |  |   |
| 19.00 -       | GALA NIGHT &<br>AWARDS | IEK SECRETARIAT  |   |









