

SAIIE 27 PROGRAMME
THURSDAY 27 October 2016

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|--------------|---|---|--|---|
| 07:30 | Registration | | | <i>The Hall of Doors</i> |
| 09:00 | Workshop 1 | Workshop 3 | Workshop 4 | |
| | <i>The Looking-Glass House</i> | <i>The March Manor</i> | <i>The Chessboard</i> | |
| | Introduction: Resham Singh | Introduction: Hasan Darwish | Introduction: Liezl van Dyk | |
| | Rapid Simulation Modelling with Simio® - How simulation with Simio can effectively solve real problems | Lean Six Sigma as the integrated approach to winning in the future | Value stream mapping: Develop and interpret a current state map | |
| | <i>Handré Dreyer</i> <i>(Simulation Engineering Technologies)</i> | <i>Tilla van der Walt</i> <i>(NovellIdea)</i> | <i>Karl van der Merwe</i> <i>(Nelson Mandela Metropolitan University)</i> | |
| 10:30 | Tea/Coffee | | | <i>The Hall of Doors</i> |
| 11:00 | Workshop continues | Workshop continues | Workshop continues | |
| 12:30 | Lunch | | | <i>The Hall of Doors</i> |
| Chair | <i>Liezl van Dyk</i> | | | <i>The Looking-Glass House</i> |
| 13:30 | WELCOMING: <i>Liezl van Dyk</i> | | | |
| 13:50 | KEYNOTE ADDRESS: The University then, the University now and the University of the future – a South African perspective <i>Amanda Lourens, IDSC Consulting (Pty) Ltd, North West University</i> | | | |
| 14:30 | Workshop 5 | Workshop 6 | Workshop 7 | Workshop 8 |
| | <i>The Looking-Glass House</i> | <i>The Rabbit Hole</i> | <i>The March Manor</i> | <i>The Chessboard</i> |
| | Introduction: Liezl van Dyk | Introduction: Nandie Coetzee | Introduction: Hannelie Nel | Introduction: Chantelle du Plessis |
| | B.Eng (Industrial) Convener Meeting: Looking at the training of Industrial Engineers of the future | Road to Professional Engineering Registration | New engineering qualifications in South Africa and B.Tech (Industrial) Convener Meeting | Modeling mini bus taxi mayhem |
| | <i>Roland Röhrs</i> <i>(University of Pretoria)</i> | <i>Louis Krüger (UP;NovellIdea)</i> <i>John Cato (ECSA)</i> <i>Waldo Viljoen (SAIIE;Saint-Gobain)</i> | <i>Johnson Carroll</i> <i>(University of Johannesburg)</i> <i>Hannelie Nel</i> <i>(University of Johannesburg/ North West University)</i> | <i>Clemens Dempers</i> <i>(Blue Stallion Technologies)</i> |
| 16:00 | Tea/Coffee | | | <i>The Hall of Doors</i> |

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| 16:30 | Workshop continues | Workshop continues | Workshop continues | Workshop continues |
| 18:00 | POSTER SESSION and COCKTAIL | | | <i>The Queen's Croquet Ground</i> |

FRIDAY 28 October 2016

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|--------------|---|--|---|---|-------------------|
| 07:30 | Registration | | | | The Hall of Doors |
| Chair | Liezl van Dyk | | | The Looking-Glass House | |
| 09:00 | WELCOMING: Liezl van Dyk | | | | |
| 09:10 | KEYNOTE ADDRESS: The Status and Challenges of Industrial Engineering in South Africa Corné Schutte, Stellenbosch University | | | | |
| | Session 1: Operations Research I | Session 2: Innovation & Technology Transfer | Session 3: m-Solutions | Session 4: SIG | |
| | The Looking-Glass House | The Rabbit Hole | The March Manor | The Chessboard | |
| | Chair: Quintin van Heerden | Chair: Bernadette Sunjka | Chair: Davida van der Walt | Chair: Bontle Tladi | |
| 09:50 | A simulation approach for reconciling customs and trade risk associated with cross-border freight movements (Hoffman) [REF:2598] | Technology transfer to upcoming commercial - cotton farmers in the Makhathini Region (Mashala) [REF:2647] | Mobile technology, cyber-physical production systems and their influences on smart production systems (Steenkamp, Hagedorn-Hansen, Oosthuizen) [REF:2641] | Highveld Special Interest Group Meeting | |
| 10:10 | Development of a decision support model for an optimal run, repair or replace policy of capital equipment for a South African retailer (Swart, Jooste, Van Blommestein) [REF:2639] | Developing design propositions for an open innovation approach for SMEs (Krause, Schutte) [REF:2635] | Development and implementation of an advanced mobile data collection system (Prinsloo, Du Plessis, Vosloo) [REF:2620] | | |
| 10:30 | An evaluation and comparison of business simulation software (Visser) [REF:2659] | Towards a Framework to Guide the Evaluation of Inclusive Innovation Systems (Botha, Grobbelaar, Bam) [REF:2653] | Reducing the communication costs of a remote monitoring and maintenance system for an energy services company (ESCo) (Du Plessis, Prinsloo, Vosloo) [REF:2613] | | |
| 10:50 | Tea/Coffee | | | | The Hall of Doors |
| | Session 5: Health Systems Engineering I | Session 6: Manufacturing Systems & Strategies | Session 7: Mining Industry | Session 8: Costing & Operations Research | |
| | The Looking-Glass House | The Rabbit Hole | The March Manor | The Chessboard | |
| | Chair: Dieter Hartmann | Chair: Rojanette Coetsee | Chair: Bontle Tladi | Chair: Quintin van Heerden | |
| 11:20 | Factors affecting the quality of service delivery in a government department overseeing efficient maintenance of physical assets in | Impact of manufacturing strategy on operational performance: A case study of Zimbabwean manufacturing industry | Opening a new colliery: Project management and operations management interfaces (Kotze) [REF:2574] | Decision support heuristics for cost estimation model of injection moulds (Dewa, Van der | |

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| | healthcare services in a selected province in South Africa (Emwanu,Taruvinga) [REF:2880] | (Chindondondo,Chindondondo) [REF:2596] | | Merwe,Matope,Nyanga) [REF: 2578] |
| 11:40 | Development of an mHealth rehabilitation activity monitoring system for transtibial amputees (Garikayi, Van den Heever,Matope) [REF:2581] | Evaluating lean implementation in South African casting foundries (Mawane,Muyengwa) [REF:2643] | Conceptualising global mineral value chains: A tool for mineral policy design (Bam) [REF: 2562] | Design of a condition-based analytical decision support tool (Nyanga, Van der Merwe, Masanganise,Matope,Dewa) [REF:2688] |
| 12:00 | Distribution insource or outsource? The 5 key points to keep in mind (Dyamad) [REF:2358] | Social manufacturing bamboo bikes for Africa (Oberholzer) [REF:2673] | Selection, transfer and adoption of new technology in the mining industry (Tuta,Pretorius) [REF:2550] | Operations Research Special Interest Group Meeting |
| 12:20 | Designing a mobile laboratory solution for rapid tuberculosis testing by means of the CEPHEID® GENEXPERT® device (Hattingh,Bam) [REF:2611] | Resource efficient process chains to manufacture prosthetic hands using open source devices (Hagedorn-Hansen,Steenkamp, Oosthuizen,Jansen van Rhensburg) [REF:2448] | Physical asset management maturity in mining: A case study (Mona,Sunjka) [REF:2694] | |
| 12:40 | The interrelationship between healthcare systems and service systems theory: A conceptual framework (Van Zyl) [REF:2699] | Methodology for producing a water and energy stream map (WESM) in the South African manufacturing industry (Davies, Van der Merwe) [REF:2885] | A dynamic optimal control system for complex compressed air networks (Van Heerden,Du Plessis,Marais) [REF:2752] | |
| 13:00 | Lunch | | | |
| Chair | Liezl van Dyk | | | The Looking-Glass House |
| 14:00 | KEYNOTE ADDRESS: Towards integral optimization of healthcare processes Erwin Hans, U Twente, The Netherlands | | | |
| | Session 9: Engineering Education I | Session 10: Management Frameworks | Session 11: Energy & Waste Management I | Session 12: Health Systems Engineering II |
| | The Looking-Glass House | The Rabbit Hole | The March Manor | The Chessboard |
| | Chair: Hannelie Nel | Chair: tbc | Chair: tbc | Chair: Liezl van Dyk |
| 14:40 | Digital game based learning in industrial engineering: A case study (Kruger) [REF:2177] | Infrastructure effectiveness – threat or opportunity (Pauw) [REF:2139] | Evaluation of waste-to-energy grate incineration power plant drivers and barriers for a small South African city: A SWOT analysis approach (Maisiri, Van Dyk) [REF:2576] | Lean management in the healthcare industry (Kanakana) REF: 2509] |
| 15:00 | Employee retention strategies: Factors for Generation Y bursar | The need for a comprehensive energy management information | Evaluation of electrical energy consumption by a hot-dip | Health Systems Engineering |

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| | graduates (Tladi) [REF:2608] | system for industries (Goosen,Swanepoel,Du Plessis) [REF:2609] | galvanising plant (Dewa) [REF:2563] | Special Interest Group Meeting |
| 15:20 | Engineering the face of the future factory (Hattingh,Durbach,Hartmann) [REF:2622] | Innovative project lessons learnt system (Van der Walt) [REF:2228] | An investigation into the barriers to energy efficiency within medium to large manufacturing firms operating within the eThekweni municipal area (Singh,Lalk) [REF:2896] | |
| 15:40 | Tea/Coffee | | | <i>The Hall of Doors</i> |
| | Session 13: Engineering Education II | Session 14: Management Systems & Frameworks | Session 15: Energy & Waste Management II | |
| | <i>The Looking-Glass House</i> | <i>The Rabbit Hole</i> | <i>The March Manor</i> | |
| | Chair: Teresa Hattingh | Chair: Pieter Goosen | Chair: Resham Singh | |
| 16:00 | Engineering Education Special Interest Group Meeting | Towards a holistic customer experience management framework for enterprises (Du Plessis) [REF:2603] | Practical implementation of the ISO 50 001 standard for large industries (Van Heerden,Mathews,Marais) [REF:2734] | |
| 16:20 | | Exploring the link between PPM implementation and company success in achieving strategic goals: An empirical framework (Oosthuizen,Grobbelaar,Bam) [REF:2626] | Two green bottles, standing on a wall: An environmental assessment of two bottle types (Hartmann,Ivanov) [REF:2634] | |
| 16:40 | | Towards zero harm and sustainability with the one SASOL SHE maturity assessment (Fouche,Swart) [REF:2731] | Structuring data for a RSA section 12I energy efficiency tax incentive application (Janse van Rensburg,Booyesen, Van Heerden) [REF:2686] | |
| 18:30 for 19:00 | unGALA DINNER Master of Ceremonies: Jacques Fauré DINNER SPEAKER: Business Unusual <i>Pieter Geldenhuys, Institute for Technology Strategy and Innovation</i> | | | <i>The Queen's Croquet Ground</i> |

SATURDAY 29 October 2016

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|--------------|--|--|---|---|--------------------------------|
| 07:30 | Registration | | | | <i>The Hall of Doors</i> |
| Chair | <i>Liezl van Dyk</i> | | | | <i>The Looking-Glass House</i> |
| 09:10 | KEYNOTE ADDRESS: Challenges and Opportunities - Industrial Engineered Solutions for the Capital Project1 Industry <i>Hugh Brown, Hugh Brown & Associates Ltd</i> | | | | |
| | Session 16: Supply Chain Management I | Session 17: Human Factors | Session 18: Quality & Reliability Case Studies I | Session 19: Business Intelligence & Intelligent Systems | |
| | <i>The Looking-Glass House</i> | <i>The Rabbit Hole</i> | <i>The March Manor</i> | <i>The Chessboard</i> | |
| | Chair: <i>Liezl Smith</i> | Chair: <i>Wouter Bam</i> | Chair: <i>Thomas Tengen</i> | Chair: <i>Hasan Darwish</i> | |
| 09:50 | Benchmark indicators for competitiveness analysis of Tier 2 automotive industry <i>(Laseinde, Kanakana) [REF:2738]</i> | Employee flourishing strategic framework <i>(Stelzner,Schutte) [REF:2732]</i> | Global industrial engineering and the lean pyramid model <i>(Roodt) [REF:2244]</i> | Implementing a business improvement model based on integrated plant information <i>(Swanepoel) [REF:2741]</i> | |
| 10:10 | Assessment of continuous improvement initiatives' impact within the manufacturing sector in South Africa <i>(Theko) [REF:2921]</i> | Lean implementation strategies: How are the Toyota way principles addressed? <i>(Coetzee, Van der Merwe, Van Dyk) [REF:2665]</i> | Understanding the real cost of poor quality: Case study at Bosch South Africa (automotive industry) <i>(Mpshe,Kanakana,Trimble) [REF:2571]</i> | A mechanism for the early detection and management of physical asset management strategy execution failure <i>(Stimie) [REF:2879]</i> | |
| 10:30 | Developing a designf and implementation roadmap for a sustainable SARA supply chain <i>(Moshidi) [REF:2222]</i> | An evaluation of project team work: Team leaders' perspectives <i>(Murray,Lourens) [REF: 2619]</i> | Implementation of FMECA approach for reliability improvement on drum production line <i>(Dewa) [REF:2570]</i> | Business intelligence performance measures in local government <i>(Fourie,Stimie,Vlok) [REF:2565]</i> | |
| 10:50 | Development of a warehouse management maturity model framework for the South African warehousing environment <i>(Pillay) [REF:2671]</i> | An investigation into the contribution of various human factors towards the successful outcome of a complex weapon system acquisition process <i>(Pretorius) [REF:2867]</i> | An evaluation of waste and costs at a textile facility: A case study <i>(Ramdass) [REF:2604]</i> | | |
| 11:10 | Tea/Coffee | | | | <i>The Hall of Doors</i> |
| | Session 20: Supply Chain Management II | Session 21: Shaping Industrial Engineering | Session 22: Quality & Reliability Case Studies II | Resolve Special Session | |
| | <i>The Looking-Glass House</i> | <i>The Rabbit Hole</i> | <i>The March Manor</i> | <i>The Chessboard</i> | |
| | Chair: <i>Ephraim Moshidi</i> | Chair: <i>Liezl van Dyk</i> | Chair: <i>Kemlall Ramdass</i> | Facilitator: <i>Janie Basson</i> | |
| 11:40 | A proposed model for South Africa to effectively recycle and dispose waste electrical and electronic equipment <i>(Mouton, Wichers) [REF:2564]</i> | Guiding the development of enterprise design approaches <i>(De Vries) [REF:2591]</i> | The impact of obesity on musculoskeletal disorder in South African automotive industry <i>(Mallane,Tengen) [REF:2693]</i> | Analytics as a service – Resolve Solution Partners unpacks the approach and benefits of offering analytics of large data sets as a service, with the eye on driving | |

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| | | | | continuous improvement discipline |
| 12:00 | Investigating and evaluating the influence of supply chain structure on supply chain risk (Sayed,Sunjka) [REF:2621] | The industrial engineering identity: From historic skills to modern values duties and roles (Darwish, Van Dyk) [REF:2652] | Application of Bernoulli Principle in addressing bottlenecks at a local production company in the Vaal (Tengen) [REF:2876] | |
| 12:20 | Supply chain management: Performance benchmarks for South African companies (Smith) [REF:2666] | Industrial engineering and digitalisation (Hendrikse) [REF:2746] | The effectiveness of the internal quality auditing at a cable manufacturing company in South Africa (Chiromo,Ngobeni) [REF:2702] | |
| Chair | <i>tbc</i> | | | <i>The Looking-Glass House</i> |
| 12:40 | KEYNOTE ADDRESS: Internet of Things: Enabling new business models <i>Janie Basson, Resolve Solution Partners & Dawie Diamond, Enterprises University of Pretoria</i> | | | |
| 13:20 | CLOSING <i>tbc</i> | | | |
| 13:30 | Lunch | | | <i>The Hall of Doors</i> |

LIST OF POSTERS

| REFERENCE # | TITLE | AUTHORS |
|-------------|--|-------------------------------|
| 2262 | Managing contractor cash flow constraints during projects | Peters,Schoeman |
| 2544 | Value stream mapping applied to a typical three year higher education qualification | Van der Merwe |
| 2548 | Engineering management and business Intelligence: The Importance of Plant Design Base | Swanepoel |
| 2577 | Responsive strategies and supply chain decision-making for the South African wine industry | Knoblauch, Van Eeden, Edwards |
| 2601 | A systematic comparison of donor funded supply chain and commercial supply chain characteristics | Bam, Lingervelder, Bam |
| 2630 | Development of a model for road transport fuel management | Hoffman |
| 2657 | Preventative maintenance in public hospitals | Steenkamp |

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| 2661 | Identifying barriers faced by key role players in the South African manganese industry | Bam, Van Zyl, Steenkamp |
| 2684 | Failure analysis of locomotive alternators using the six sigma methodology | Mekwa, Kanakana, Mpofu |
| 2690 | Development of a multi agent system for part type allocation to machines | Nyanga, Van der Merwe, Musiyarira, Matope, Dewa |
| 2692 | Design optimization of a scheduling system for a multi-product flow line | Munetsiwa, Masiyazi, Dewa, Museka |
| 2737 | The impact of major environmental, social and economic forces on the field of industrial engineering | Darwish |
| 2878 | Critical success factors for implementing a labour productivity improvement initiative in a competitive South African manufacturing plant for greater international competitiveness | Emwanu, Govender |
| 2886 | Engineering work integrated learning: A case study in problem-based research and development projects | <i>Tamin, Meyer, Nel</i> |