

Summer School
Innovative IoT for Sustainable Citizens



Hub for Education on ICT for Sustainability

22 November

16h00 Welcome Function and Early Registration at Summerstrand Hotel

23 November to 30 November 2017

Lectures, Practical Work and Assessment

Venue: Lab 2 (Room 0240), 2nd Floor, Embizweni Building, South Campus, Nelson Mandela University,
 University Way, Summerstrand, Port Elizabeth, South Africa

Day 1 (Thursday 23 November): Introduction

08h30 – 09h00	Registration (for those who did not register on Wednesday)	
09h00 – 09h30	Welcome and introductions	Prof. Dr. Jorge Marx Gómez Christian Osorio Dr. Brenda Scholtz
09h30 – 11h00	Introduction to the IoT <ul style="list-style-type: none"> • Understand the business value of IoT technologies • Apply methods, strategies, and frameworks for the planning and design of smart innovative connected technologies 	Prof. Jean-Paul Van Belle
11h00 – 11h30	Overview of sustainability problems in Africa	Meryl Malcomess & Naomi Thompson
11h30 – 12h30	Overview of sustainability themes: Mobility and energy <ul style="list-style-type: none"> • Mobility Case: uYilo • Energy case: Smart Park 	Martin Smuts Chris Ettmayr
12h30 – 13h30	Lunch	
13h30 – 14h30	Overview of sustainability theme: Water management <ul style="list-style-type: none"> • Water case 	Carl Jacobs Sarel Bam Clara Mloza-Banda
14h30 – 15h30	Innovative and design thinking approaches	Marvin Draai, The Hope Factory
15h30 – 16h30	Topic selection and group formation	

Day 2 (Friday 24 November): IoT Management

09h00 – 10h00	Understand the layers of design (infrastructure, sensors, connectivity, analytics and smart apps) for IoT	Dr. L Cowley
10h00 – 11h00	Factory Automation: Beyond the 21 st Century	Roger Landman, SYSPRO
11h00 – 12h00	IoT Sensors and Networking Technologies (Technical stream): <ul style="list-style-type: none"> • How to set up an IoT development environment • How to programmatically read analog and digital sensors and exchange data using IoT protocols and message brokers 	Dr. L Cowley
12h00 – 13h00	Data Science, Data Analysis and Big Data	Prof. Dr. Jorge Marx Gomez
13h00 – 14h00	Lunch	
14h00 – 16h00	Knowledge in predictive and prescriptive analytics programming <ul style="list-style-type: none"> • Use data analytics to analyze practical problems in sustainability using tools such as R or Tableau 	Christian Janßen Alexander Sandau Martin Smuts

Day 3 & 4 (Saturday 25 November and Sunday 26 November): Group planning, tasks and assignment time

Day 5 (Monday 27 November): Water Workshop

09h00 – 09h30	DAAD and the Internationalization of Research. Programs and Funding Schemes	Philina Wittke
09h30 – 10h20	Water Crisis: Impulse speech to water problems: water problems and solutions around the world	Prof. Ulrike Rivett Marius Wybrands
10h20 – 10h50	Water management using ICTs: Presentation about mobile devices and water?	Prof. Ulrike Rivett Marius Wybrands
10h50 – 11h00	Small Break	
11h00 – 11h30	App and case introduction (20 Min) <ul style="list-style-type: none"> • Smart Water Meter App • Rainwater App • Water ALERT! • University Water App/Drop Drop • Water mobile Game 	Prof. Ulrike Rivett Marius Wybrands Clara Mloza-Banda
11h30 – 13h00	Group work/Assignment Using SAP Scenes to illustrate the idea	Carl Jacobs
13h00 – 14h00	Lunch	
14h00 – 15h00	Concept presentation	Clara Mloza-Banda Carl Jacobs

15h00 - 16h00	Work on group assignments	
Day 6 (Tuesday 28 November): Sustainable Mobility and Energy		
09h00 – 11h00	Mobility <ul style="list-style-type: none"> Recent trends in transportation and their integration in intermodal transport systems to transformation people’s mobility behaviour Connected vehicles and IoT based mobility applications for sustainable transport Introduction and adoption strategies of Green Mobility concepts – Challenges and Opportunities Intelligent Transport Systems and their influence on sustainable mobility (ITS) 	Christian Janßen Alexander Sandau Martin Smuts
11h00 – 13h00	Energy <ul style="list-style-type: none"> Recent trends in the German energy sector (PG empower generations) Energy Efficiency (optimisation of data centers) Current trends in the South African energy sector 	Alexander Sandau Volkan Gizli Steve Szewczuk
13h00 – 14h00	Lunch	
14h00 – 16h00	Practical Session on Mobility Group work on Energy	Christian Janßen Alexander Sandau Martin Smuts Dumisani Nyumbeka Chris Ettmayr
Day 7 (Wednesday 29 November): Research and Assessment		
09h00 – 10h30	Post graduate Research Poster Session	
10h30 – 14h00	Post graduate Research Poster Session with Pizza	
14h00 – 15h00	Brainstorming: Research topics	
15h00 – 17h00	Group presentations and assessments	
Day 8 (Thursday 30 November): Assessment		
09h00 – 11h30	Group presentations and assessments	
11h30 – 12h30	Closing	
12h30 – 13h30	Lunch	