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Julie

Nuusbrief van die Fakulteit Ingenieurswese, Universiteit Stellenbosch
Uitgegee deur die dekaan: Ingenieurswese. Redakteur: Liesel Koch, lkoch@sun.ac.za

Gehaltestudente en puik fasiliteite Fakulteit Ingenieurswese se strewe

Met die afskop van die tweede semester is die Fakulteit Ingenieurswese weer volstoom aan die gang. Aansoeke van voornemende eerstejaars vir 2015 lyk goed en die getal voornemende studente wat sover vir Ingenieurswese aanvaar is, is vir die meeste programme hoër as op die tydstip verlede jaar, selfs al is die lat van die keuringsformule onlangs effe hoër gestel.

Die Fakulteit is besonder dankbaar en trots dat dit onlangs bevestiging van die Ingenieursraad van Suid-Afrika (ECSA) ontvang het dat al ses sy BIng-programme vir die tweede agtereenvolgende vyfjaarsiklus sonder enige tekortkoming akkreditering ontvang het. Dit maak die Fakulteit Ingenieurswese, Universiteit Stellenbosch, die enigste Suid-Afrikaanse ingenieursfakulteit wat onlangs twee keer in 'n ry in die strawwe akkrediteringsproses akkreditering sonder enige tekortkoming verwerf het. Dit is verblydend, veral in die lig van die Fakulteit se strewe om onder die beste 200 Ingenieursfakulteite ter wêreld te tel.

Daar word hard aan dié strewe gewerk op onderrig- én navorsingsgebied. Goeie infrastruktuur soos moderne onderriglokale en goed-toegerusde laboratoria speel ook 'n uiters belangrike rol in die aansien van 'n fakulteit, en kan die Fakulteit Ingenieurswese spog met goeie fasiliteite waaronder sommige van wêreldgehalte is.

By die Departement Siviele Ingenieurswese, byvoorbeeld, het daar die afgelope tyd uitstekende nuwe fasiliteite en toerusting bygekom. As gevolg van 'n sterk toename in studentegetalle was die Departement genoodsaak om sekere stappe te doen om die hoër getalle te kan akkommodeer, veral ten opsigte van die aanbied van praktika. Een aspek wat in 2013 aandag geniet het, is die opgradering en bou van die nuwe Betonmaterialelaboratorium, 'n nat-laboratorium waar presiese navorsing met betonmateriale uitgevoer word.

Die nuwe Betonmaterialelaboratorium se onderdak-atrium.

Konstruksie daarvan het einde 2012 afgeskop en is in 2013 voltooi. Die moderne, natuurlik-geventileerde fasiliteit is uitstekend toegerus vir die aanbied van voorgraadse praktika in basiese betontegnologie asook vir nagraadse navorsing. Dit bevat 'n oorhoofse hyskraan, 'n area waar beton gemeng kan word, en in die onderdak-atriumspasie is daar duursame betonwerksoppervlaktes, betonverhardingstenke en 'n versterkte vloer. Laasgenoemde word gebruik vir toetsopstellings wat aan die vloer vasgemaak moet word. Befondsing vir die Betonmaterialelaboratorium het hoofsaaklik van die Departement Hoër Onderwys en Opleiding gekom, met addisionele bydraes uit Fakulteitsfondse.

Met die opgradering kon die noordelike en suidelike geboue van die Departement deur middel van voetgangerbrûe en 'n aantreklike glasfassade verbind word. Daar word dus ruim van natuurlike lig gebruik gemaak en dit alles dra by dat die hele omgewing moderniseer is.

Die Departement het ook 'n universele toetsapparaat met 'n hidrouliese aandrywer vir die Strukturelaboratorium aangeskaf, vir die toets van struktuurkomponente en ingenieursmateriale. Hierdie toetsapparaat het 'n trek- en drukkapasiteit van 2 MN (200 ton) en beskik oor 'n verstelbare toetsspasie. As gevolg van die apparaat se moderne beheerstelsels en sagteware kan opstellings en toetse vinnig uitgevoer word.

Die universele toetsapparaat met hidrouliese aandrywer het 'n trek- en drukkapasiteit van 2 MN (200 ton).

Einde Junie vanjaar is die Stellenbosch Smart Mobility Laboratory (SSML) bekendgestel. Dit is 'n laboratorium met voorpunttegnologie op die gebied van Intelligente Vervoerstelsels en sal die groeiende geleenthede ten opsigte van tegnologietoepassings op vervoergebied (oftewel Intelligente Vervoerstelsels) aanspreek en 'n platform verskaf vir die ontwikkeling van innoverende en kostedoeltreffende oplossings vir ontwikkelende lande. Dit is enig in sy soort in die land en skep 'n praktiese omgewing waar studente en industrie kan saamwerk.

Die SSML, met prof Johann Andersen aan die stuur, is toegerus met die nuutste programmatuur en hardeware, verkeerseintoerusting, verkeersinligtingdatabasisse en vervoeringenieurswese progammatuur. Die industrie se betrokkenheid was van kardinale belang om dié unieke laboratorium tot stand te bring. TomTom, bekend vir hul produkreeks in navigasietoerusting en die verskaffing van intydse sowel as historiese verkeersinligting aan eindgebruikers, het aansienlik tot die sagtewareplatform bygedra deur toegang tot die intydse en historiese inligting vir ontleding en verkeersbestuur te verskaf. Syntell, 'n toonaangewende diensteverskaffer van verkeersbeheertoerusting in Suid-Afrika, het 'n groot reeks verkeerstegnologietoerusting aan die laboratorium voorsien vir navorsing, opleiding en onderrig. Die PTV Groep het voorpunt programmatuur beskikbaar gestel wat as hulpmiddel vir navorsing en opleiding ingespan sal word. SANRAL sal weer op hul beurt 'n werkstasie in die SSML beskikbaar stel wat regstreekse en intydse videoskakels met die Verkeersbestuursentrum sal hê. Stellenbosch Munisipaliteit is ook 'n belangrike vennoot van die SSML.

By die bekendstelling van die SSML het die dekaan van Ingenieurswese, prof Hansie Knoetze, gesê dat die nuutste toevoeging tot die Fakulteit se trotse voorpuntfasiliteite 'n stap in die regte rigting is om die Fakulteit se doel te bereik om een van die Top 200 Ingenieursfakulteite ter wêreld te word.

Roger Lewis van Syntell demonstreer die toerusting wat sy maatskappy aan die Stellenbosch Smart Mobility Laboratory geskenk het.

Profiel: Adriaan Scheeres

Met oupa se inspirasie word 'n droom verwesenlik

"My oupa het my grootgemaak om my eie besigheid te begin en my eie ding te doen. Hy was my mentor en voorbeeld van eerlike, harde werk én om te belê in goeie mense," sê Adriaan Scheeres, medestigter en uitvoerende hoof van Pragma. Pragma is die batebestuursmaatskappy wat hy 24 jaar gelede saam met sy vriend, Arnold Botha, gestig het.

Pragma het oor die jare gegroei tot 'n maatskappy met 400 mense oor sewe kontinente met kantore in Suid-Afrika, Brasilië en China.

Adriaan is gebore op Lentedag 1960 en het grootgeword in die omgewing van Roodepoort. Beide sy ouers het saam met hul ouers na Suid-Afrika immigreer na die Tweede Wêreldoorlog. Adriaan se vader was 'n drukker wat by CUM gewerk het en sy moeder 'n verpleegster wat later matrone by JG Strijdomhospitaal was. Adriaan is die oudste van vier seuns met uiteenlopende beroepe: Jaco - 'n ginekoloog in Kanada, Han - 'n IT-spesialis in Holland en Nico - 'n bourekenaar in Amerika.

Adriaan Scheeres tydens die 18de Phyisical Asset Management Thought Leadership Conference wat in 2012 deur Pragma in Johannesburg aangebied is.

"My oupa was die man agter my inspirasie," sê Adriaan van sy oupa Scheeres wat 'n skrynwerkerbesigheid op die been gebring en waar Adriaan tydens vakansies gewerk het. "My oupa het altyd gesê dat ingenieurs kan groot goed ontwerp en bou. Dit het my as jong seun baie motiveer en daarom was dit my droom om 'n ingenieur te word. Bedryfsingenieurswese was die nommerpasrigting vir my. Op skool was ek goed met mense, prosesse en stelsels. Bedryfsingenieurswese het my daardie kombinasie gebied.

"Op 17-jarige ouderdom is ek Stellenbosch toe en het in Hombré gebly waar ek twee jaar op die HK gedien het. Ek het rugby gespeel en was baie betrokke by Ingenieurswese se Trapkarwedrenne. Die mees omstrede ding wat ek in my universiteitsloopbaan gedoen het, was om 'n koshuisoptog te reël om te kla oor ons diesel waterverwarmer wat onklaar was en wat die US nie wou vervang nie. Toe ek voor die rektor op die rooi tapyt verskyn, vra hy: 'Wat maak ek nou met jou?' My antwoord was: 'Installeer asseblief vir Hombré 'n nuwe warmwaterverhittingstelsel.' Hy het my so gekyk en uit sy kantoor gejaag. Die volgende week het installasiewerk aan die nuwe verhittingstelsel begin!"

Adriaan het sy BIng in 1982 behaal en 'n MIng in Instandhoudingsbestuur in 1984. "Daardie tyd was dit 'n redelik onbekende veld. Ek het gehou van die uitdaging om na stelsels te kyk wat gebruik kan word om die lewe van toerusting te kan verleng. Ek het 'n beurs by die destydse Spoorweë gehad en dus my loopbaan daar afgeskop. Gedurende my diensplig jare in die Vloot het ek by Krygkor aangesluit, waar ek verantwoordelik was vir logistiek van duikbote.

"Kort daarna het ek Pragma begin. Ek het 'n vriend, Arnold Botha, gevra om saam met my 'n besigheid te stig na 'n gesinsnaweek saam met die Bothas waartydens ons die moontlikheid bespreek het om iets op ons eie te begin. Ek en Arnold was beide spesialiste in logistiek en daarom dat Pragma in logistiek en instandhoudingsbestuur spesialiseer. Ek het die besigheidsontwikkeling hanteer en hy die konsultasie. In die aande het ons saam die bestuur van die maatskappy gedoen. Ons eerste kontrak was by die Munisipaliteit van Kaapstad en daarna by Nampak Tissue. So het alles begin: min geld, min slaap, min tyd van jou eie en baie harde werk.

"Pragma bestuur *up-time* van toerusting. Ons het die *Pragma-way* ontwikkel. Dit is 'n geïntegreerde batebestuurstelsel wat by kliënte gevestig word. Ons grootste bate is mense wat die prosesse en stelsels wat ons ontwikkel, vir kliënte implementeer en bestuur. Ons droom het gegroei van 'n konsultasiemaatskappy tot 'n dienstemaatskappy. Na tien jaar het ons internasionaal begin werk en na vyftien jaar het ons op die Brics-lande begin fokus omdat ons produkte en dienste goed in ontwikkelende lande werk."

Volgens Adriaan is elke industrie daarbuite hul kliënt, want elke industrie het bates wat goed gebruik moet word om suksesvol te wees.

Sy maatskappy se sukses skryf hy toe aan die spesifieke kultuur en waardestelsels wat daar heers en wat mense bymekaar hou. Tweedens word daar baie tyd spandeer aan leierskapsopleiding van senior ingenieurs en senior bestuur om seker te maak dat hulle die essensie van die besigheid kan oordra. "Ons grootste sukses is egter die jong mense wat van onder af inkom - jong ingenieurs van universiteite en universiteite van tegnologie wat jaarliks van reg oor die land aangestel word. Hulle ontvang dan opleiding en begin groei binne die maatskappy. My grootste bevrediging is om mense te sien groei, oplossings te sien werk en gelukkige kliënte te akkommodeer," sê Adriaan. Om die *Pragma-way* as 'n bewese batebestuurskonsep in die wêreld te vestig, is sy langtermyndoelwit vir die toekoms.

Met 'n groot, bedrywige maatskappy om te bestuur, het hy gelukkig nog altyd tyd vir die belangrike mense in sy lewe. "Ek is baie lief vir mense: my vrou, dogters, familie en vriende. Ook my werksmense wat help om Pragma te bou. Min dinge gee my soveel satisfaksie as om te sien dat mense ontwikkel en hul passie in die lewe ontdek en uitleef.

"Ek is geseënd om reeds 31 jaar getroud te wees met Hettie wat ek op Universiteit ontmoet het. Ons het drie pragtige dogters. Hettie is 'n gekwalifiseerde onderwyseres en ons het die voorreg gehad dat sy ons kinders kon ondersteun by die huis gedurende hul skooljare. Hettie is al die jare my steunpilaar, maar spesifiek die laaste 24 jaar toe ek Pragma gebou het. Ons dogters is wonderlik met hul eie talente. Al drie was in Sonop, waar Cornelle (BRek), Karike (BComm Bemarking) en Adri (BComm Logistiek) geswot het. Wat 'n voorreg!"

Adriaan, sy vrou, Hettie, en hul dogters, Cornelle, Karike en Adri, by 'n familietroue November verlede jaar.

Stokperdjies en belangstellings is daar vele. "Ek waterski, hengel en seil graag. Om op my Hobie 16 te seil, is vir my die lekkerste gevoel op aarde. Ek ry graag bergfiets om gesond en fiks te bly. Hierdie jaar het ek my twintigste Argus gery. Ons as gesin het wonderlike herinneringe van Afrikatoere saam met vriende of die aanpak van staproetes as gesin. Ons het al begin toer toe ons jongste nog in doeke was."

Adriaan is baie dankbaar teenoor God dat sy drome bewaarheid kon word en dat hulle so geseën is. Sy lewensleuse is *Laugh a lot, love a lot and live well*. En as hy net drie woorde kry om homself mee op te som, sê hy: *"Visionêr, strategies en aktiveerder."*

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Full-scale measurements on the SA Agulhas II in voyage to Antarctica

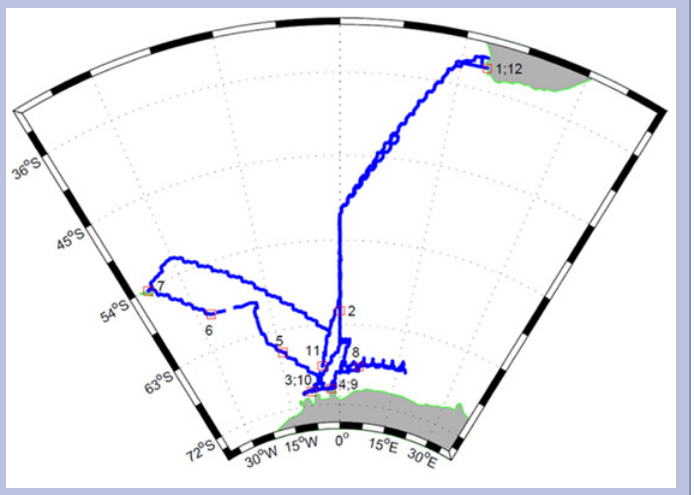
Dr Annie Bekker, Director: Sound and Vibration Research Group,
Department of Mechanical and Mechatronic Engineering, Stellenbosch University

In May 2012 South Africa acquired the SA Agulhas II (SAA II), a new Polar Supply and Research Vessel to support our research activities in Antarctica, Gough Island and Marion Island. The ship was manufactured by STX Finland in Rauma, Finland, and measures 121,3 metres between perpendiculars and is 21,7 metres wide. She is propelled by four Wärtsilä 3 MW diesel generators that power two Conver Team electric motors which are each connected to a shaft with a variable pitch propeller. Accommodation is available for 44 crew and 100 passengers on annual relief- and research voyages. Amongst these passengers are scientists who are not regularly sea-borne who work in laboratories on board during oceanographic research expeditions.

The SAA II was developed through state-of-the art engineering techniques. The potential ice-going performance of the hull was determined by scale model tests in an ice tank at Aker Arctic in Helsinki. Much of naval engineering science relies on scale model tests and simulations like these that have not yet been validated in a real-world environment. Actual ship responses are sparse and therefore very valuable to advance marine engineering science.

In the light of this a consortium was formed to conduct full-scale measurements on the SAA II for the ice trials on this vessel in March 2012. The consortium members comprise Stellenbosch University, Aalto University, Aker Arctic, Det Norske Veritas, Rolls-Royce, STX Finland, University of Oulu, Wärtsilä and the Department of Environmental Affairs South Africa (DEA). The focus of this consortium is to develop a scientific basis for the design of ice-going ships through full-scale measurement of ice loads on the hull, shaft-line vibration, ice thickness, human vibration comfort and operational ship parameters. A permanent central measurement unit was installed to cater for the acquisition of hull loads and power-train measurements concurrently with vessel meta-data. Additionally, a network of sensing cables was installed during the ship build to enable the versatile placement of sensors throughout the vessel.

Map of the voyage: 1 & 12 Cape Town Harbour; 2: Start of ice; 3 & 10: Akta Bukta; 4&9 Penguin Bukta; 5: End of ice; 6: Southern Thule; 7: South Georgia; 8: Start of Ice; 11: End of ice.



Journey description

Leg 1. Depart from Cape Town Harbour on 28 November 2013 to Akta Bukta. Cruise down the Greenwich Meridian to preform oceanographic operations. On board measurements start on 4 December.

Leg 2. First encounters of ice on 7 December. As the ship progresses, ice is gradually thicker and more densely distributed. On 9 December the ice is too thick to break and ramming techniques are used to progress through the ice. The ship is routinely beset in ice, unable to go astern for up to 2 hours. Blocks of ice are milled by the propellers causing high vibration levels. On 22 December the ship arrives at the ice shelf. Three hours of carving is required to position the vessel at a suitable off-loading point.

Leg 3. The ship remains pushing up against the shelf until 24 December at which time it departs for Penguin Bukta. The voyage is mostly in open water and little ice is encountered. On 25 December the ship reaches Penguin Bukta.

Leg 4. The ship departs from Penguin Bukta on 30 December and sails for Southern Thule.

Leg 5. Calm open seas are encountered on 1 January 2014 and the vessel arrives in Southern Thule on 4 January.

Leg 6. The ship sets sail for South Georgia on 4 January and arrives on 6 January.

Leg 7. The vessel departs for Penguin Bukta on 6 January. The route is not direct as the ship is required to sail a zigzag pattern near the ice edge for whale watching research.

Leg 8. On 23 January, the vessel enters ice and reaches Penguin Bukta on 24 January. The ship pushes up against an ice flow and remains there for helicopter operations.

Leg 9. The ship departs for Akta Bukta on 26 January and arrives a day later. Carving of bay ice is required to open up the bay. The ship completes carving on 28 January and pushes up against the ice shelf.

Leg 10. The ship sets sail for Cape Town on 31 January.

Leg 11. The vessel enters open water on 1 February. The ship arrives at Saint Helena Bay on 12 February and spends the day slowly sailing around the bay before entering Cape Town harbour on 13 February.

Brendan Boulle, Kim McMahon, Keith Soal and Fourie Gildenhuys conducted full-scale measurements on the SAA II on the 2013/2014 annual relief voyage between Cape Town and Antarctica.

The study of human comfort on an ice-going ship in ice and open water is a novel addition to full-scale measurements. This effort is led by Dr Annie Bekker who directs the Sound and Vibration Research Group at Stellenbosch University. Despite best engineering practices most ship accidents are not caused by the malfunctioning of machinery, but rather the human factor. This means the state of the captain, crew and passengers is a critical contributor to the safety of ship travel. Four master's students from the Sound and Vibration Research Group performed full-scale vibration measurements on the SAA II during the 2013/2014 voyage of the SA Agulhas II between Cape Town and Antarctica.

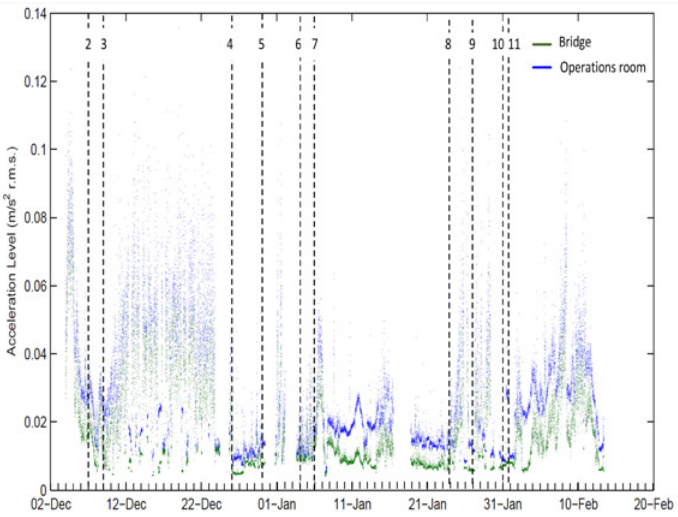
Thirty-one channels of vibration and structural deformation were recorded throughout the vessel for the full 76 days of the voyage.

These measurements aimed to investigate:

More ↓

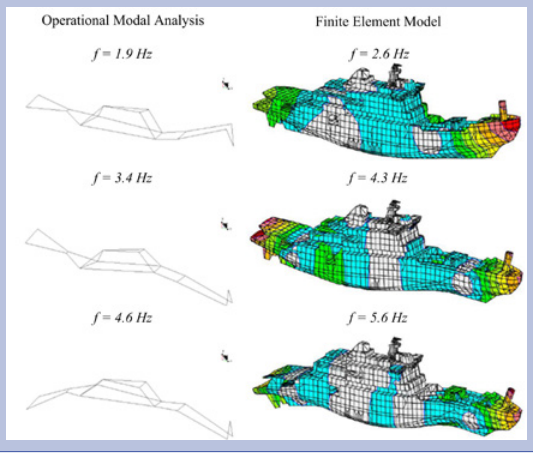
1. Human comfort on board (vibration comfort, motion sickness).
2. Structural vibration of the ship structure in different loading environments.
3. The relationship between ice loading on the hull and shaft line and vibration measured in the structure.
4. The effect of violent wave action and slamming as a result of the flat ice-going design of the stern.

One of the key research questions with regard to human comfort on ice-going ships is how human comfort in open water differs from that in ice-infested waters. As part of his investigation for his master's thesis, Kim McMahon has found that human vibration exposure on the vessel is particularly low and by no means uncomfortable. Vibration comfort is quantified in terms of weighted Vibration Dose Values for persons in a standing posture. These values account for vibration exposure in multiple directions and the variable sensitivity of people to different frequencies of vibration. The Bridge, from where the vessel is controlled, is the location on the vessel with the highest vibration exposure. It is also likely that vibration would be perceptible to most persons during the entire voyage. Another significant finding includes that vibration exposure in rough open water is likely to exceed that of operations in ice, although ice passage causes higher levels of vibration more frequently.



Human vibration exposure is quantified in terms of Vibration Dose Values (reported every 5 minutes) for the Bridge and Operations Room throughout the course of a 76 day voyage of the SAA II between Cape Town and Antarctica.

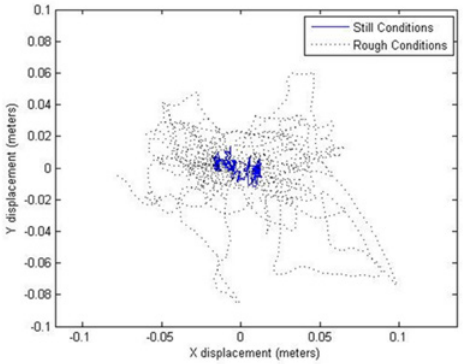
Preliminary results of Operational Modal Analysis on the SAA II compared to a Finite Element Model of STX Finland.



The substantial amount of vibration sensors on the vessel is largely attributed to the initiative of master's student Keith Soal, who is using these measurements to conduct Operational Modal Analysis (OMA). OMA monitors the movement of the vessel as a result of forces (from ice, wind and water) during normal operations. Structural characteristics such as the natural frequencies and mode shapes can be determined and correlated with engineering models from the ship design phase to advance the state-of-the art in vessel architecture. To date some fundamental modes of the structure can be confirmed as shown on the left. The future potential of this work includes being able to look at the actual deformation of the ship structure as a result of ice, wave and wind loadings for different vessel manoeuvres.

Under the guidance of Robert Dobson, Fourie Gildenhuys recorded the ground reaction forces experienced by 18 subjects with a force plate by Advanced Mechanical Technology Incorporation. The occupants of ships are constantly exposed to varying ground reaction forces as a result of ship movement. These forces may lead to the progression of osteoarthritis and musculoskeletal injuries. It was found that the ground reaction force varied between 1,5 and 0,7 times the normal body weight. Postural stability was assessed by quantifying human ability to maintain balance during the voyage through a Sway Index (SI). A subject's Sway Index measured during rough conditions is more than double their Sway Index measured during still conditions. It was noted that more than 70% of the subjects' Sway Indexes were greater when facing the side of the ship as opposed to the front, during still and rough conditions. Body movement and postural response is increased in order to keep the body upright during rough sea conditions as opposed to still conditions.

A subject standing on the force plate.



A plot showing how a person's centre of gravity moves with respect to a neutral standing posture as a result of different open water conditions.

Future work on the SAA II includes further full-scale measurements and collaborate data analysis of the engineering data measured by all consortium members. At present it seems that the supreme ice-going performance has been obtained at the cost of open water response. Violent wave activity and slamming on the flat stern during stationary oceanographic operations is leading to impulsive vibrations and ringing throughout the ship. Slamming is a contentious topic in the shipping industry. Moreover the apparent lack of full-scale data has hampered progress in understanding the effects of this phenomenon on ship passengers and crew as well as the longevity of the ship structure.

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World-renowned engineer and researcher leaves immense legacy †

Prof Detlev Kröger.

Prof Detlev Kröger, world-renowned mechanical engineer, thermodynamicist and researcher, died on 16 March 2014 at the age of 74 at his home in Stellenbosch. He was a true scientific researcher and a practical engineer as well as the foremost world authority on air-cooled heat-exchangers and wet cooling towers. His contribution to energy conversion and environmentally friendly power generation is incalculable. His research results have been applied to some of the largest power stations in the world.

In 1971 he was appointed Professor of Mechanical Engineering at Stellenbosch University. Here he established a research culture and founded the Institute for Thermodynamics and Mechanics, regarded as a unique research unit in the world today. His research finds application in, among other things, mine cooling plants, thermal processes in the process and steel industries, solar energy, and dry cooling power plants. In the latter field, he was responsible for the design of the cooling systems of the Matimba and Kendal power stations, and most recently Medupi and Kusile, as well as power plants in the USA, Europe, Russia, Australia, India, the Middle East and China.

Under his leadership as a supervisor approximately 58 master's and 18 doctoral students graduated at Stellenbosch University, and from his pen more than 200 scientific publications appeared.

Thanks to his sound role, postgraduate studies in mechanical engineering at Stellenbosch University are comparable to the best in the world. The laboratories that he established are unequalled among universities anywhere in the world, and have performed extensive tests for leading international companies.

Prof Kröger retired at the end of 2010 after serving in the Department of Mechanical and Mechatronic Engineering at Stellenbosch University for 43 years as academic and researcher.

Prof Kröger was his Faculty of Engineering's only A-graded researcher (the highest category) as rated by the National Research Foundation (NRF).

In 2003 Prof Kröger's book "Air-cooled Heat Exchangers and Cooling Towers" was honoured with the Bill Venter/Altron Literary Prize for scientific publications. This book deals with the theory and guidelines for the design and construction of large-scale industrial dry-cooling systems, typically found in power stations and oil refineries. The book also addresses so-called wet systems that make use of evaporative cooling where water is abundant. The work of 1 000 pages incorporates the results of much of the research conducted by Prof Kröger and his students and his consulting work nationally and internationally over a period of 30 years.

When prof Kröger received an honorary doctorate from Stellenbosch University in 2010, he said: "I have been all over the world, but Stellenbosch was always the place to come back to. Stellenbosch: its nature, its culture, its students - it's paradise!"

"Prof Kröger's early developments of solar heaters, combined with the expertise in dry cooling and the research, with colleagues, in solar chimneys were instrumental in the establishment of the Centre for Renewable and Sustainable Energy Studies (CRSES) in the University of Stellenbosch and the Solar Spoke and Solar Thrermal Energy Research Group (STERG) in the Department of Mechanical and Mechatronic Engineering. Kröger patents on solar power plants, solar energy storage systems, solar receivers, and cooling systems in general, are still guiding research in STERG," says Prof Theo von Backström, a colleague of many years.

Prof Hanno Reuter, research partner, colleague and former PhD student of Prof Kröger, sums it up as follows: "Detlev was the absolute role-model as engineer, researcher, mentor, manager, businessman and friend. The legacy of his quality teaching and excellent research is immense and will live forever."

Ingenieurswese betreur heengaan van geliefde rektor van Hoop †

Die Fakulteit Ingenieurswese betreur die heengaan van prof Russel Botman, US rektor en visekanselier, wat op 28 Junie 2014 in sy slaap oorlede is. Hy was sestig.

Prof Botman is in 2007 aangestel as rektor en visekanselier van die Universiteit Stellenbosch, en in 2012 heraangestel vir nog 'n vyf-jaartermyn.

Van 1982 tot 1993 was hy in die bediening as predikant in Wynberg. Sy akademiese loopbaan het in 1994 by die Universiteit van Wes-Kaapland begin waar hy gevorder het tot dekaan van die Fakulteit Godsdiens en Teologie. In 2000 is hy as professor by Universiteit Stellenbosch se Kweekskool aangestel en in 2002 as viserektor: Onderrig by die US.

Ten tye van sy dood was hy ook senior visepresident van die Vereniging van Afrika-universiteite, raadsvoorsitter van Kaapstad as Wêreldontwerphoofstad 2014, en 'n direksielid van Hoër Onderwys Suid-Afrika en van Media24. Hy het ook van 2006 tot 2011 as direksievoorsitter van die Klein-Karoo Nasionale Kunstefees gedien.

Prof Botman sal veral onthou word vir die vestiging van die HOOP Projek by die US. Die projek fokus op vyf temas op die internasionale ontwikkelingsagenda, naamlik die uitwissing van armoede en verwante toestande, die bevordering van menswaardigheid en gesondheid, die bevordering van demokrasie en menseregte, die bevordering van vrede en sekuriteit, en die bevordering van 'n volhoubare omgewing en 'n kompeterende industrie. Die Fakulteit Ingenieurswese het sy volle gewig agter die Universiteit se HOOP Projek ingegooi en het die US-Raad as deel van die HOOP Projek meer as R55 miljoen in die Fakulteit belê vir navorsingsinisiatiewe op die terreine van Energie en die Omgewing, Kommunikasie en Inligtingstelsels, en Voedselsekerheid.

As uitvloeisel van die HOOP Projek het Prof Botman daarna gestrewe dat die Universiteit Stellenbosch toegang tot die Universiteit sal verbreed, sy momentum van uitnemendheid sal behou en sy impak op die samelewing sal verhoog.

Prof Russel Botman.

Die nuwe beleidsdokument wat die strategie bevat wat die US tot 2030 sal lei (wat onder prof Botman se leierskap opgestel is), is verlede jaar deur die US-Raad aanvaar. Daarin verbind die US hom tot die bou van 'n samelewing van billikheid en geregtigheid. Ook strewe dit na akademiese uitnemendheid en impak, inklusiwiteit, innovasie, toekomsgerigtheid, voordurende akademiese transformasie en vernuwing.

By 'n geleentheid kort na sy dood waar prof Botman postuum 'n eredoktorsgraad in die Regte van die Universiteit van Aberdeen in Skotland ontvang het, het sy vrou, Beryl, die toespraak voorgelees wat prof Botman vir die geleentheid voorberei het. Daarin sê hy: "Toe ek in 2007 as rektor en visekanselier aangestel is, het ek 'n eersteklas instelling geërf wat 'n toring van akademiese uitnemendheid en wêreldklas navorsing is. Maar dit was duidelik dat ons omring was van 'n samelewing met groot behoeftes wat veroorsaak is deur armoede, siekte, onderdrukking, geweld en besoedeling. Ons moes onsself afvra watter nut het al ons kennis as dit nie 'n verskil in mense se lyding maak nie? So, ek het die Universiteit uitgedaag om meer relevant te word veral vir die mees kwesbares."

Met dié ingesteldheid sal prof Botman onthou word as die US se rektor van Hoop. Hy laat voorwaar 'n ryke erfenis met 'n groot positiewe impak agter.

Reunion/Reünie 2000 - 2013 alumni

The Faculty of Engineering is planning a reunion for the younger generation Matie engineers who graduated between 2000 and 2013. The coctail event will be held at Durbanville Hills, between Cape Town and Stellenbosch, on Wednesday 5 November 2014. Alumni who obtained an undergraduate or postgraduate qualification at the Faculty of Engineering will receive an e-mail invitation with the necessary details from the Alumni Office in September.

Durbanville Hills.

With this reunion, all the decade groups will now have been covered in a series of annual reunions which took place the last five years. In 2010 the reunions were kicked off by the one for the decade group 1970 to 1979. This was followed in 2011 by a reunion for the group 1980 to 1989. The reunion for the first group of Matie Engineers (1948 to 1960) took place in 2012, while the 1990 tot 1999 group had their reunion last year.

If you graduated between 2000 and 2013, do keep an eye on your electronic mailbox for this invitation. The reunion promises to be a delightful evening during which we will tell you about the current state of affairs at the Faculty and where you will be able to reconnect with your classmates, strengthen ties with business networks and support your Faculty.

Die Fakulteit Ingenieurswese beplan 'n reünie vir die jonger generasie Matie ingenieurs wat tussen 2000 en 2013 gradueer het. Die skemeronthaal word gehou by Durbanville Hills, tussen Kaapstad en Stellenbosch, op Woensdag 5 November 2014. Oudstudente wat gedurende daardie periode 'n voorgraadse of nagraadse kwalifikasie by die Fakulteit Ingenieurswese verwerf het, sal in September 'n e-pos-uitnodiging met die nodige inligting van die Alumnikantoor ontvang.

Met dié reünie is al die dekadegroepe dan die afgelope vyf jaar gedek. In 2010 het die dekadegroep 1970 tot 1979 aan die beurt gekom, gevolg deur die groep 1980 tot 1989 in 2011. Daarna was die eerste groep Matie ingenieurs (van 1948 tot 1960) in 2012 byeen, terwyl die dekadegroep 1990 tot 1999 verlede jaar hul reünie gehad het.

Indien jy tussen 2000 en 2013 gradueer het, hou dus gerus jou elektroniese posbus fyn dop vir die uitnodiging. Die reünie beloof om 'n genotvolle aand te wees waartydens ons sal vertel van die huidige stand van sake by die Fakulteit en waar jy weer bande met jou klasmaats kan optel, jou sakenetwerke versterk en jou Fakulteit ondersteun.

Useful Carbon Footprinting Guide now available

The newly released "Carbon Footprinting Guide: A practical calculation guide focusing on measuring, monitoring, reporting and verification" written by Dr Marco Lotz (Nedbank's Carbon Specialist) and Prof Alan Brent (Stellenbosch University's Sustainability Institute) is now available for free download from the Nedbank website.

This book is aimed at enabling companies and organisations to understand, measure and reduce their carbon footprints, which is of particular importance in light of the proposed carbon tax set to be implemented in 2015.

The guide will also act as a useful tool to practitioners, students and scholars looking to learn about climate change and the carbon sector.

Rather than a high tech manual for carbon experts, this book is easy to understand and guides the reader step-by-step through the South African GHG reporting context and the nuances of carbon calculations using day-to-day examples.

Click on the icon on the right to download your free copy.

Prof Alan Brent, co-author of the Carbon Footprinting Guide, is also a Professor in the Department of Industrial Egineering, Stellenbosch University, as well as a Director of the Centre for Renewable and Sustainable Energy Studies.

Nuwe "ou" gesigte by toelating, registrasies en studenteondersteuning

August Engelbrecht.

Die meeste Matie ingenieurs wat die afgelope dekade hul graad ontvang het, het heelwaarskynlik tydens hul studieloopbaan met August Engelbrecht (fakulteitsbeampte) en die fakulteitsekretaris, Minnaar Pienaar te doen gehad. Mnr Engelbrecht was verantwoordelik vir studentewerwing en -ondersteuning en mnr Pienaar vir aansoeke, toelatings en registrasies.

Mnr Engelbrecht het op 1 Januarie vanjaar ingeval as hoof: Studentewerwing by Universiteit Stellenbosch se Sentrum vir Studentewerwing nadat hy vir elf jaar ywerig duisende ingenieurstudente gewerf en ondersteun het. Hy het verskeie suksesvolle werwingsinisiatiewe en uitreikprogramme geloods. In sy nuwe pos sal hy nog steeds 'n hand hê in die werwing van voornemende Ingenieurstudente.

Nicole Hartzenburg.

Minnaar Pienaar.

Mnr Pienaar het einde Februarie vanjaar na 15 ½ jaar afgetree, maar voor hy sy oë kon uitvee, het die Fakulteit hom opgeraap om sy kundigheid in die Dekaanskantoor te kom aanwend. In sy nuwe pos, 'n *ad hoc*-aanstelling vir twee jaar, sal mnr Pienaar sekere take van die vorige fakulteitsbeampte, August Engelbrecht, hanteer, soos studenteondersteuning en die Mentorskapprogram. Hy sal ook hulp verleen met keuring van studente en sekere administratiewe take in die Dekaanskantoor verrig.

Die nuwe fakulteitsekretaris wat op 1 Maart vanjaar by mnr Pienaar oorgeneem het, is Nicole Hartzenburg. Sy ken reeds Ingenieurswese se opset baie goed, want sy het sedert 2007 as mnr Pienaar se regterhand gewerk waar sy hom met verskeie take bygestaan het.

Distinguished Professors

Prof David Davidson.

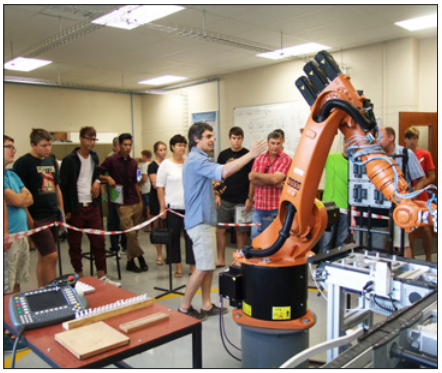
Prof David Davidson and Prof Willem Perold, of the Department of Electrical and Electronic Engineering, are two of 33 professors at Stellenbosch University who will in future be referred to as Distinguished Professors.

The eligibility criteria include: Having been appointed as a professor at SU for at least five years; continuous excellent performance over the last three years; international stature; proven exceptional performance and leadership in higher education in research and publications, postgraduate study leadership, learning and teaching, and community interaction.

The appointment is valid for five years and re-appointments can be considered.

Prof Willem Perold.

Goeie opkoms by Opedag



Ingenieurswese se personeel en studente het 8 Maart weer soos 'n hegte familie saamgestaan om 'n baie geslaagde Ingenieurswese Opedag aan te bied. Die opkoms was uitstekend, en verskeie besoekers het die dag van ver af per motor of vliegtuig spesiaal gereis om die gewilde geleentheid by te woon.

Veteraan vakman het vele ingenieurs geleer van "pype en dinge"

Na 38 jaar in diens van die Universiteit Stellenbosch, waarvan die laaste 31 jaar by die Departement Prosesingenieurswese (Chemiese Ingenieurswese), het Jannie Barnard, hoof van die werkswinkel, einde Maart 2014 afgetree. By sy afskeidsgeselligheid het prof André Burger gesê: "Dis soos 'n broer wat die huis verlaat. Daar is baie ingenieurs daar buite wat deur Jannie se hande is en wat nou weet van pype en dinge. Daar is nie 'n laboratorium in die Departement wat nie Jannie se vingerafdrukke bevat nie. Ons het die gerief gehad dat studente in die werkswinkel kon instap en 'n paar lyne trek, en Jannie sal dit verder neem en die toerusting vervaardig. Sy bydrae was GROOT."

Jannie Barnard (middel) het 31 Maart as hoof van Prosesingenieurswese se werkswinkel afgetree. Regs is Paul van Reenen wat in 1970 die nuwe Departement se werkswinkel begin het en links is Jos Weerdenburg wat die bestuur van die werkswinkel by mnr Barnard oorgeneem het.