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PROGRAM NAME: WOMANITY – WOMEN IN UNITY

GUEST NAME: PROF. BEATRYS LACQUET

SPEAKER	TRANSCRIPTION
DR. MALKA (INTRODUCTION)	Hello, I'm Dr. Amaleya Goneos-Malka, welcome to 'Womanity – Women in unity'. The show that celebrates prominent and ordinary African women's milestone achievements in their struggles for liberation, self-emancipation, human rights, democracy, racism, socio-economic class division and gender based violence.
DR. MALKA (GUEST SYNOPSIS)	Joining us in studio is Professor Beatrys Lacquet, the Deputy Vice-Chancellor for Information, Knowledge and Infrastructure Management at the University of the Witwatersrand, South Africa and Professor of Electrical and Electronic Engineering. Professor Lacquet graduated from the Rand Afrikaans University, now University of Johannesburg, with a Doctorate in Engineering in Electrical and Electronic Engineering. She was appointed as Professor of Electrical and Electronic Engineering at the Rand Afrikaans University, now University of Johannesburg in 1996 and served as Chairperson of the Department from 2000 through to 2003. She joined the University of the Witwatersrand in 2003 as Professor of Electronics in the School of Electrical and Information Engineering. Her research interests are in the fields of Optical Communications, Sensors, including Biomedical and Environmental Applications, Non-destructive Measurement Techniques, Signal Processing and Vehicle and Driver Health Monitoring. Prof. Lacquet has authored and co-authored more than 150 peer-reviewed journal papers and conference contributions. She jointly holds a few patents, she is a Fellow of the South African Institute of Electrical Engineers where she currently serves as President and has chaired working groups. Prof. Lacquet is a Registered Professional Engineer and serves on the Council and several committees of the Engineering Council of South Africa. She is also a senior member of the International Institute for Electrical and Electronic Engineering. Welcome to the show, Prof. Lacquet.
PROF. LACQUET	Thank you so much for having me here today, and welcome to all our listeners, especially our woman listeners out there.
DR. MALKA	Prof. Lacquet, looking at your resumé brings to light your long track record of achievements in multidisciplinary subjects, awards, publications in a field which traditionally was categorised as a male dominant sector. And as such created a barrier for women to enter. Today you hold the position of Professor of Electrical and Electronic Engineering and you've also become a role model to many young women across Africa who look up to your achievements. Can you tell us a little bit more about your position as Deputy Vice-Chancellor for Information, Knowledge and Infrastructure Management at the University of the Witwatersrand and some of the responsibilities which are unique to this role?

<p>PROF. LACQUET</p>	<p>The position that I currently hold one could probably summarise as being the Deputy Vice-Chancellor for Engineering. It reaches from everything to do with ICT to managing the information of the University, to looking after buildings, the maintenance thereof, constructing new ones, even making sure there's enough toilet paper in every room, feeding students – we typically prepare 3 million meals for students per year, and ja, I can go on and on and on, almost anything that has to do with information and engineering falls within my portfolio. The team I have is currently also looking at the building of the two new universities in South Africa, one in Mpumalanga and one at Sol Plaatje in Kimberley and this all came about from experience that the teams gain throughout the year, so one has to encourage them to do better so that we can serve our community even better.</p>
<p>DR. MALKA</p>	<p>And does that, when you talk about the two new universities, is that fall in from the construction, from the engineering background that you have? With regards to constructing the facilities?</p>
<p>PROF. LACQUET</p>	<p>It's about the engineering background but not only construction, it has more to do with the systems engineering, the planning and then the execution of the construction work.</p>
<p>DR. MALKA</p>	<p>And I had imagined that a lot of our universities are very traditional, they were established a long time ago and whenever you visit campuses you can see there's a new building here, there's a new building there, but by having almost virgin territory with these two new institutions it's an opportunity to put things in place the way you would like it as an ideal campus.</p>
<p>PROF. LACQUET</p>	<p>Absolutely. So we did not drive the process on what these communities should get but it was a very much a consultative process by which my predecessors and then the team that is still there worked with the communities and the new university structures on what they would like to have. And what is very important it has to fit into the specific environment. A university in Kimberley will look very different from a university in Mpumalanga. So, and that brings one into the, shall I say, architecture and built environment field where one has to make sure that whatever we construct for people suits their needs and I think there women can also play a very good role because they've got much more, they're much more in tuned into what people's needs are.</p>
<p>DR. MALKA</p>	<p>Prof Lacquet, in your new position as Deputy Vice-Chancellor it sounds like an incredibly operational role with a lot of logistics involved. Are there any specific milestones that you want to accomplish during your tenure?</p>
<p>PROF. LACQUET</p>	<p>I would say yes, one should always have some goals that one is aspiring to. We have recently completed the new ICT strategy for the university and this will have to be rolled out. It's almost a complete overhaul of the IT systems and the hardware that we are using and in the process one can think more clearly about what it is a university of the future should be. So this would include infrastructure that will support wi-fi or connectivity, infrastructure that will support distance learning and infrastructure that will support whatever our students do in terms of e-learning. And obviously one has infrastructure in place for the business side of the university, without which it won't exist, so we have to make sure that everybody gets the same quality of service. That's the one. The second</p>

	<p>area which is important is that we are looking into what should be the new university of the future. Is this still a place where one goes to take out a book and read that or is that a place where one sits together with your friends and discuss problems of the day, whether you do some research, whether your studies, whether everything is e-learning, or e-books or e-journals and whether there is still a place for hard copy books. And the answer to all of this is yes of course we still need hard copy books but maybe not so many of them. So we're busy redesigning what a library should look like and how it's being used by students and I expect this will change quite a bit into the future.</p>
DR. MALKA	<p>Technology is an incredible disrupter but I think it's always for the best and when you look at it from an e-learning point of view and e-books, if you have one hard copy when you have multiple e-books, well actually one e-book, you've got multiple access opportunities.</p>
PROF. LACQUET	<p>Of course, and you don't have to be in the library to access that, so the systems allows for that.</p>
DR. MALKA	<p>And when we're talking about the transitions between types of learning modes, how did ... would you say that the education level of the Electrical and Electronic Engineering faculty at the University of the Witwatersrand compares to other leading countries around the world?</p>
PROF. LACQUET	<p>The way to compare what one does is to look at whether the qualification that we provide, that will be the degree that the students will graduate with, and that's true for all the other eight Engineering programmes that we provide at Wits, whether it's internationally recognized and to do that we are all accredited by the Engineering Council of South Africa, that looks at the process and the quality of the work, whether the programmes are sustainable. And all eight universities in this country who teach Engineering programmes are accredited by the Engineering Council and as such they are recognised internationally, so when one goes to another country you don't have to write new exams to be able to have fulfilled the educational requirements.</p>
DR. MALKA	<p>So your qualification is recognized on a global basis.</p>
PROF. LACQUET	<p>Of course. That's very important for us and in fact we're very involved in the international movement to get this all right and it's quite a serious operation if I can put it that way.</p>
DR. MALKA	<p>For standardisation in our global community it's really important.</p>
PROF. LACQUET	<p>That's correct, ja. It's also important, say for instance people from overseas would come to work as engineers in South Africa, that we know what the standard of their education was and that gives us some assurance that we are not appointing someone who has been ill-educated for our specialized works.</p>
DR. MALKA	<p>We'll be right back after this.</p>
	<p style="text-align: center;">AD BREAK</p>
DR. MALKA	<p>In our previous segment Professor Lacquet was elaborating on some of the transitions that are taking place within the Information, Communication, Technology space at the University of the Witwatersrand and the effects of</p>

	<p>technology in terms of e-learning and the impact that it has for universities of the future. Prof. Lacquet, you bring a wide teaching portfolio of Electrical and Electronic Engineering and you'd been involved in several research projects which gives you insight first-hand into some of the demographic changes that have taken place in your area of specialization over the years. Can you share with us your experience from a female professor's point of view of your professional journey and if there are now more female Electrical and Electronic Engineers today than compared to when you first started out?</p>
PROF. LACQUET	<p>When I started out was quite a while back, I think many of you probably had not been born yet, but never mind. My first teaching job was just after I graduated and at the stage I was given a fourth year class to teach a specialized course and I was like very very young and the young men in the class, and there were only men in those days around, they were quite intimidating in many ways because they are much bigger than I was and still am and they kind of would treat one more like a young girl than anything else. Fortunately over time I had very good mentors that observe these kind of situations that one sometimes find yourself in and you're not always sure how to get out of that, especially because you're so young. And so one learnt very quickly how to place distance between yourself and the students in the class and how to manage a rowdy bunch of men.</p>
DR. MALKA	<p>Would you put that as physical distance or from an intellectual distance?</p>
PROF. LACQUET	<p>Intellectual and emotional and physical, the physical distance is not actually the problem, it's more the intellectual distance. So that they do not talk to you as if you're their little girlfriend but that you are a person in charge of the class that is there to teach them something. So over time I think that's became very, became much better and later as one gets older as well and wiser on how to manage these situations it just, it was just how it was, and I didn't have a problem with that. It's very important for any young person to have a good mentor that can spot these little challenges that one experiences and then advise on what to do because it could be very intimidating and one could lose kind of interest in what you're doing because sometimes it just gets too difficult. But in those days I was, we started as a first year class of 104 students, we were two girls and when we graduated there were two girls and 10 boys. So kind of, the attrition was quite big.</p>
DR. MALKA	<p>So the girls held on.</p>
PROF. LACQUET	<p>Yes, they did. And then later on, I think both girls, my colleague she went into industry and myself worked on industrial projects at the university and then later joined the university as a technical person in a laboratory where we manufactured the first photovoltaic panels in the country. So over time the number of female academics has increased significantly and I think if one looks at my environment where I currently am, up to 25 to 30% of the staff would be female and we don't really want to see them as female per se it is just that they happen to be women who are interested in engineering subjects but they bring a very special quality to the work that they do. Extremely dedicated and it also changes the way future students might see whether engineering is a profession that girls should follow at all. If you've got more females in the class who are really good at what they're doing and they project an image of a profession young people might want to follow. So over time, and I think the Americans are</p>

	typically very jealous of us, we have about 35% female students in our undergraduate programmes which is eh ... very great feats at this time and many of them are in mining engineering of all fields and in chemical engineering.
DR. MALKA	And would you say that those are two of the most challenging engineering areas to be in? Mining and chemical.
PROF. LACQUET	Chemical engineering is challenging in terms of the intellectual inputs that one has to do, mining engineering probably less so but the working environment is very different and if one looks at then mining engineering field, a mine is typically very male and is a very harsh environment to work in but be found that our female students are very resilient and they're doing extremely well in the mining industry and I think it's because we taught them it's okay to be there. And you've got the right to be there and you must just do your best and then everything will fall in place.
DR. MALKA	So the pure focus on the profession and your professional capability.
PROF. LACQUET	I think so, yes. And also explaining to them that it's okay to be an engineer and you can still raise a family and you can be all the things that women want to be and you can be what you want to be, it doesn't have to be anything specific.
DR. MALKA	Well, it sounds like the environment in general in South Africa is becoming increasingly supportive towards woman engineers. Would you say there's a difference, a marked difference between how woman engineers are perceived today than how they were in comparison to a few years ago?
PROF. LACQUET	I can say absolutely yes. When I started to work we were very, very few in the industry. I knew of two other registered female engineers in the country, I happen to know one quite well, and the working environment at the time was such that you were considered to be something really special and most of the guys did not know what to do with you. So one had to make sure that you fit in nicely and not to stress them too much by being too much of a woman in that way. So, and I know a woman in engineering is quite competitive and that doesn't always sit well with some of the guys but they've come to accept that it's okay, people are there and they bring something special to the environment in which they work. So today there is still sometimes when one feels you're being talked down to but that would be uninformed people and typically when they see you and you're a part of a group walking into a room they will talk to the males because they expect you must be like the secretary. It still happens but the moment you open your mouth and you can have a intelligent conversation about the topic and probably know more than they do, then their attitude changes quite rapidly. So I think it's probably just the normal human spirit but over time also this will change.
DR. MALKA	Yes, visual perceptions, and judging a book by its cover.
PROF. LACQUET	Ja, it's true, yes.
DR. MALKA	Now Prof, you were talking briefly about the different developments in the work that you've done, you mentioned I think it was the first photo ... is it photo ...

PROF. LACQUET	Photovoltaic cells.
DR. MALKA	... photovoltaic cells. You've had vast research experience and during the last 19 years or so you had worked in the solid state electronics laboratory, sensor sources, signal processing research group and centre for optical communications and in that period your research has been involved in ion implantation, semiconductor optical detectors, semiconductor devices, optical fibre sensors and a number of different industry projects and one of them I noted was products for visually impaired persons. It sounds incredibly interesting looking at these various research topics and how they're going to evolve into the future for new devices and new products. What would be your advice to high school girls who want to follow in your footsteps and enter into the field of Electrical and Electronic Engineering?
PROF. LACQUET	I think one should start by ensuring that you take an interest in Mathematics, and Physics, Chemistry, Biology, and also in ... to make sure that your language skills are up to scratch. There's a good relationship between what, how good one's language capabilities are versus how well you'll do later in life as well because one can just understand better what you're about to deal with. The reason why one needs to do reasonably well in Mathematics and currently we all say they must have an A in Maths, an A in Natural Sciences but it's actually more than that. One should really understand what it's all about and not only able to do the rote learning part but grow an affinity or start to like what this is all about. Mathematics is like a tool, it's a language we use to describe typical physical phenomena. And Mathematics in principle covers a very very broad range of tools within that field. If one just looks at music, one can analyse music by using the frequency components of music and that is described in mathematical terms quite nicely. One can also look at ... if one looks at an aeroplane and you've got to model the draught of the air over the wings to know why it would actually lift and why it will not fly. We use mathematical models to describe that and if we couldn't it would have been almost impossible to simulate the devices and be able to design them properly so that we can make a difference in our world.
DR. MALKA	And I think one of the benefits with mathematical models and Physics is that they have got absolute rules in place so that you're not making guesses, you, there's a logic and a flow to everything to make sure that things succeed, that things don't fall apart, that the aeroplane does lift when it's supposed to lift and you don't drop out the sky.
PROF. LACQUET	That's right.
DR. MALKA	What's ... would someone typically be expecting from a career if they chose to pursue their interests in Electrical and Electronic Engineering?
PROF. LACQUET	Electrical and Electronic Engineering is actually a very broad field. One can do things from producing photovoltaic cells to integrated circuits which would mean that one is much closer to the physics of these devices or one can then work into systems, systems meaning it could be computer systems, it's a consideration of a lot of different influences to make something specific work. If one looks at a motorcar, it is not only petrol that one puts in that will make it run, there are lots of other things that have to work together carefully in a system to make this vehicle run safely.

	<p>One can go to power generation and one can then go into chemical process control, you can go into process control where people are manufacturing ... make up and all kinds of things if that is something that you like, one can look at the communications industry, one can do software engineering, one can do biomedical engineering which is part of electrical and electronic engineering. One can design new systems for people to use in hospitals, like the PET scanning machine. That was designed by engineers but used by the medical profession and if you go to all their analytical tools, you'll find that there were engineers involved in all of this to have devices around so that people can, we can analyse things better. Modern day advances would be in telemedicine for instance where we would use the, shall I say the internet as well as radio waves, like we're currently talking on to send across information on certain conditions after people have made certain observations about a person and then communicate with somebody far away that can advise you on what to do, one can even do operations from a distance. So there are so many fantastic advances, so if one wants to say where can one fit in, it depends on what you would like to do.</p>
DR. MALKA	<p>Well thanks for elaborating on some of the career opportunities, there is tremendous scope and literally a place for anyone with an engineering mindset or wanting to pursue a career in engineering across the full spectrum. We'll be right back after this.</p>
	<p>AD BREAK</p>
DR. MALKA	<p>In our previous segment Professor Lacquet spoke about women coming increasingly into the Engineering space and transforming the landscape with the particular emphasis of increasing penetration into Mining engineers and Chemical engineers. We also touched briefly on the number of versatile career opportunities that are available within the Electronic and Electrical Engineering and the need to emphasise and strongly pursue Mathematics, Physics, Chemistry and Biology as well as language studies as precursors for anyone who is planning on pursuing a career in this space. Professor Lacquet, throughout the different radio programmes that we've had I've asked our guests who have all made tremendous achievements within their respective fields of expertise about the factors that they consider to have been contributors to their success. Some people have mentioned hard work, others have spoken about perseverance. In your opinion what have been the key drivers to your success?</p>
PROF. LACQUET	<p>Now I wonder how ... where one should start. I think the key driver is that I had some very good mentors when I was very young, just after graduation, and they were all men, interested in that making sure that one is able to follow a career that would be a success one day. And it's also about them creating opportunities initially and later one taking opportunities where you saw them, to go into and be brave and do what you have to do. Hard work, of course but that's something I think everybody has to do every day. When you go to sleep you must know what you've done, why you've earned your keep for the day. But I think success is whether one sees opportunities, whether one creates opportunities, take them and make the best of what that is at the time. And also, if it does not turn out to be the best, like say learn from that and move on to the next opportunity. And also if you have to be in any organisation where you</p>

	<p>sometimes feel you're a little bit oppressed because it seems as though other people are getting all the chances of certain things, put your hand up, go for it. Put forward new proposals on doing things, be seen, be heard, and don't shy away from, from management, don't shy away from your colleagues, be there, and be very supportive of them as well. Because if you're only looking after yourself, that's not working as well I think as it could because who are you going to take with you even if you've got your successes, who will celebrate them with you, so one has to celebrate other people's successes even if you've created those, doesn't matter, in the end it's about working as a team to make sure that we all do better than we would have done as individuals.</p>
DR. MALKA	<p>I think those are really interesting points and incredibly valid on being able to build succession, to drive a team and have a collective spirit for overall success. Now our programme, Womanity – Women in Unity is all about gender equality which increasingly is a global focus and as such building female leadership capacity is important for the future of women, both to our country and to the continent as well as to the institutions like yourself being involved at such a significant level within the University. Which areas do you think that we need to build on the most to benefit women in the future?</p>
PROF. LACQUET	<p>It's quite a complex question actually, one has to go back to history and also understand where people come from, what the various cultures are saying about what the role of the woman is and then also then in society how the contribution that women make is being considered. I think to change a lot one will have to start at a number of places, one is in the homes, I do not think it's okay that one girls should be the people who go out to fetch water for the family alone, I think there should be other means of ways to do that but I know it could be a cultural story because then they are taken out of school to attend to household chores, meaning that they will never be able to get anywhere else with a good education. There are some places where there are lots of pressure on women to, they must be married, they must have children, they must do all these other things otherwise they're not acceptable for whatever that local society is.</p>
DR. MALKA	<p>The stereotypes of society.</p>
PROF. LACQUET	<p>Stereotype of things. Now I guess a stereotype is something that will change very slowly but women also have to play a role in that and perhaps we all have to be more resilient in taking certain criticisms and standing up for what we want to achieve. Because in the end we can actually do everything, I won't say it's a known fact because the guys I know will complain again, but I do think women are better at multitasking. The choices they have to make just becomes more difficult, if you've got a very demanding job you might have to spend more time away from home, then you need a very supporting partner and you may want to have a different setup at your home to manage all the challenges. And I know many women who've actually managed to do that. So I think one should be creative in how you organise your life. There's no reason why they cannot, so in many I think it's education, both of the ... actually of everybody but more so of women so that's not only the education but also the emotional strength on living their convictions.</p>
DR. MALKA	<p>We spoke briefly off-line about changes in mindset and I think that speaks a lot to this particular point and interestingly I think you with your engineering</p>

	background and engineering mindset looks towards how we can overcome challenges, so for instance if it was about fetching water, looking at applying different mechanisms to overcome challenges of culture.
PROF. LACQUET	I think one should, and that could be one of their training programmes in schools already, that one and things that one can do in communities is how to use technology to improve the living conditions of people, it's like how can we use technology to fetch water instead of young girls having to carry big cans of water at a time. And for that's not only the girls in communities who can resolve that but there's a lot of people who need to get involved to do that per se. For instance, there are also, I was told in the mining industry there used to be very few women around and from my university we have graduated quite a number of young female graduates from Mining Engineering and when they started to work in the mining industry they found that it's actually quite difficult. And there were a few things around that, and one is if one just looks at the ablution facilities for women around mines and I can put on record previously it were at other places too but there were not suitable facilities for women and also the kind of clothing that they were asked to wear which was like a boiler suit type of outfit doesn't really work for them and it took a while for the industry to realise, yes, actually we need to look into this and it's not called reasonable accommodation, it is called accommodation and applying their minds on how to do this. And I can give you numerous examples of where one should look at how to make the world slightly easier for, not easier, I would say to make sure it also fits women, just as it would people with disabilities but we need to look out for each other, how can we make it a better environment to work in?
DR. MALKA	Prof Lacquet, South Africa has a Women Empowerment and Gender Equality Bill which is currently undergoing consultation and review. In principle its aim is to promote and achieve equality for women across the board. As a professional and a highly educated woman who has witnessed changes which had taken place in South Africa over the last twenty, thirty years, do you think that legislation in relation to closing gender gaps whether it is in pay, promotion or position is something that could work?
PROF. LACQUET	I think it's a mixed ... I'll give you a mixed response. One has to encourage people to change, and then sometimes one needs some force to change. So it's a mixture of the two, and if by consultation, by consideration, by chatting to people one does not quite get the outcomes that is required like having more women in leadership positions, like having more women in various professions and I would like to come back to that one, I think it's useful to have a legislative framework that can support the drive to do that because not every person that has to make the world work have got the same convictions. And they might come from a different background and a different view on the world which will absolutely not be pro-woman because they've got a view a woman should be in a specific place for their lives. So it's about a transformational agenda but it's more of a, shall I say a mind shift that needs to happen in how people view the role of women and it is not as narrow as they always wanted to make it be.
DR. MALKA	You said that you wanted to come back to a point on women in profession, professional side.

<p>PROF. LACQUET</p>	<p>If one looks at the various professions, say it is like nursing. Nursing notoriously has like 90% women and 10% men. And we as Engineering on the other side was like 95% men and 5% women and is slowly changing. There are lots of stereotyping for nursing as well. So it is not only that one ... it's not only the technical type of fields that one can talk about but also in nursing and teaching and so forth. So across the board I think one has to de-stigmatize who does what kind of a job, that you're not a sissy if you're a man and working as a nurse for instance and that we all appreciate what is being done. If you want to be a fireman, a woman should be allowed to do that. There are lots of stereotyping that needs to be broken down and the people we can break it down would actually be the women. And we, I think some legislative type of support could be useful.</p>
<p>DR. MALKA</p>	<p>Prof Lacquet, now in closing our discussion, could you please share a few words of inspiration or perhaps advice that you would like to pass on to women in Africa who are listening to our show?</p>
<p>PROF. LACQUET</p>	<p>Of course, I'd love to do that. I think I've almost come to the end of my career which is a few years hence but one never stops working and from a lot of the life experiences I wish to encourage every young woman and every older woman to live their lives and to live their dreams. There is, there would be a number of obstacles that will come in your way, but one should see them as I said as a stepping stone for the next thing that you would like to achieve. If there are serious impediments that you cannot overcome, there are always people that one can go and talk to and you can rally some interested parties to make it work for what you would like to achieve. Well, on the other hand we don't all have to become presidents, we don't all have to become astronauts, I think in life we all have to be the best we can, where we are, at the time that we live, and if you do that on a sequential basis you can stay happy with what you do no matter what that is. An achievement is not only to be the boss or to be a leader because even if you are a leader in a very small community, just a leader in your home or a leader of your children, you're still a leader and I think everybody should look up to you for that.</p>
<p>DR. MALKA</p>	<p>Prof Lacquet, thank you very much for offering those important insights. It's been a pleasure having you on the show today.</p>
<p>PROF. LACQUET</p>	<p>Thank you so much for having me and good luck to everybody in Womanity.</p>
	<p>END PROGRAM</p>