

09th & 10th of May 2025

Zuid Afrikaans Hospital
Education Centre

The training course provides a comprehensive curriculum that covers both the theoretical foundations and practical applications of ECMO. It is particularly beneficial for all healthcare professionals seeking to enhance their skills in managing critically ill patients on ECMO. The course's hands-on approach, guided by experienced instructors, allows participants to gain invaluable insights and practical experience, ensuring that they are well-prepared to take on the challenges associated with ECMO therapy.

Moreover, the collaborative learning environment fosters networking opportunities among peers and experts in the field, creating a rich forum for sharing experiences and best practices. This is invaluable for building a community of skilled practitioners dedicated to excellence in patient care.

Course Synopsis

Friday 09th May

1. An overview of the different modes of ECLS support as well as global trends.
2. Introduction to and building of a circuit. (Group splits in 3)
3. The key milestones in the development of ECLS.
4. A didactic lecture on circuit components: cannulas and tubing, centrifugal pump, oxygenator and blender, pressure monitoring and priming the circuit.
5. Simulation Scenario run by the instructors with debrief. (whole group)
6. The physiology of ECLS support, gas transfer in the membrane, oxygen delivery and uptake and the manipulation thereof.
7. Cannulation, configuration for VV and VA ECMO, complications of cannulation including recirculation and differential oxygenation.
8. Respiratory failure and the indications for VV ECMO
9. VV-ECMO: Initiation, maintenance, weaning off the run and decannulation.
10. Cardiac failure and the indication for VA ECMO
11. VA-ECMO: Initiation, maintenance, left ventricular dysfunction, weaning off the run and decannulation.
12. Simulation Scenario by 3 volunteer participants with debrief. (Whole group)
13. Scenario training with debrief and wet lab training. (Group splits in 3)
 - a. Scenarios: Air embolism, pump failure, gas failure, membrane lung failure and drainage insufficiency.
 - b. Wet lab: Air in circuit, connection of circuit to cannula and priming of circuit.

Saturday 10th May

14. Physiotherapy and mobilization of the patient on the ECMO run
15. The need for, types and monitoring of anti-coagulation and transfusion of blood and blood products.
16. Sedation and analgesia: at cannulation, during the run and at de-cannulation.
17. Renal replacement therapy during the ECMO run.
18. Transport: in and inter-hospital, preparations, precautions and monitoring.
19. Procedures during the ECMO run, precautions, preparations and complications.
20. Complications of ECMO: drainage insufficiency, return obstruction, medical and mechanical complications, neurological, bleeding, thrombosis, haemolysis, limb ischemia, cardiac arrest, pump failure, membrane dysfunction, air embolism, circuit disruption, accidental decannulation, and coming off ECMO emergently.
21. A Review of recent evidence for ECMO.
22. The ethics and legalities of terminating ECMO support
23. Scenario training and wet labs at lib.
24. Theory MCQ Examination.
25. Simulation Scenario Competency Practical Examination.

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Faculty

Course Director



Marlice van Dyk

Anaesthetist & Intensivist

I completed my undergraduate studies at the University of the Free State in 1992 and my post-graduate studies as Anaesthetist at the University of the Witwatersrand before completing the Fellowship in Critical care in 2000 at the College of Medicine. I hold a Diploma in Clinical Ultrasound from the University of Melbourne AND have been involved in ECLS delivery since 2012. I am the Director of the Netcare Unitas ECMO Centre.

I have been the South African County Representative on the SWAAC ELSO Steering Committee and am the current President Elect for the SWAAC ELSO Chapter.



Norbert Welkovic

Surgeon & Intensivist

I completed my undergraduate studies in 1992 and my post-graduate studies as General Surgeon in 2002 at the University of Pretoria, obtaining the College Medal for Surgery before completing the Fellowship in Critical Care in 2005 at the College of Medicine. I qualified as ECMO provider in 2015 in Houston and since then have been involved with ECLS delivery as Co-Director for the Netcare Unitas ECMO Centre and as a trainer in the ECMO provider and cannulation courses. I attended various international training courses and simulations since then.

I am currently part of the Standing Committee on Registry and Protocol for SWAAC ELSO.



Theo de Klerk

Specialist Physician & Intensivist

I completed my undergraduate studies in 2005 and my post-graduate studies as Specialist Physician at the University of Pretoria in 2013 before completing the Fellowship in Critical Care in 2015 at the College of Medicine. In addition, I hold the European Diploma in Critical Care obtained in 2019. I qualified as ECMO provider in 2021.

I have been involved with ECLS delivery at the Netcare Unitas ECMO Center since then and took part in ECMO Provider training since 2021. I attended various international training courses in ECLS delivery since then.



Hugo Minnaar

Critical Care Technologist

I qualified as a Critical Care Technologist in 2001 and have since expanded my expertise with an MSc in Clinical Ultrasound. I am also an internationally registered Critical Care Paramedic. Over the years, I have developed a strong focus on education, teaching courses in ACLS, ACLS-EP, PALS, ITLS, and POCUS.

My involvement with ECMO spans more than a decade, beginning with ECMO transport in 2014 and continuing into clinical practice and training. I remain passionate about advancing critical care through hands-on training, innovation, and interdisciplinary collaboration.

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Henli Faber

Cardio-Vascular Perfusionist

I qualified as a Cardiovascular Perfusionist at the Tshwane University of Technology in 2019 when I became part of the ECMO team at Netcare Uitas Hospital. I became an ECMO Specialist, trained in Autologous blood transfusion, Cardiopulmonary bypass and Intra-Aortic Balloon pump management.

Working in the team for more than 7 years my passion in doing ECMO and ECMO-training is clear. Teaching and assisting others to make a difference in patient's lives is something I am also passionate about. I spend time in research and equipping myself and others with new information and updating my skills.



Kaleb Lachenicht

Paramedic & Educator

I started in my career as a paramedic on the road for Netcare 911. I then spent some time in the critical care transport environment before moving to the Netcare Education FECC where I taught on the CCA programme for 4 years. I then moved to AEM to continue my learning in the education space and completed my master's degree in health science education.

After spending almost 6 years in my role as training manager at AEM I have made the move back to clinical work full time. I have kept my appetite for education and teaching satisfied through the launch of EPICEM- where I am able to build on my passion of amazing education experiences in EM with my wife. My primary interests are in the fields of Emergency Medicine and medical education. Currently I am working as a flight ECP and Chief Clinical Officer at Rocket HEMS.



Cariza Impey

Nurse Practitioner & ECMO Co-ordinator

I completed my Nursing Diploma in 1994 and worked as a Clinical Facilitator at Netcare from 2003 to 2005 before joining Carnival Cruises.

I worked as an ICU RN from 2020 at Netcare Uitas Hospital where I qualified as an ECMO Provider and accepted the position as ECMO Co-ordinator for the Netcare Uitas ECMO Centre.



Martin Ellis

Critical Care Retrieval & HEMS ECP, Medical Student

I hold a four-year Bachelor's degree with Honours in Emergency Medical Care and am a registered Emergency Care Practitioner. I have two years of operational experience post-graduation, where I developed a strong passion for critical care medicine, ECMO retrieval, and teaching others about the principles that underpin high-quality patient care. I have completed multiple ECMO training courses, including the ECMO Specialist Provider and Cannulation Course.

I am currently a first-year medical student at the University of the Free State (UFS) and am deeply committed to advancing ECMO systems and critical care through both learning from and teaching others.

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Course Program

Friday 09 May 2025

Early Morning Session

07h00 – 07h15	Signing the attendance register	
07h15 – 07h30	ECMO Overview	Marlice van Dyk
07h30 – 08h00	Building an ECMO circuit	
	Group A	Marlice van Dyk
	Group B	Norbert Welkovics
	Group C	Henli Faber
08h00 – 08h20	The History of ECMO	Marlice van Dyk
08h20 – 08h40	Circuit Components and Priming	Henli Faber
08h40 – 09h20	Simulation Scenario & Debrief	Henli Faber, Theo de Klerk
		Marlice van Dyk, Norbert Welkovics
09h20 – 09h50	Physiology of ECMO	Theo de Klerk

Tea and Light Refreshments

Late Morning Session

10h10 – 10h40	Cannulation	Norbert Welkovics
10h40 – 11h00	Respiratory failure and the indications for VV ECMO Cannulation	Theo de Klerk
11h00 – 11h40	VV ECMO	Marlice van Dyk, Henli Faber
11h40 – 11h50	Cardiac Failure and the indications for VA ECMO	Marlice van Dyk
11h50 – 12h30	VA ECMO	Norbert Welkovics, Henli Faber

Lunch

Afternoon Session

13h30 – 14h15	Simulation Scenario with debrief	3 Volunteer Attendees Marlice van Dyk, Norbert Welkovics Henli Faber, Hugo Minnaar, Kaleb Lachenicht			
14h15 – 17h00	Simulation Scenarios with debrief and wet lab	Marlice van Dyk Theo de Klerk	Norbert Welkovics Hugo Minnaar	Henli Faber	Break
		Group A	Group B	Group C	Group D
14h15 – 15h00		Group A	Group B	Group C	Group D
15h00 – 15h45		Group D	Group A	Group B	Group C
16h45 – 16h30		Group C	Group D	Group A	Group B
16h30 – 17h15		Group B	Group C	Group D	Group A
17h15 – 17h30	Summary of the day, Q & A with debrief	Marlice van Dyk			

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Course Program

Saturday 10 May 2025

Early Morning Session

07h00 – 08h00	Practice (optional)	
08h00 – 08h15	Physiotherapy on the ECMO run	<i>Nordika Nel</i>
08h15 – 08h30	Anticoagulation of the circuit	<i>Marlice van Dyk</i>
08h30 – 08h45	Sedation and ECLS	<i>Marlice van Dyk</i>
08h45 – 09h00	Renal Replacmenet therapy during ECMO	<i>Marlice van Dyk</i>
09h00 – 09h45	Transport	<i>Hugo Minnaar</i>
09h45 – 10h15	Procedures on ECMO	<i>Norbert Welkovics</i>

Tea and Light Refreshments

Late Morning Session

10h30 – 11h30	Complications of ECMO	<i>Norbert Welkovics</i>
11h30 – 12h00	Recent Evidence for VV and VA ECMO	<i>Marlice van Dyk</i>
12h00 – 13h00	The Ethics and Legalities of terminating ECMO Support	<i>Norbert Welkovics</i>

Lunch

with the opportunity for Simulation Scenario practice

Afternoon Session

14h00 – 15h00	Theoretical MCQ Examination	<i>Marlice van Dyk</i>
15h00 – 17h00	Simulation Scenario Competency Practical Examination	
	Group 1	<i>Norbert Welkovics, Hugo Minnaar Marin Ellis</i>
	Group 2	<i>Theo de Klerk, Henli Faber Kayleb Lachenicht, Cariza Impey</i>

The future belongs to those who believe in the beauty of their dreams