

Vision 2020

Department of Chemical Engineering



A beacon in education and research





In 2020, chemical engineering at UCT will be 100 years old. The first chemical engineering degree appeared in the faculty handbook in 1920. Nearly a century later, and a decade on from the adoption of its current vision, mission and goals, the department is looking to the future to define its ideal shape, size and impact in 2020.

Consolidating the past and looking to the future

The process of developing a vision for chemical engineering at UCT both consolidates the enduring aspects of the past and articulates our aspirations for the future.

The department – in common with all major respected chemical engineering schools – is teaching the same fundamental curriculum as it was 100 years ago, because the strengths of the chemical engineering discipline lie in the fundamentals of mathematics and engineering sciences. But, while the fundamentals remain unchanged, the process and outcomes have radically altered.

The framework for Vision 2020 encompasses three main elements: the people, the environment and the

product. Each one of these flows into and feeds off the others. The vision statement that follows is aspirational and describes desired outcomes as if they have already been achieved.

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Vision 2020





There are many different views on the shape of the future. The era of solely logical, linear and procedural-based thinking has come to an end. In this new age we are required to complement this thinking with creativity, integration and innovation. Although chemical engineering is firmly rooted in the basic sciences, we are also adapting to embrace multi-disciplinary thinking.

A new age of engineering

The department is being challenged to contribute to the development of a new age of engineering.

In the industrial revolution – the age of the foundation of engineering – there was an assumption that the planet would always have sufficient resources to provide. However, we are now required to develop skills to take into account a different understanding of the world – one that recognises that resources are limited; one that appreciates the complexity and inter-relatedness of

systems. Instead of a straight line leading from “here” to “progress”, there is a need to think about multiple pathways and plurality, diversity and difference. It is the connections and reconnections between people and ideas, networks and flows and the richness of diversity and multiplicity that are key.

Against this backdrop of a changing, mercurial world, the Department of Chemical Engineering is entering its second century determined to build on the strengths of its past, but also to embrace the challenges of the future.

There is an emphasis on skills that takes into account the world’s limited resources.



Our staff and students

The Department of Chemical Engineering comprises professionals and future leaders.

- Our staff are passionate, committed and caring.
- Our excellent and diverse academic staff are internationally respected as leaders in their fields.
- The department’s research excellence has helped it to rise to global research challenges that also have particular local relevance.
- The department values diversity within its staff and student body. This has helped it to build the UCT Chemical Engineering Department into a sought-after hub for well-respected, international academic visitors.
- Our reputation allows us to attract outstanding students and academics from all over the globe.

The UCT Chemical Engineering Department in 2020 is an internationally recognised, sought-after hub of research excellence with a diverse academic staff who are leaders in their fields.





Modern communication tools, cutting-edge technology and open-ended, innovative approaches are the key to pushing boundaries in our curricula and research.

Our environment

The Chemical Engineering Department of 2020 is a vibrant, exciting, fun place to work. It is home to people who value each other and who are dedicated to helping students and colleagues develop and achieve their aspirations.

The department sets aside time for creative, original thinking. Innovation and inspiration are built into its curricula and research. It recognises excellence and realises academic ambitions. It uses modern communication tools and technology and open-ended, innovative teaching approaches to push scientific boundaries.

It is known for the depth and quality of its research, fostering links between the scholarship of teaching and teaching practice. This is supported by sound principles, the latest research and

dedicated time to deliver innovation in teaching. With its home at UCT – an Afropolitan university – it is a hub for high-achieving African and international scholars. Because the department has the facilities and infrastructure necessary to cross disciplinary boundaries, it can attract industrial grants and work with the best equipment.

The department anticipates and embraces a shift in thinking, in order to grow, evolve and respond with relevance to the global and local environment.

Our achievements

The Department of Chemical Engineering in 2020 focuses on innovation in technology, processes and research. Through its research it is recognised for the imaginative contribution it makes to an improved quality of life and a transformed society, particularly in Africa.

The department houses experts in the transformation of the resource-based economy and in waste and water treatment. With their knowledge, they make a notable contribution to multi-disciplinary research in these fields.

Our programmes nurture BSc, MSc and PhD graduates who are professionals and future leaders.

With their understanding of matters at a systems level, graduates from the UCT

Department of Chemical Engineering can communicate well with others and can work productively in collaborative teams. Their skills and attitudes are relevant to future needs.

As good citizens and great engineers, these graduates recognise the needs of society in general and South Africa in particular. As independent thinkers they value the concept of lifelong learning, and acknowledge their impact on the society around them.



The department's BSc, MSc and PhD graduates are independent thinkers who value the concept of lifelong learning and who acknowledge their impact on society in general.

Coming together

The Vision 2020 of the Department of Chemical Engineering aligns with the five strategic themes of the Faculty of Engineering & the Built Environment (EBE), as well as the six strategic themes of the University of Cape Town.

EBE's five strategic themes:

- 1 Building and transforming the human capital base
- 2 Strengthening the research and innovation focus
- 3 Providing excellent teaching and learning within a research intensive environment
- 4 Valuing and developing all our staff and students
- 5 Ensuring financial sustainability and good governance

UCT's six strategic goals:

- 1 Internationalising UCT via an Afropolitan niche
- 2 Transforming UCT towards non-racialism redress, diversity, inclusiveness and the recognition of African voices
- 3 Working towards a desired size and shape for UCT
- 4 Creating a vision for the development of research at UCT for greater impact and engagement
- 5 Enhancing the quality and profile of UCT's graduates
- 6 Expanding and enhancing UCT's contribution to South Africa's development challenges



Our staff and students

- Our students are professionals and future leaders.
- Our staff are passionate, committed and caring.
- Our diverse academic staff are respected leaders in their fields.

Our environment

- The Chemical Engineering Department of 2020 is a **vibrant, exciting, fun** place to work.
- There is **time** for creative, original thinking, innovation and inspiration.
- With our home at the University of Cape Town – an **Afropolitan** university – we are a hub for high-achieving African and international scholars.

Our achievements

- Our BSc, MSc and PhD graduates are independent thinkers.
- Our graduates recognise the needs of society in general and of South Africa in particular.
- The department focuses on **innovation** in technology, processes and research.
- We are **experts** in the transformation of the resource-based economy and in waste and water treatment.
- Our internationally-recognised research excellence has helped us to rise to global research challenges that have particular local relevance.



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