

Comment on UCT Curriculum Change Framework

Curriculum Change Working Group (CCWG)

Comment: by Emeritus Professor George Ellis (Maths)

1. This document states “The disciplinary traditions evident in the three sites selected for in-depth analysis (Faculty of Health Sciences, the Fine Arts and Drama Departments and the South African College of Music) provide a rich representation of the disciplinary spectrum across the university.” Science and engineering do not fall into this disciplinary spectrum, and are also not represented in the CCWG membership. Consequently it is no surprise that their conclusions are highly contentious as regards those disciplines. The report is a very one sided view that excludes the concerns of major segments of the university community

2. The discussion is fundamentally internally inconsistent and incomplete in that it claims to deal with decolonising in South Africa and then relies on texts by authors such as Maldonado-Torres from Rutgers University, USA, Thayer-Bacon from Indiana University, USA, Grosfoguel from Berkeley, USA, and Bhaskar from University College, London, UK. It’s just aiming to replace one form of colonisation with another, imported mainly from the USA and UK (and expressed in a highly opaque and abstruse language).

3. While Bhaskar’s Critical Realist position may be relevant to the social sciences, it is contrary to the methods and understandings of the hard sciences and engineering, where questions arise such as “Will the bridge fall down heavy lorries and buses cross it?” or “Will this cell phone be able to receive a signal from that transmitting tower?” or “Will this photodiode emit light?” or “Does this computer program have a bug in it?”. These are hard questions with yes or no answers that are unaffected by political or social considerations. Consequently the CCWG document is inapplicable in these cases. The study starts from a wrong basis to understand and engage with the issues involved in these disciplines.

4. Specifically it became clear during the visit of Dr Raju that those pushing the curriculum change framework simply do not understand there is no such thing as “Western Science”, as claimed by him. There is the internationally accepted discipline of science, based in hard data and analytical methods that know no political, social, or ethnic boundaries, which is understood and accepted as such by reputable scientists in all parts of Africa, Asia, Latin America, the Middle East, and indeed across the entire world¹. Any claim we should be pursuing instead some form of Indian or Hindu or African science or mathematics is in fact a claim we should abandon true science as universally accepted across the world and produce students who will be unemployable in this country or anywhere else, except as political hacks or social activists. This university would no longer be able to produce competent engineers, biochemists, physicists, mathematicians, botanists, neuroscientists, to name a few. The question of access to science and maths are relevant however in this discussion and need attention, including key issues regarding language.

5. While it would certainly be useful to have students express their views on the curriculum, and particularly how it is taught, it is unclear how – until they have taken the courses – they would be able to comment meaningfully on such issues as, Do we need a quantum mechanics course before introducing astrophysics of radiation processes? Should Maxwell’s equations precede the Dirac equation or not? Do we need to introduce Lie Group theory before studying partial differential equations? Is it necessary to study peptides before studying proteins? Or should amino acids precede

¹This is made manifest by the existence of organisations such as the *International Centre for Theoretical Physics* (ICTP) in Trieste, the *Third World Academy of Science* (TWAS) also based in Trieste, the *African Academy of Science* (AAS) based in Nairobi, the *ICTP East Africa Institute for Fundamental Research* (EAI FR) in Kigali, Rwanda, and the *Inter-University Centre for Astronomy and Astrophysics* (IUCAA) in Pune, India, which all recognise exactly the same science and mathematics as every university in the West.

both? In what order should one teach crystallization, filtration, drying, and evaporation in a chemical engineering syllabus? It is unavoidable that the design of the curriculum of such courses must be left to specialists in all such areas.

6. The CCWG report has nothing useful to offer in this regard. Their statement is “*Curriculum change, particularly when called for by students, is therefore essentially about contesting power. This contestation of power and the resistance it invokes from gate-keepers, was seen mostly in relation to Science. Doing knowledge in Science, particularly with regards to content, rather than pedagogy, is to be reserved for those who are properly inducted into university legitimated disciplines. Curriculum design is seen as solely the terrain of academic staff, as legitimated bodies*” Either we teach competent courses in these areas, and give the students a degree that makes them employable (and useful to the country), or we do not. The need is for more black students to graduate with the requisite knowledge and then become academics who are a key part of those legitimated bodies because they have the technical competence to make such decisions (the university will welcome them with open arms). Few of them are likely to do so, given the salary levels they will get at UCT as opposed to in the outside world: they are likely to leave academia as soon as they graduate (which happens very frequently, and is one of the most important barriers to transformation of the faculty).

7. In summary: UCT must decide if it will continue to do high quality academic work (both as regards teaching and research) in engineering and the sciences, or not. It can produce degrees in these topics that make students employable, as at present, or it can produce “decolonised” science and engineering degrees that are not worth the paper they are written on. The graduates will be unemployable. The CCWG report is a political document that does not face up to this basic fact.

2018/10/10