**Early Engagement with students in mathematics intensive Bachelor programmes**.

Background

* Students enrolled for mathematics intensive Bachelor programmes (all BEng and some BSc) are often under the impression that they are well prepared for university mathematics. Due to inflated Grade 12 marks and possibly other reasons, this is often not the case.
* Under preparedness regarding mathematical knowledge, lack of study skills, misconceptions about mathematics as a set of recipes are common impediments to students’ success in University mathematics.
* Since 2016 all students in mathematics intensive programmes have been writing a Calculus Readiness Test (CRT) during the orientation week. The statistics of the performance of students in WTW158 and WTW114 have been kept and it has become clear that this CRT is a far better predictor for success in the first semester mathematics modules than is the Grade 12 mark in mathematics.
* The feedback provided to the students after CRT is the first attempt to alert them to the need of possible adjustments of their approach to University mathematics.

What is new in 2020

* Online version of CRT. Students can complete the test during the December 2019 / January 2020 period. The test will be marked automatically and the students will be advised accordingly on their readiness for University mathematics as well as how they can improve on it.
* Preparatory Mathematics moduletaking them through several themes that have been identified as being problematic for first year students. The module is free and fully online. It is implemented in ClickUP. Students will be registered based on their provisional admission. At the end of the module, they write another test, which will show if progress was made in the areas where the students were falling short.

Goals

* Early feedback to students regarding their readiness for university mathematics.
* Identification of gaps in their knowledge i.e. things that they will be expected to know but was perhaps neglected in Grade 12. For example, logarithms have been identified as one of those areas.
* An opportunity to improve students’ readiness through the Preparatory Mathematics module before the year begins.
* An early record of the students readiness and possible intervention where needed

Timeline of the 2020 Early Engagement

* 13 December 2019. Students who have been accepted provisionally into BEng and mathematics intensive BSc programmes will receive an email to notify them about CRT online. They will be invited to do the test, which will be available from 13/12/2019 to 13/01/2020.
* Students can write the test only once. After completion they will receive feedback on their performance and advice on how to improve their readiness.
* Students who have scored below 60% will be strongly advised to complete the Preparatory Mathematics module before the academic year begins. Even if they achieved a fair mark, students will be encouraged to take the Preparatory Mathematics module to further improve their proficiency. The module will remain open from 06/01/2020 to 25/05/2020.
* The CRT during orientation week will be written as usual under controlled conditions using the optical scanner forms.
* Student will receive feedback on both CRT tests during the first week of classes. Where necessary students at risk will be offered further support during the semester.

**Preparatory Mathematics Course landing page** 

*Welcome to the University of Pretoria! We are looking forward to an exciting journey towards your dreams of being a successful student and professional in the workplace in minimum time.
You are, amongst others, provisionally accepted to modules in the Mathematics department (either WTW 114 or WTW 158). Before we start, we think it is important for you to know what you are getting yourself into. The Grade 12 results do not always reflect the mathematics ability of students accurately.
How will you know that you are adequately prepared for the challenges of the mathematics module?
We have developed an online Basic Mathematics test to help you to establish your level of proficiency in mathematics.
This test proves to be a valuable indicator of a students' level of proficiency and also of your chances to complete your studies successfully in minimum time.
Complete the test and let us work together to ensure your success!
To get started, click on the computer setup link.*