

# Faculty of Engineering

## Augmented Remote Teaching, Learning, and Assessment (ARTLA)

### Undergraduate Offering: First Semester 2021

*“In this time of great uncertainty and volatility, we nevertheless strive to provide the best possible service to all our stakeholders. SU offers world-class learning and teaching and unique campus experiences. By working together, we believe we can provide these opportunities and at the same time promote health and safety.”*

*Prof Stan du Plessis, COO, 26 February 2021*

For the academic offering in the 1<sup>st</sup> semester of 2021, Stellenbosch University has planned for three scenarios, depending on the national and DHET lockdown level restrictions regarding the allowed number of students on campus and the allowed number of people in on-campus venues. In all three scenarios we will be offering **Augmented Remote Teaching, Learning, and Assessment (ARTLA)**.

In the Faculty of Engineering this means that a significant component of teaching and learning will continue **asynchronously** and all students will have the benefit of **synchronous teaching and learning activities on a rotational basis**. There is flexibility and differentiation in synchronous teaching and learning approaches. This is to accommodate the disciplinary differences, concerns about health and safety of staff and students, and the availability of COVID-compliant venues and labs with suitable access and technology. Together we will strive for an enriching teaching and learning experience while promoting our health and safety.

In practice, the **default approach** to ARTLA in the Faculty of Engineering will be:

All lectures will be offered **asynchronously**, that is, the lecture material and videos will be uploaded on the SUNLearn site for the module and students will be required to read/watch these in preparation for synchronous teaching and learning activities.

For the **synchronous teaching and learning activities** students will need to participate at a scheduled timetable slot in a

- f2f session (eg. practical, field work), or
- a live session via MS Teams.

There is no expectation that both modes are available for each teaching and learning activity during a scheduled timetable slot.

- **Face-to-face (f2f):** The teaching and learning activity is offered in a physical classroom or facility with lecturers/facilitators and students present in person. F2F learning allows for different teaching and learning methodologies to be used and can contain a blend of traditional classroom methods and online interaction.
- **Augmented**
  - **Type 1:** Synchronous (real-time) streaming and recording of f2f learning opportunities with limited number of students in venue.
  - **Type 2:** Asynchronous provision of material and f2f learning opportunities (with limited number of students in venue) are used to explain pre-recorded material.
  - **Type 3:** Asynchronous provision of material and f2f learning opportunities (with limited number of students in venue) are used for question and answer sessions.
- For some modules, a compulsory synchronous teaching and learning activity for the week may be offered as a f2f session during some timetable slots and as a live session via Team during some other timetable slots.

The tables hereafter indicate the teaching and learning approach that will be used for first semester undergraduate modules. Further details will be available in the module frameworks on SUNLearn from 15 March 2021. Additional information on the academic offering for the 1<sup>st</sup> semester will be shared from time to time and therefore we encourage you to keep an eye on the [Faculty of Engineering Undergraduate Students website](#) and the [COVID-19 Latest Updates website](#).

<b>Modules</b>	<b>Lectures</b>	<b>Tutorials</b>	<b>Practicals</b>	<b>Assessments</b>
<b>Engineering Chemistry 123</b>	Augmented Type 3	Augmented Type 3	n/a	Assessments in form of tests & exams: invigilated sit-down Formative: invigilated sit-down, Online
<b>Engineering Drawings 123</b>	Augmented Type 2,3	Augmented Type 2,3	n/a	Assessments in form of tests & exams: invigilated sit-down Formative: invigilated sit-down, Online
<b>Intercultural Communication 113</b>	Fully online	Mostly Augmented Type 2 and sometimes Augmented Type 3	n/a	Assessments in form of tests & exams: invigilated sit-down Formative: Remote onlin
<b>Applied Mathematics B 124; Engineering Mathematics 115; Engineering Physics 113; Probability Theory &amp; Statistics 114</b>	These modules are offered by the Faculty of Science. The ARTLA in Science module plans can be found here: <ul style="list-style-type: none"> <li><a href="http://www.sun.ac.za/english/faculty/science/for-students/for-undergraduate-students">studentshttp://www.sun.ac.za/english/faculty/science/for-students/for-undergraduate-students</a></li> </ul>			
<b>Chemical Engineering 224</b>	Augmented Type 3	Augmented Type 3	f2f fieldwork that students will take part in	Assessments in form of tests & exams: invigilated sit-down Formative: invigilated sit-down, Online
<b>Civil Engineering 224</b>	Fully Online	f2f	n/a	Assessments in form of Tests & Exams: invigilated sit-down Formative: invigilated sit-down/ Online

<b>Chem C 224;</b> <b>Computer Science E214;</b> <b>Engineering Geology 214;</b> <b>Engineering Maths 214;</b> <b>Mathematical Stats 214;</b>	These modules are offered by the Faculty of Science. The ARTLA in Science module plans can be found here: <ul style="list-style-type: none"> <li>• <a href="http://www.sun.ac.za/english/faculty/science/for-students/for-undergraduate-students">studentshttp://www.sun.ac.za/english/faculty/science/for-students/for-undergraduate-students</a></li> </ul>			
<b>Computer Systems 214</b>	Augmented Type 3	f2f	f2f	Assessments in form of tests & exams: invigilated sit-down Formative: invigilated sit-down, Online
<b>Electrotechnique 214</b>	Fully online	Augmented Type 3	f2f	Assessments in form of tests & exams: invigilated sit-down Formative: invigilated sit-down, Online
<b>Engineering Economics 212</b>	Augmented Type 3	Augmented Type 3	n/a	Assessments in form of tests & exams: invigilated sit-down Formative: invigilated sit-down, Online
<b>Production Management 212</b>	Fully online	f2f	n/a	Assessments in form of tests & exams: invigilated sit-down Formative: invigilated sit-down, Online
<b>Strength of Materials 224</b>	Fully online	Augmented Type 2, 3	n/a	Assessments in form of tests & exams: invigilated sit-down Formative: invigilated sit-down, Online
<b>Systems and Signals 214</b>	Fully online	f2f	f2f	Assessments in form of tests & exams: invigilated sit-down Formative: invigilated sit-down, Online
<b>Thermo Fluid Dynamics 214</b>	Fully online	f2f	f2f	Assessments in form of tests & exams: invigilated sit-down

<b>Thermodynamics A 224</b>	Augmented Type 3	Augmented Type 3	f2f	Assessments in form of tests & exams: invigilated sit-down Formative: invigilated sit-down, Online
<b>Thermodynamics A214</b>	Fully online Live streaming with recordings uploaded	Augmented Type 3 Small group, 1h sessions	Augmented Type 3 Small group 1 hr sessions during the tutorial session	Assessments in form of tests & exams: invigilated sit-down Formative: Online
<b>Chemical Engineering 316</b>	Augmented Type 3	Augmented Type 3	f2f	Assessments in form of tests & exams: invigilated sit-down Formative: invigilated sit-down, Online
<b>Chemical Engineering 317</b>	Augmented Type 3	Augmented Type 3	f2f	Assessments in form of tests & exams: invigilated sit-down Formative: invigilated sit-down, Online
<b>Chemical Engineering D 316</b>	Augmented Type 3	n/a	f2f	Assessments in form of tests & exams: invigilated sit-down Formative: invigilated sit-down, Online
<b>Chemical Engineering D 356</b>	Augmented Type 3	n/a	f2f	Assessments in form of tests & exams: invigilated sit-down Formative: invigilated sit-down, Online
<b>Complimentary Studies 311</b>	Augmented Type 1	Augmented Type 1 Small group work in f2f settings, peer-to-peer	n/a	Assessments in form of tests & exams: Remote online. Method of assessment: Project Formative: n/a
<b>Computer Science 334; Engineering Statistics 314;</b>	<p>These modules are offered by the Faculty of Science. The ARTLA in Science module plans can be found here:</p> <ul style="list-style-type: none"> <li>• <a href="http://www.sun.ac.za/english/faculty/science/for-students/for-undergraduate-students">studentshttp://www.sun.ac.za/english/faculty/science/for-students/for-undergraduate-students</a></li> </ul>			

<b>Control Systems 314</b>	Fully online	f2f	f2f	Assessments in form of tests & exams: invigilated sit-down Formative: invigilated sit-down, Online
<b>Design (E) 314</b>	Augmented Type 2, 3	n/a	f2f	Assessments in form of tests & exams: invigilated sit-down Formative: invigilated sit-down, Online
<b>Electrical Drive Systems 324</b>	Fully online	f2f	f2f	Assessments in form of tests & exams: invigilated sit-down Formative: invigilated sit-down, Online
<b>Electromagnetics 314</b>	Fully online	f2f	f2f	Assessments in form of tests & exams: invigilated sit-down Formative: invigilated sit-down, Online
<b>Electronics 315</b>	Fully online	f2f	f2f	Assessments in form of tests & exams: invigilated sit-down Formative: invigilated sit-down, Online
<b>Engineering Informatics 314</b>	Fully online	Augmented Type 2, 3	n/a	Assessments in form of tests & exams: invigilated sit-down Formative: Online
<b>Heat Transfer A 326</b>	Augmented Type 3	Augmented Type 3	f2f	Assessments in form of tests & exams: invigilated sit-down Formative: invigilated sit-down, Online
<b>Hydraulics 324</b>	Augmented Type 2, 3	Augmented Type 2, 3	Augmented Type 3 Presentation is online, but experiment can be done at home or in lab, with report to be submitted online	Assessments in form of tests & exams: invigilated sit-down Formative: invigilated sit-down/ Online

<b>Machine Design A314</b>	Augmented Type 2, 3	Augmented Type 2, 3	n/a	Assessments in form of tests & exams: invigilated sit-down Formative: invigilated sit-down
<b>Manufacturing Systems 314</b>	Augmented Type 3	Augmented Type 2, 3	Augmented Type 3	Assessments in form of tests & exams: invigilated sit-down Formative: Online
<b>Modelling 334</b>	Fully online Videos and documents to replace F2F lectures.	f2f Class will be split into 4 groups. Each group will do a tutorial in the venue. One group at a time.	f2f A limited number of students will be using the lab at any given time	Assessments in form of tests & exams: invigilated sit-down Formative: invigilated sit-down, Online
<b>Particle Technology 316</b>	Augmented Type 3	Augmented Type 3	f2f	Assessments in form of tests & exams: invigilated sit-down Formative: invigilated sit-down, Online
<b>Philosophy &amp; Ethics 314</b>	Augumented Type 2	n/a		n/a A2, A3: invigilated on-campus Class tests, Quizzes, etc Online
<b>Production Management 314</b>	Fully online	f2f	n/a	Assessments in form of tests & exams: invigilated sit-down Formative: Online
<b>Strength of Materials W334</b>	Fully online	Augmented Type 3	Augmented Type 3	Assessments in form of tests & exams: invigilated sit-down Formative: Online
<b>Systems and Signals 315</b>	Fully online	f2f	f2f	Assessments in form of tests & exams: invigilated sit-down Formative: invigilated sit-down, Online

<b>Technical Communication 311</b>	Fully online	Augmented Type 3	n/a	All Assessments: Remote online
<b>Transport Science 324</b>	Fully online	f2f	f2f	Assessments in form of tests & exams: invigilated sit-down Formative: invigilated sit-down/ Online
<b>Water Treatment 324</b>	Fully online	Augmented Type 2, 3	n/a	Assessments in form of tests & exams: invigilated sit-down Formative: Online
<b>Chemical Engineering 424</b>	Augmented Type 3	Augmented Type 3	f2f	Assessments in form of tests & exams: remote online Formative: Remote Online
<b>Chemical Engineering 426</b>	Augmented Type 3	Augmented Type 3	f2f	Assessments in form of tests & exams: invigilated sit-down Formative: invigilated sit-down, Online
<b>Computer Science E414</b>	<p>These modules are offered by the Faculty of Science. The ARTLA in Science module plans can be found here:</p> <ul style="list-style-type: none"> <li>• <a href="http://www.sun.ac.za/english/faculty/science/for-students/for-undergraduate-students">studentshttp://www.sun.ac.za/english/faculty/science/for-students/for-undergraduate-students</a></li> </ul>			
<b>Computer Systems 414</b>	Fully online	f2f	f2f	Assessments in form of tests & exams: invigilated sit-down Formative: invigilated sit-down, Online
<b>Control Systems 414</b>	Fully online	f2f	f2f	Assessments in form of tests & exams: invigilated sit-down Formative: invigilated sit-down, Online



<b>Data Analytics (E) 414</b>	Augmented Type 2, 3	f2f	f2f	Assessments in form of tests & exams: invigilated sit-down Formative: invigilated sit-down, Online
<b>Electronics 414</b>	Fully online	f2f	f2f	Assessments in form of tests & exams: invigilated sit-down Formative: invigilated sit-down, Online
<b>Energy Systems 414</b>	Fully online	f2f	f2f	Assessments in form of tests & exams: invigilated sit-down Formative: invigilated sit-down, Online
<b>Energy Systems 424</b>	Fully online	f2f	f2f	Assessments in form of tests & exams: invigilated sit-down Formative: invigilated sit-down, Online
<b>Energy Systems M434</b>	f2f	f2f	n/a	Assessments in form of tests & exams: invigilated sit-down Formative: invigilated sit-down, Online
<b>Environmental Engineering 414</b>	Augmented Type 3	Augmented Type 3	n/a	Assessments in form of tests & exams: invigilated sit-down Formative: invigilated sit-down, Online
<b>Finite Element Methods 414</b>	Augmented Type 2, 3	Augmented Type 2, 3	f2f	Assessments in form of tests & exams: invigilated sit-down Formative: invigilated sit-down, Online
<b>Food Process Engineering 414</b>	Fully online	Augmented Type 3	f2f	Assessments in form of tests & exams: invigilated sit-down Formative: invigilated sit-down, Online

<b>Heat Transfer A414</b>	Augmented Type 2, 3	Augmented Type 3	f2f	Assessments in form of tests & exams: invigilated sit-down Formative: Online
<b>High Frequency Techniques 414</b>	Augmented Type 2, 3	f2f	f2f	Assessments in form of tests & exams: invigilated sit-down Formative: invigilated sit-down
<b>Hydraulic Engineering 424</b>	Fully online	Augmented Type 2, 3 for term 2 f2f for term 1	f2f Visit to CSIR, subject to CSIR approval	Assessments in form of tests & exams: invigilated sit-down Formative: invigilated sit-down/ Online
<b>Hydrology 424</b>	Fully online	f2f	n/a	Assessments in form of tests & exams: invigilated sit-down Formative: invigilated sit-down/ Online
<b>Industrial Ergonomics 414</b>	Augmented Type 3	Augmented Type 3	Fieldwork f2f	Assessments in form of tests & exams: invigilated sit-down Formative: invigilated sit-down, Online
<b>Information Systems 414</b>	Augmented Type 1	Fully online	Fully online	Assessments in form of tests & exams: invigilated sit-down Formative: invigilated sit-down, Online
<b>Maintenance Management 414</b>	Fully online	f2f	Augmented Type 2, 3	Assessments in form of tests & exams: invigilated sit-down Formative: invigilated sit-down, Online
<b>Mechatronics 424</b>	Fully Online	Fully Online (tutorials are selfstudy, student will require access to software in Firga)	f2f	Assesment inform of Test & Exams : invigilated sit-down Formative: invigilated sit-down, Online

<b>Minerals Processing 415</b>	Augmented Type 3	Augmented Type 3	f2f	Assessments in form of tests & exams: invigilated sit-down Formative: invigilated sit-down, Online
<b>Numerical Fluid Dynamics 414</b>	Augmented Type 2, 3	f2f	n/a	Assessments in form of tests & exams: invigilated sit-down Formative: invigilated sit-down, Online
<b>Operations Research 415</b>	Fully online	Augmented Type 3	n/a	Assessments in form of tests & exams: invigilated sit-down Formative: invigilated sit-down, Online
<b>Philosophy &amp; Ethics 414</b>	Augmented Type 2	n/a	n/a	A2, A3: invigilated on-campus Class tests, Quizzes, etc Online
<b>Project (Civil) 418</b>	There are no lectures for this module. Students see their lecturers in weekly one-on-one supervision meetings	n/a	f2f May only apply to certain students, depending on project	Submission of report: Online Oral presentation: Online / f2f
<b>Project Management 412</b>	Augmented Type 3	Augmented Type 2, 3	n/a	Assessments in form of tests & exams: invigilated sit-down Formative: Online
<b>Structural Design 424</b>	Augmented Type 2, 3	Augmented Type 2, 3	n/a	Assessments in form of tests & exams: invigilated sit-down Formative: invigilated sit-down/ Online
<b>Systems and Signals 414</b>	Fully online	f2f	f2f	Assessments in form of tests & exams: invigilated sit-down Formative: invigilated sit-down, Online

<b>Telecommunication 414</b>	Augmented Type 2, 3	f2f	f2f	Assessments in form of tests & exams: invigilated sit-down Formative: invigilated sit-down, Online
<b>Transport Science 434</b>	Fully online	Augmented Type 2, 3	f2f	Assessments in form of tests & exams: invigilated sit-down Formative: invigilated sit-down/ Online