**Leanne Compton:** Hi, my name Leanne Compton and I'm the Curriculum Manager for Design and Technologies at Victorian Curriculum and Assessment Authority. This video is one in a series of videos that we are developing to support teachers to deliver the curriculum assessment for VCE Systems Engineering in 2021. This video focuses in on developing School-assessed Coursework.

Colin Chapman, who is the state reviewer for VCE Systems Engineering, will take you through this presentation. Over to you, Colin, thank you.

**Colin Chapman:** Thank you, thank you for this opportunity to work with teachers across the state to improve our practise with regards to school-based assessment and in this case, particularly School-assessed Coursework. So School-assessed Coursework is an opportunity for teachers to work with the students that they have in any particular year as practitioners in the field in which they are studying. Here is the copyright statement from the Victorian Curriculum and Assessment Authority.

The system for assessing the progress and achievement of students must be accessible, effective, equitable, reasonable and transparent. These inform the assessment principles for the VCAA. The purpose of school-based assessment is to rank your student cohort for your particular school. The ranking of your student cohort for the SAT may differ from your ranking of student cohorts for the SACs as well as for the ranking of student cohorts for the external system examination. These differences are brought together through statistical moderation. So each of these is regarded as a separate graded assessment and we do not expect the ranking to be the same for each of these separate graded assessments.

VCE assessment should be valid and reasonable. The curriculum content to be assessed is explicit in each study design and related VCAA document. You should assess those things which ought to be assessed and you should check your assessment instruments to make sure that they are indeed assessing what you are expected to assess. The assessment instruments should not assess learning that is outside the scope of any particular study design.

VCE assessment should be equitable. Assessment should neither privilege nor disadvantage students or exclude them based on gender, culture, physical disability, socioeconomic status or geographical location. In fact, it is your job to make sure that your assessment advantages your students and uses their strengths to get the best response using the instrument that you are using for any particular assessment. This means that you need to make sure that learning and teaching activities are carried out before assessment is carried out so that you may have evidence through formative assessments, such that you can develop tasks, which are personalised to your individuals. Tasks that can be undertaken by people who can then perform on an equitable basis with others despite their background.

VCE assessment should be balanced. It should provide a range of opportunities to demonstrate in different contexts and modes the knowledge, skills, understanding and capacities set out in the curriculum. Opportunities to demonstrate skill really need to have a range of different opportunities so that we can see effective demonstration. The demonstration of different levels of achievement specified by suitable criteria, descriptors, rubrics or marking schemes must be supported. And that means we need to develop learning and teaching activities to support those things we wish to assess with the instruments we are using backed by appropriate criteria descriptors and rubrics.

VCE assessment should be efficient. The study design will set out the minimum assessments for teachers to make a robust judgement of each student's progress and learning. Demands for precision must be balanced with those for efficiency. We need to give an effective rank for our students for each of the graded assessments. And we need to develop instruments and processes such that we can develop that rank without giving undue work for the individuals that we're trying to rank. So we need to make sure it's efficient. Learning and teaching activities should be designed to provide stimulus, engagement, and personalisation with respect to the mandated outcomes. The stimulus material that you use in the design of your assessment task should be personalised to the cohort that you're working with in any particular year. It needs to be engaging. Some suitable activities as you're moving towards assessment are excursions and visits. These can be real and/or virtual. They can be local and embedded in the community in which you are. Use these opportunities to give a real opportunity for the students to be deeply engaged in the stimulus material that you will use in order to develop an assessment for the school-assessed coursework. Those students who have opportunities to be able to use actual experiences and activities or be engaged with things in their communities are important for them to demonstrate strong responses to the rubrics, marking schemes and assessment criteria that you are using.

Experiments and demonstrations. Again, they can be real or virtual. An example of this for System Egineering may well be the SAC that is used for Outcome 2 for Unit 3 where there is an investigation of both renewable and nonrenewable energy sources. And it's hard not to miss the technology involved with scrubbers on power stations, particularly coal-fired power stations. Students may talk about various nitrous oxide type scrubbers. Well, rather than make this a purely descriptive activity, it is a fairly straightforward matter to develop an experiment where the action of a scrubber can be demonstrated in class. Make a connection with the science department in your school, work with them to obtain some nitric acid and some copper shavings. Mix that together to provide NOx gas, which is a brown gas and they'll be able to go through safety procedures and so on with you. And then push that gas through a test tube of activated charcoal. Activated charcoal's got a very large surface area. It binds with the NOx gas and it removes it from the test tube. This is a very good demonstration of how a scrubber actually works. It means that the students can be engaged with the process itself, rather than simply reading about it or simply listing it. Now, there are all sorts of things that the students can talk about with regards to scrubbers as a result of experiencing the activity through an experiment and that could include such things as how often you need to replace the material that's being used to absorb the NOx compounds. It can be associated with ideas about how quick the process might be and so on. It means they can talk about these technologies and justify their use, critique their use and make judgements about their use. These are all higher-order skills. Simply talking about an NOx scrubber is a listening activity. Being able to comment on its effectiveness and use is a higher-order activity, which allows you to reward the students. It means that they can implement a scrubber as a model and they can critique that model. We can develop simulations and/or models.

It's also possible for students to develop animations and processes as well, using simple software, such as slide presenting software and so on. These simulations can be real and/or virtual, supported by multimedia presentations. This will allow students to develop a response to stimulus material, which is situated in something they have actually done, rather than read about. We would encourage multimedia use, using videos, images, simulations, experiments, interviews. Really the multimedia type response is very, very open. It is important that the multimedia response is able to address all the outcomes and that the task that's developed for the school-based School-assessed Coursework is specified in such a way that the students are aware of those things that need to be demonstrated. This is supported by rubrics or marking schemes, which make explicit and transparent those things that you are looking to assess and how you might assess them. We are not expecting the multimedia presentation to be flawless. We do expect that the evidence can be seen and that demonstrations can be seen and so on but the student is not being marked on the quality of the multimedia presentation. They are being marked on the skills and knowledge that are expected to be demonstrated in their response to a task that you have designed as a personalised activity for the cohort with whom you are working in any particular year.

So here is Unit 3, Outcome 2. Discuss the advantages and disadvantages of renewable and nonrenewable energy sources and analyse and evaluate the technology used to harness, generate and store nonrenewable and renewable energy. And you can see the assessment tasks. Any one or a combination of. When we're looking at combinations, we need to make sure that we keep in mind the concern for efficiency. We do not want to over-assess any particular student. And you can see there that we've got the multimedia/simulation presentation or report as one of the options.

In Unit 4, we're looking at evaluating a range of new or emerging systems engineering technologies and analyse the likely impacts of the selected technologies. Notice it says likely so that speculation is permitted as long as it's justified and considered. And again, the range of assessment tasks is quite broad.

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