Video Title: MSc Advanced Materials and Additive Manufacturing – Dr Justin Steele-Davies

Hello, I am Dr Justin Steele-Davies and I'm the academic lead for the University of Derby Online Learning for Engineering.

So I'm here today to talk to you about MSc Advanced Materials and Additive Manufacturing. This is a brief outline of what I'm going to cover. I'm going to talk a little bit about the programme, something about the programme team, what to expect in the first term and beyond, what you can do throughout your study to help you with your studies with some practical hints and tips, how to interact the tutors and other students on the programme and a little bit about reading lists and research.

So it's related to advanced manufacturing. Many other MScs in advanced manufacturing will have a component that is additive manufacturing within it and likewise within this programme we also cover traditional manufacturing techniques within some of the additive manufacturing modules as well as some of the materials modules because that's an important part around design and material selection process. So there is a focus on design and a focus on practical application that brings in other manufacturing processes, not just additive manufacturing, although obviously there are several modules within the programme which are specifically focused on additive manufacturing.

The programme is entirely studied online at a distance although there are some examinations which will be time controlled during those assessments. There is a 1 week residential to complete the programme so that 1 week residential involves coming to the UK and studying for a week in the advanced labs that we have here both at the Institute for sustainable engineering and at the main engineering campus and those facilities are part of the industrial facilities that we have as part of our research activity with local companies such as Bombardier and Rolls Royce and Toyota all in the local area and work with the engineering faculty staff.

The programme at the moment is applying for accreditation with the Institute of Materials, Minerals and Mining and that will be for CEng and CSci chartered engineering and chartered scientist so completing the programme once that's in place will enable you to be on the pathway to get chartered engineer or scientist at the end.

So a little bit more about me. I'm responsible for the engineering programmes at the University of Derby Online Learning. So any programme related questions there are, I'm here to solve those. We also have online learning advisors, in this case its Marsha Carty supports the engineering team and they provide support and guidance around non-academic matters such as enrolment and fees and those sorts of things and they provide that very quick response for the more technical queries that you might have during the programme. We also have a module delivery team and that team is both office based within the University of Derby and also we have remote staff at other higher education institutions

in the UK and around the world. And almost all of those staff are based in full time HE roles and also covering the online course as part of their portfolio of work.

At the very beginning you'll start on 2 modules and those are 10 credit modules so that adds up to a total of 20 credits for the study in the programme. So a standard module is 20 credits which corresponds to 200 hours of study and the study week time period is 10 weeks with your assessment submission in the 11th week.

The terms or trimesters run on a 17 week cycle so you have 10 weeks of study and a 7 week marking and administration period and then it starts off with another trimester and there are a total of 3 trimesters a year.

It's really important that you timetable in your work so that you make sure that you make time for that study because 20 hours a week on top of your current workload may well be quite a significant impact.

This is brief outline of what studying on the programme is like. You can actually enter in trimester 3 as well as trimester 1. I don't believe we have an entry point at the moment for trimester 2 but that may well change at some point in the future. The research methods and environmental and ethics modules, those modules run side by side and they're 10 credits each and they're always the first modules that you do and then currently in trimester 2 we run advanced materials and that follows a Cambridge engineering selector approach to delivering materials content so you'll be expected to use Cambridge engineering selector to identify optimal materials for different applications as part of your studies for that module. Then in the 3rd trimester we run the CPD module so that now we're over here and that'll be the end of year 1. This is a compulsory module as part of all of our MSc professional programmes.

In the 2nd year we do Additive Manufacturing Processes. This starts in September and ends just before Christmas. There is a one week residential. The one week residential happens in January so just after the module has completed and at that point you get to do some practical hands on activity and you'll also an examination linked with that module in that time. Then you've completed all of the core modules. These are all the core modules that you need to do for the programme and these are the options so you need to choose 2 modules from these optional ones. There's the Data Visualisation module, there's Design and Materials selection and then there's Additive Manufacturing applications and I think the Data Visualisation also runs in trimester 2 so you can choose to do that in trimester 2 and do Design and Materials selection for this one and Data Visualisation recognises the need to have an ability to process large quantities of data and visualise it in a way that is compelling within a business context. Increasingly engineers are expected to be able to communicate the design requirements or their specific application changes in the context of data analytics and data analysis.

In the final year you would do your Independent studies. This is 3 year trimester an entire years' worth of study working on a specific project related to Advanced Materials and

Additive Manufacturing, where you would get supervision from a member of staff on that project. If it's a hardware based project and you need to use hardware at the University then you'd need to be based on site in order to do that hardware based project.

What to do in your first term and throughout your study. The first thing you need to do is get familiar with the student portal. The student portal gives you access to all the essential information and you need to take a little bit of time looking around that and also keep using it and going to the student portal. There is a student orientation programme you should complete that and that'll give you an idea about what you need to do in terms of applying for support plans and late submissions and a variety of other things that you might need throughout your studies. It also gives you hints and tips on practical ideas about studying for online courses because it can be quite a shift if you're used to more face to face delivered programmes.

You should participate in the icebreaker activities for each module. There may also be icebreaker activities at the programme level. You need to introduce yourself to other students on the programme and they can engage with you as well and you should also familiarise yourself with the library website and go to the lib guides. You'll be using them a lot and we'll get into that in a bit more detail in a second.

You need to draw up your own timetable for when you're going to be doing your study. You need to identify when in the week that you're going to be doing your study and use your study patterns so that you know when your modules are going to be covered so that you can plan in your time to work on the modules. Get that diary on the wall or in your electronic calendar or whatever you choose. You need to make sure you're using the University email service that's available to you currently that's using Office 365. You can link it to your phone or you can link it to your desktop email client. Make sure you use it because that's the primary mode of communication outside of the module space for the programme.

Use the resources available to you so we will have information available on the programmes and modules that will help you in the study but you also need to make sure you subscribe to industrial newsletters related advanced materials and additive manufacturing and relevant professional engineering institutes such as the Institute for Materials, Minerals and Mining.

If you have any questions make sure you ask. We have the OLAs there so Marsha there to help you at any time. If you're having any difficulties, again, tell us if there's a problem. We also have a dedicated IT support team who you can contact via an email provided on the portal page.

We are here to help you succeed. We want you to do well and gain a lot from the programme so if there are problems let us know and we can look into it in more detail.

In terms of interacting with an online course with tutors and other students, the primary mode of communication is using the discussion forums. This is an asynchronous tool that allows you to post responses to learning activities. The learning activities are written within the

module within the unit structure and they're designed to help you focus on what you need to learn within in each section of content. You'll be encouraged to share your experience and thoughts and research findings with other students and that's both to embed the knowledge for yourself and also encourage other students to consider their understanding of the topic. If you're talking about something that isn't quite correct then obviously the tutor will engage and hopefully provide a different understanding of that specific topic to improve your understanding.

Remember to ask questions. There's a café forum and a frequently asked questions thread and you usually receive responses within 48 hours, so 2 working days. In some cases the tutors will be providing you with their working pattern. They'll be working 5 days a week but they won't always necessarily be working UK working days. They may well be working on Saturdays and Sundays as well. Use the email address for personal and confidential matters, either with the tutor or with the OLA. If it's specific to the academic content then you should again be using the discussion forum and the FAQ forums.

You will also get Blackboard collaborate sessions for each of the modules in which the tutor will provide either a live Q and A session around specific content in the module but they also will provide maybe a specific question that is going to be covered during that Q and A session and you'll have the opportunity to talk to the tutor verbally during that session and those sessions will be recorded and made available to all students on the module. It is possible to do phone calls or Skype calls with the tutor if that's required after having met the needs for the live collaborate sessions which are recorded and made available to everyone.

Finally, we get to the reading lists. It's really important. There's a mix of core text on this programme as well as a variety of texts for some of the modules. Sometimes the core text such as the Ashby text in Advanced Materials is a standard text used throughout many Advanced Manufacturing courses and so those underlying principals are the same no matter where you go. But also Additive Manufacturing is something that's been changing on a very fast basis in terms of being a prototype tool to becoming a manufacturing tool that's used for high end engineering such as aerospace applications in flying parts. There will be reference to journal articles and there'll be expected references to current research activity. You should also do your own research. Make sure you use the library resources that are linked to on the lib guides page. Look for industrial news and current trends and affairs. Attend relevant conferences if they come up and also look at your professional bodies again for what's going on within that sector and discuss those ideas with the students on the course because if you've come across something interesting and discuss it then it may be that other students will come up with something that may well prompt you to think about that in a deeper and more meaningful way.

We've covered the programme, the programme team, what to expect, the study pattern, with some practical hints and tips and some ideas about how to work on the course and where to get research information from.

I hope this has been helpful and look forward to you engaging in the course in the future.