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TECHNISCHE UNIVERSITÄT DRESDEN

ITM LEADING IN FIBRE & TEXTILE TECHNOLOGY
The Research Institute of University of Excellence

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ICT-TEX
ICT IN TEXTILE AND CLOTHING HIGHER EDUCATION AND BUSINESS

Apparel Design and Production

Curriculum and Interaction possibilities

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ICT IN TEXTILE AND CLOTHING HIGHER EDUCATION AND BUSINESS (ICT - TEX)
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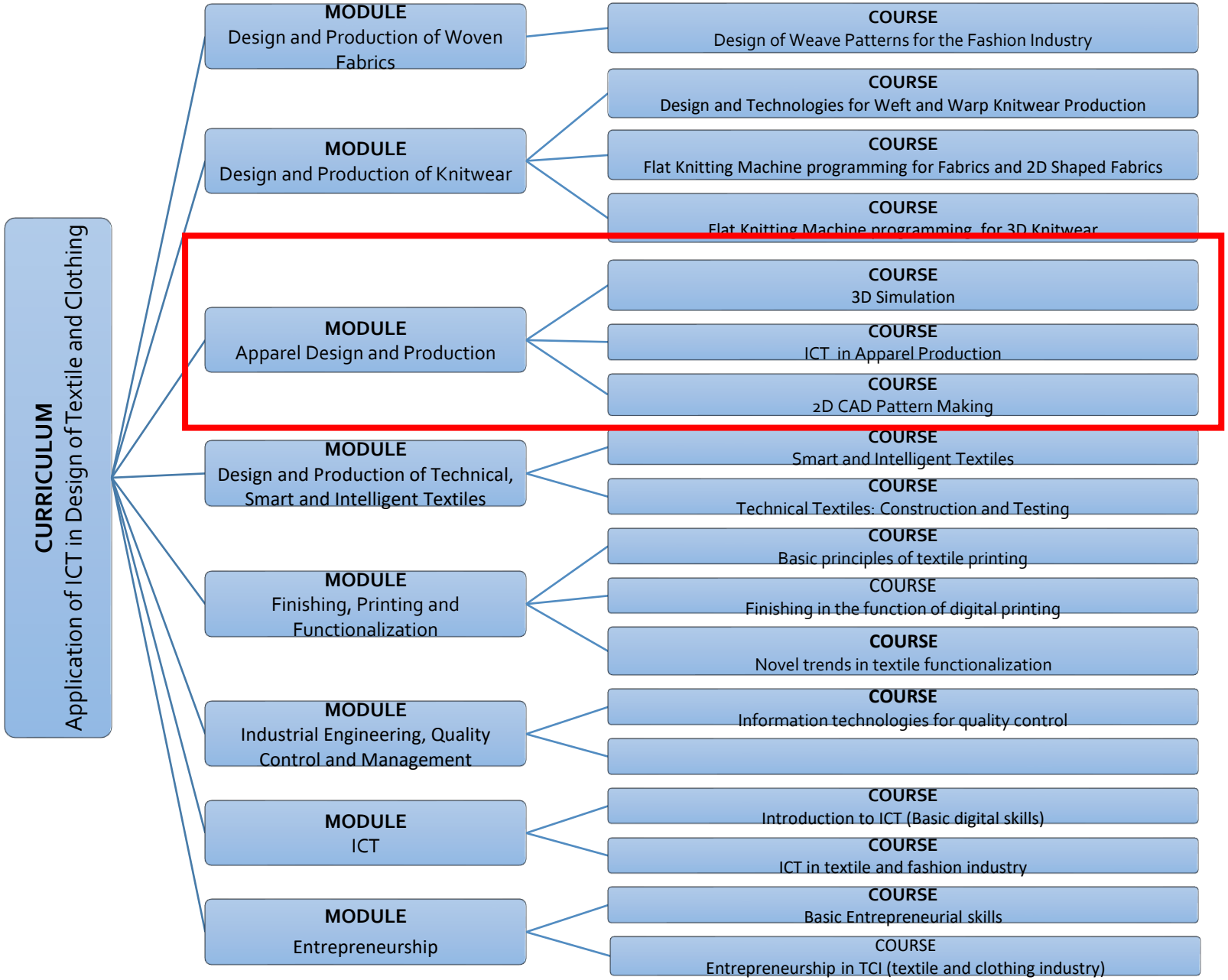

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MODULE – APPAREL DESIGN AND PRODUCTION

Course: 3D Simulation

Duration: 30 hours

Course objectives

Three-dimensional (3D) virtual prototyping is getting increasingly importance for apparel design. Based on the utilization of 3D CAD simulation, the product development in the clothing industry becomes faster and faster. The integration of 3D CAD systems for garment design leads to higher accurate cloth fitting. During the course the participants will be guided to create the virtual garments from fashion design idea analyzing the principal aspects of 3D simulation by using specific software.

Topics

- Introduction of 3D simulation
- 3D virtual model
- Virtual fit simulation in CLO3D

Learning outcomes

Knowledge	Skills	Responsibilities/autonomy
- To have an overview about the application of 3D simulation in the clothing sector - To evaluate pro and cons of 3D simulation - To be aware of the different steps and methods to apply in the 3D simulation process - To understand the importance and the procedure to create a 3d virtual model - To get knowledge of the main functionalities of the CLO3D software	- To realise an avatar choosing the more suitable principles and characteristics in accordance with the product purposes and features - To apply different methods to generate a 3D human model, checking for and making eventual corrections and setting a system of sizes - To run CLO3D software using its different functionalities: avatar customization, 2D patterns settings, material and details characterization, grading, rendering and animation - To evaluate the fit, making corrections and changes to obtain the desired result / effect	- To develop a fashion solution using 3D virtual prototyping technology sourcing from traditional craftsmanship knowledge - To translate ideas and vision into experiments and digital products relating them to fashion tendency and production processes - To use traditional garment craftsmanship

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MODULE – APPAREL DESIGN AND PRODUCTION

Course: ICT in Apparel Production

Duration: 30 hours

Course objectives

The garment industry invariably goes through short fashion cycles. To survive in the market, regular innovations in colour, style, design, fabric, finish and fit are needed. Automated machinery and IT solutions are keys in such a scenario. Automations for cutting, sewing, buttonholes, CAD/CAM for pattern making, etc., have brought down the cost of production considerably. Garment companies now focus on technology to be productive and cost-effective at the same time, which means skilled and constantly updated workforce. The course is focused on the analysis of the interconnections between innovative technologies and standard production process in order to equip learners with relevant skills and knowledge.

Topics

- Sewing machines
- Automation in apparel production
- Spreading/cutting
- Material management and work planning
- Finishing
- Welding technologies
- Production systems

Learning outcomes

Knowledge	Skills	Responsibilities/autonomy
- To know different type of sewing machine, including the automatic ones, being aware of their components and specific functionalities - To appraise automation practices in apparel production, their peculiarities and applications - To apprehend different type of cutting and welding technologies - To understand material management and work planning principles - To understand the features of different apparel production systems, digitalization and machine networking systems	- To operate different kind of sewing machines, being able to fix the different problems that may occur during the operations - To set the sewing machine in accordance with the apparel production type - To apply cutting and joining methods and technologies - To use CAD software for pattern making - To set inventory control systems for material flows management - To use digital tools for maintenance purposes - To apply different finishing processes being able to proceed to their digitalisation	- To set an effective work-planning defining a sewing floor for smooth production management - To select the production system more suitable for the production type, using digitalization to increase the efficiency

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MODULE – APPAREL DESIGN AND PRODUCTION

Course: 2D CAD Pattern Making

Duration: 30 hours

Course objectives

Today's clothing industry is moving toward using advanced technology in designing and pattern-drafting. Clothing companies continuously seek new solutions for saving time in product development and generally increasing efficacy in activities raging form, the design process through the manufacturing process. Such programs can enhance communication, ease flow, an produce cost effectiveness at all stages. 2D CAD Pattern Making is a knowledge-intensive and creative course that will lead learners across different pattern making techniques taking into consideration materials, colours and styles combination. Lessons are taught using specialized CAD software (e.g. AccuMark, Gerber Technology, Lectra).

Topics

- Introduction to CAD functionalities
- Algorithms for pattern making of basic apparel constructions
- Algorithms for pattern making of specific garment elements
- Modelling techniques for different garments
- Computer grading of details
- Design of gathered elements

Symmetry and asymmetry principles

Learning outcomes

Knowledge	Skills	Responsibilities/autonomy
- To be aware of pros and cons of CAD clothing systems - To understand the software main features and functionalities - To know and understand different textile material properties and related design techniques principles - To understand body anatomy, measurements and grading - To appraise symmetry and asymmetry in the construction of clothing - To acquire a sense of the volume, proportions and aesthetics criteria - To know different grading methodologies	- To apply modelling and tailoring techniques - To calculate structural dimension of the drawing parts applying proportionality principles - To apply different pattern making methods according to style and functional requirements - To apply different techniques for the design of gathered elements (folds, pleads, draperies) - To practice specific pattern making algorithms for specific garment elements and details (sleeves, collars, lapels, pockets, facings) - To grade details using different functions / methods, making measurements and adjustments	- To entirely manage the different phases for a garment modelling and prototype - To recognize and take into account the connections between design, material properties and production requirements - To translate design elements into new products paying attention to aesthetic and formal qualities and performance (comfort, safety, durability, etc.)

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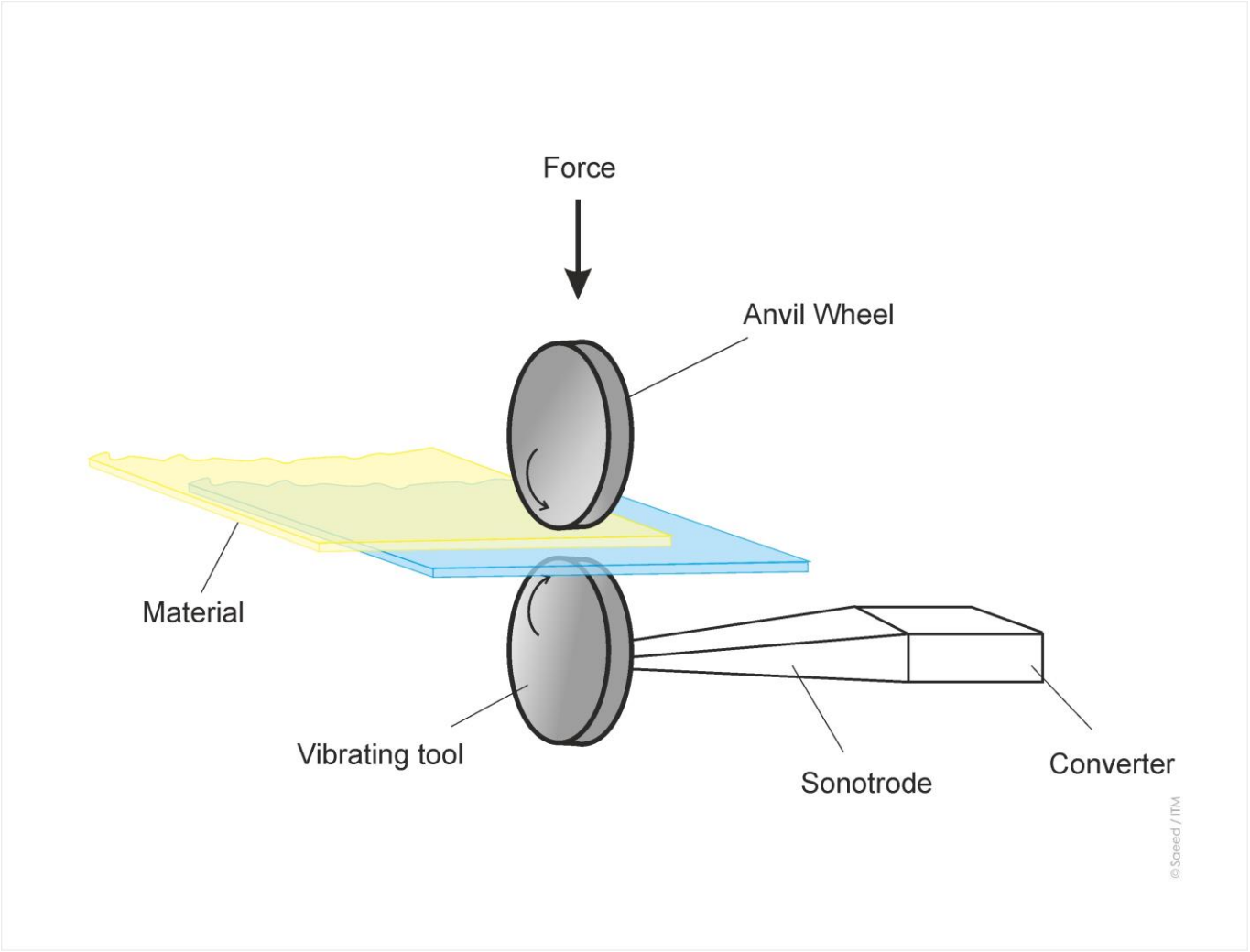
Interactivity Possibilities

Pictures

- conventional schematic diagram is stationary
- Identification of key elements of image
- Requires good imagination of learners
- Usually in .jpeg and .png format



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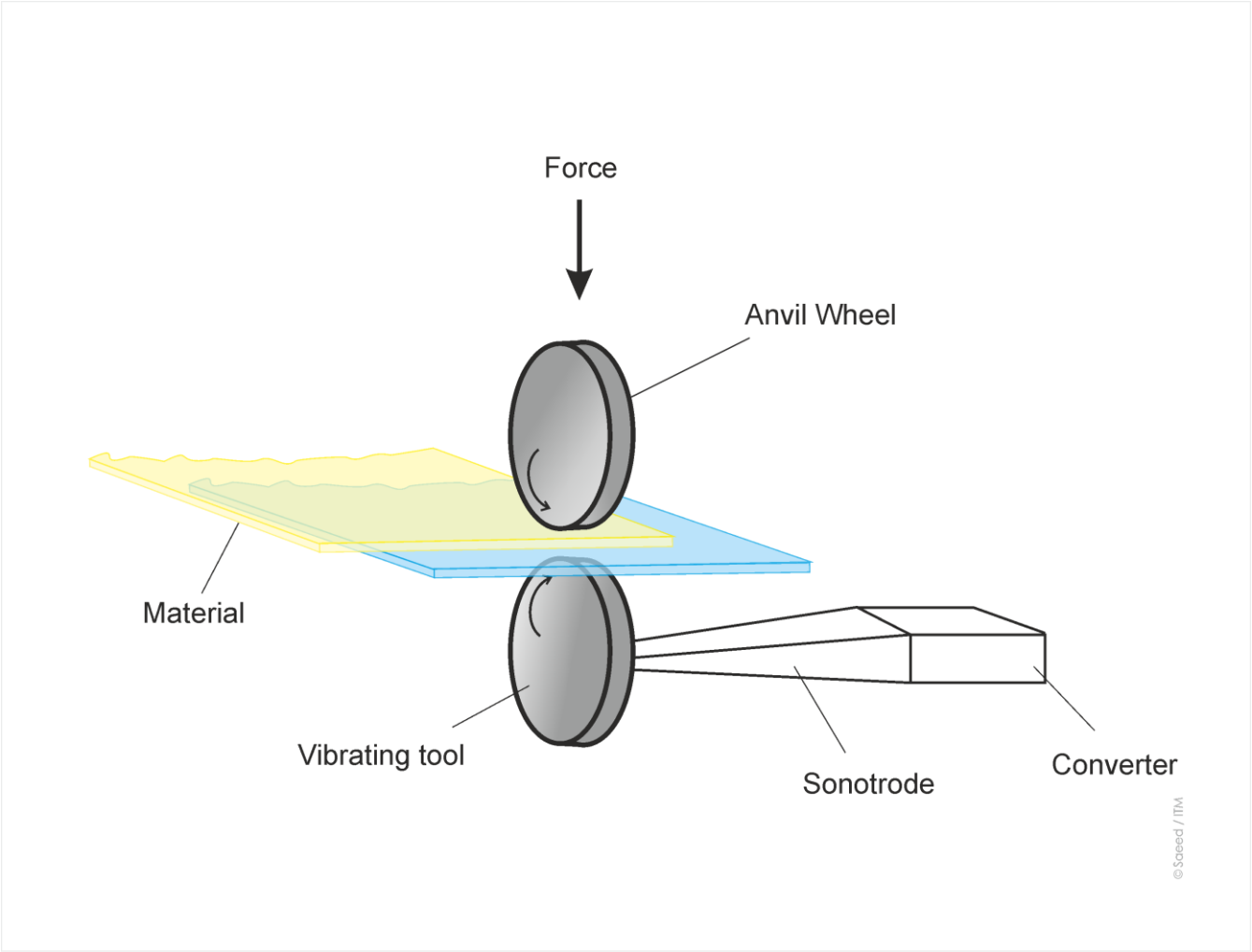
Interactivity Possibilities

Pictures

- In developed courses .gif format are used where it seemed appropriate.
- A GIF image is combination of multiple images and tells more information than a static image
- It may explain a complete process
- Substitute of animation videos



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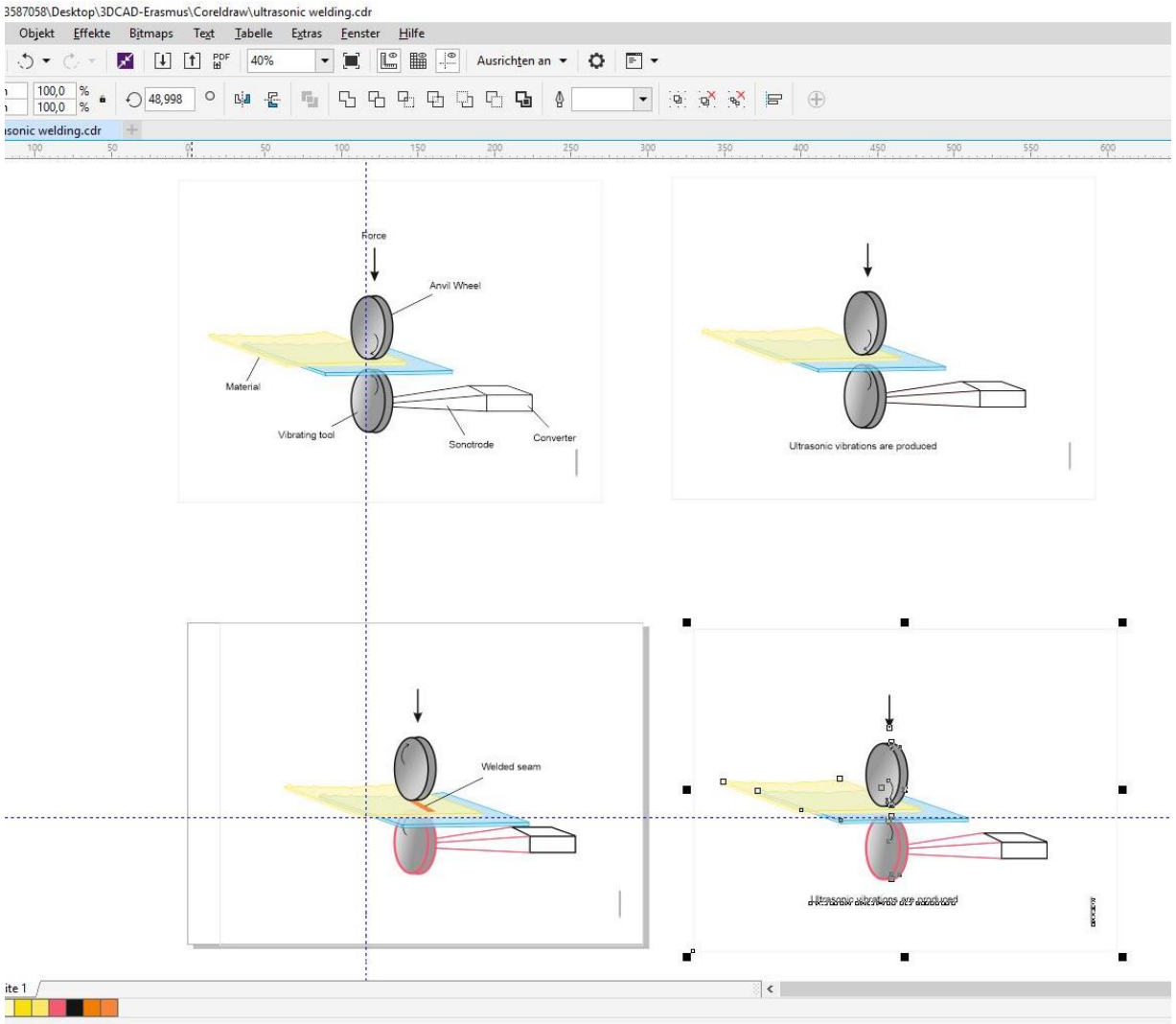
Interactivity Possibilities

Pictures

How it is done?

- Two step method
- Seperate images are prepared. Softwares like paint can be used. Corel draw offers more flexibility and better out look of all images.
- Explanation of each image is made seperately
- Every image is exported seperately as a .png (for vector diagram) or .jpeg format (images)



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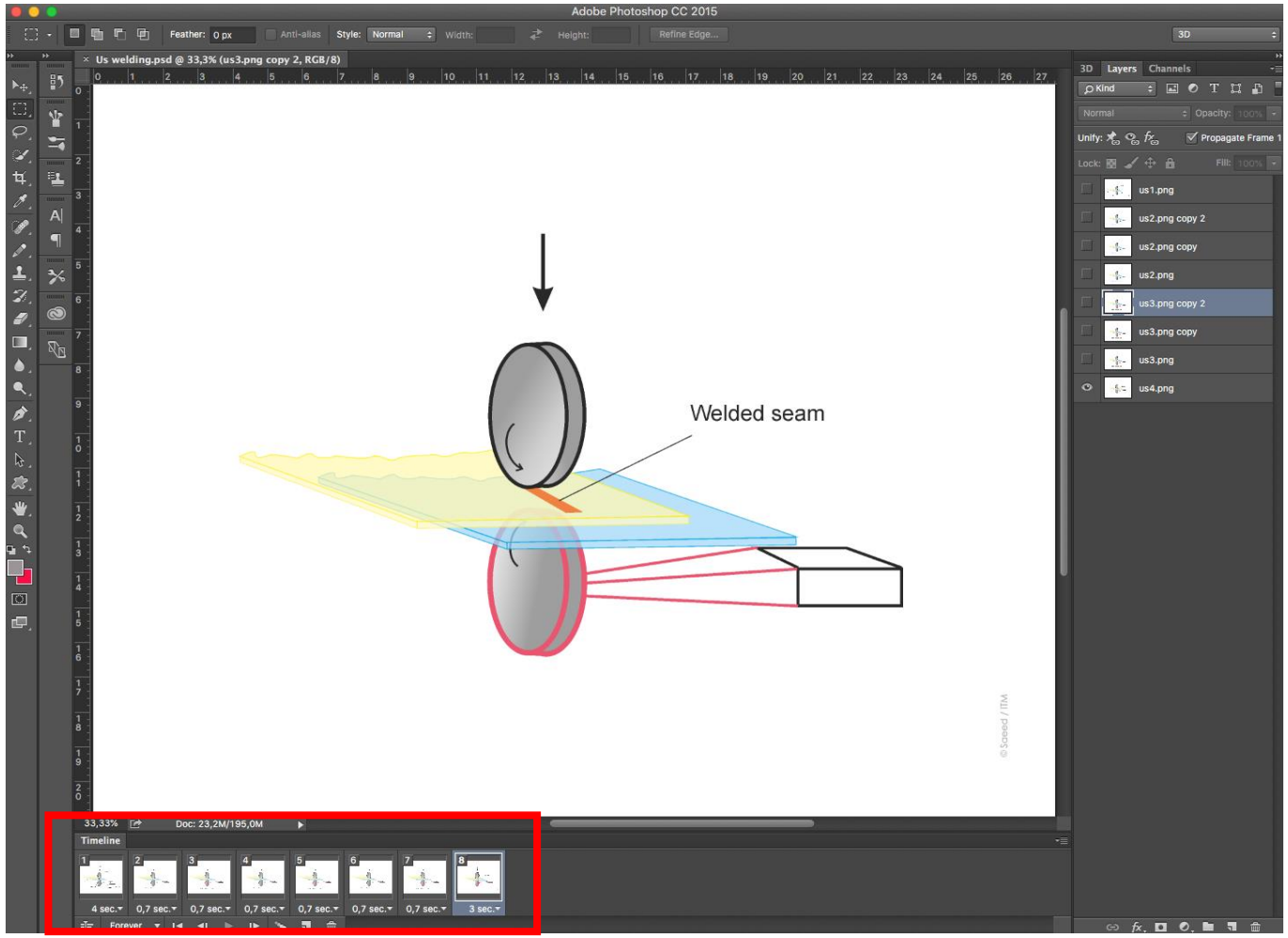
Interactivity Possibilities

Pictures

How it is done?

- Exported images are stacked to create .gif
- There are various ‚online' GIF creating softwares also available.
- Photoshop and Coreldraw are suitable and offer greater flexibility.
- Time for display of each image can be changed.
- The size of images impact Moodle platform loading.



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Interactivity Possibilities

Videos

- Studies have shown upto 6 minutes length of videos engage student to maximum
- targeted on learning goals.
- Use audio and visual elements explanation
- highlight important ideas or concepts.
- Use a conversational, enthusiastic style to enhance engagement.
- Embed videos in a context of active learning by using guiding questions, interactive elements, or associated homework assignments

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Interactivity Possibilities

Videos

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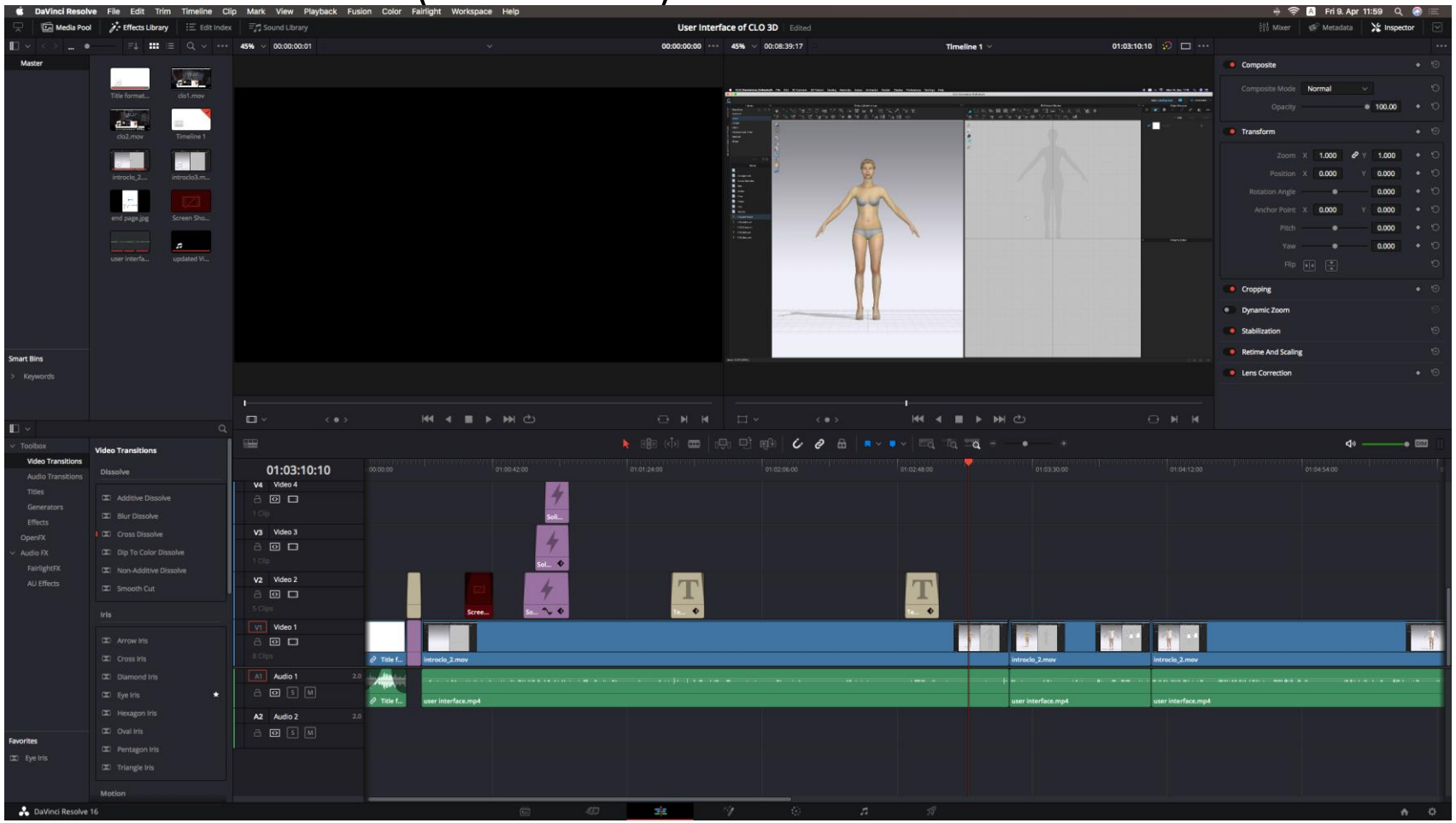
Interactivity Possibilities

Videos

- Software used : Davinci Resolve (Free Version)



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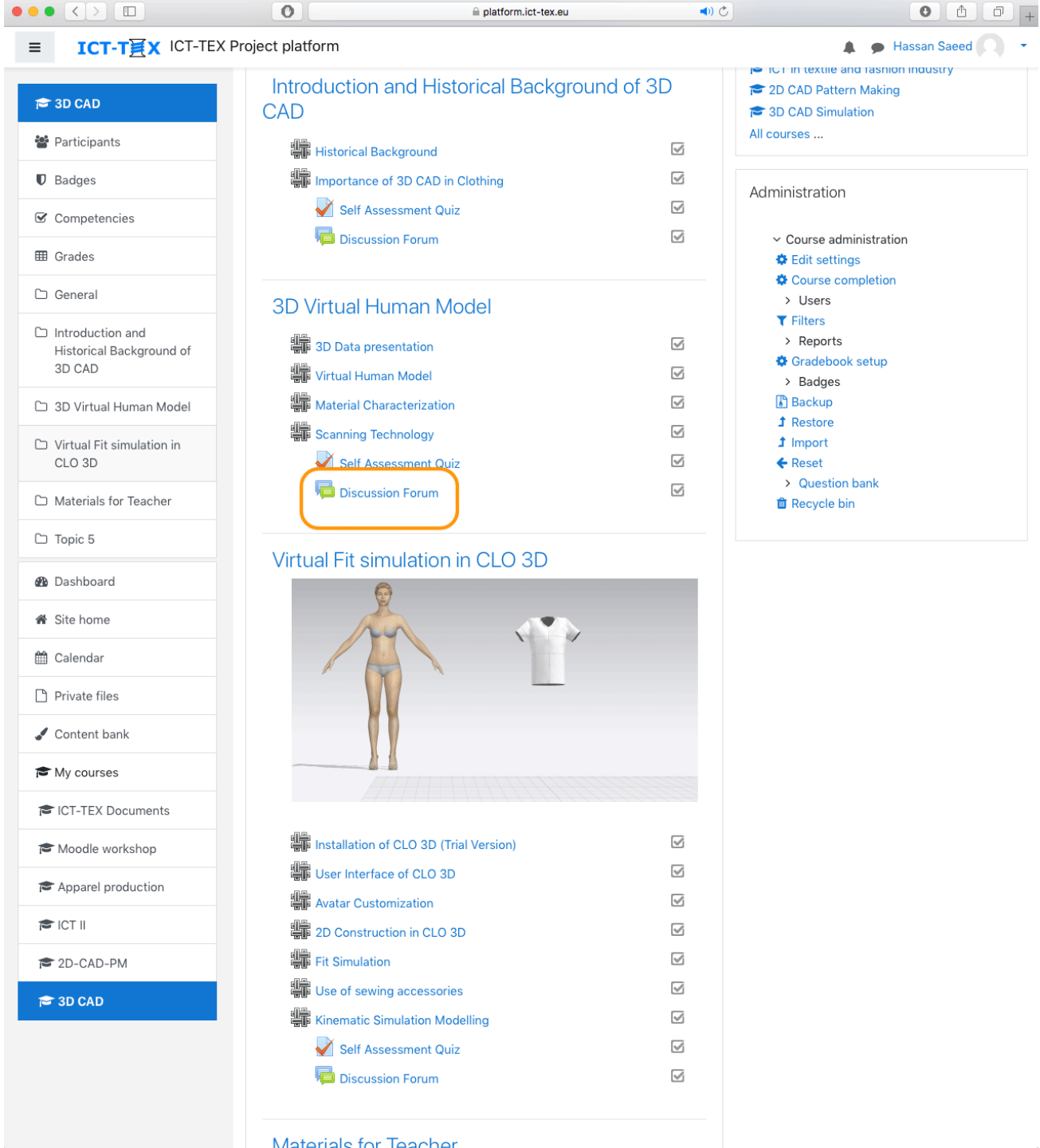
Interactivity Possibilities

Interactions on Moodle platform. Discussion Forums

- The Moodle Platform offers various types interactions between portal users.
- Each courses is divided into part and has it‘s own discussion forum, where learners can ask questions to teachers and start a discussion topic.
- Documents can also be exchanged between these topics



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Interactivity Possibilities

Interactions on Moodle platform- WIKI

- The learner can switch between topics interactively.
- Externl link can bring them to sources for further learning.
- In WIKI the discussion is supposed to be specifically for this particular lesson.

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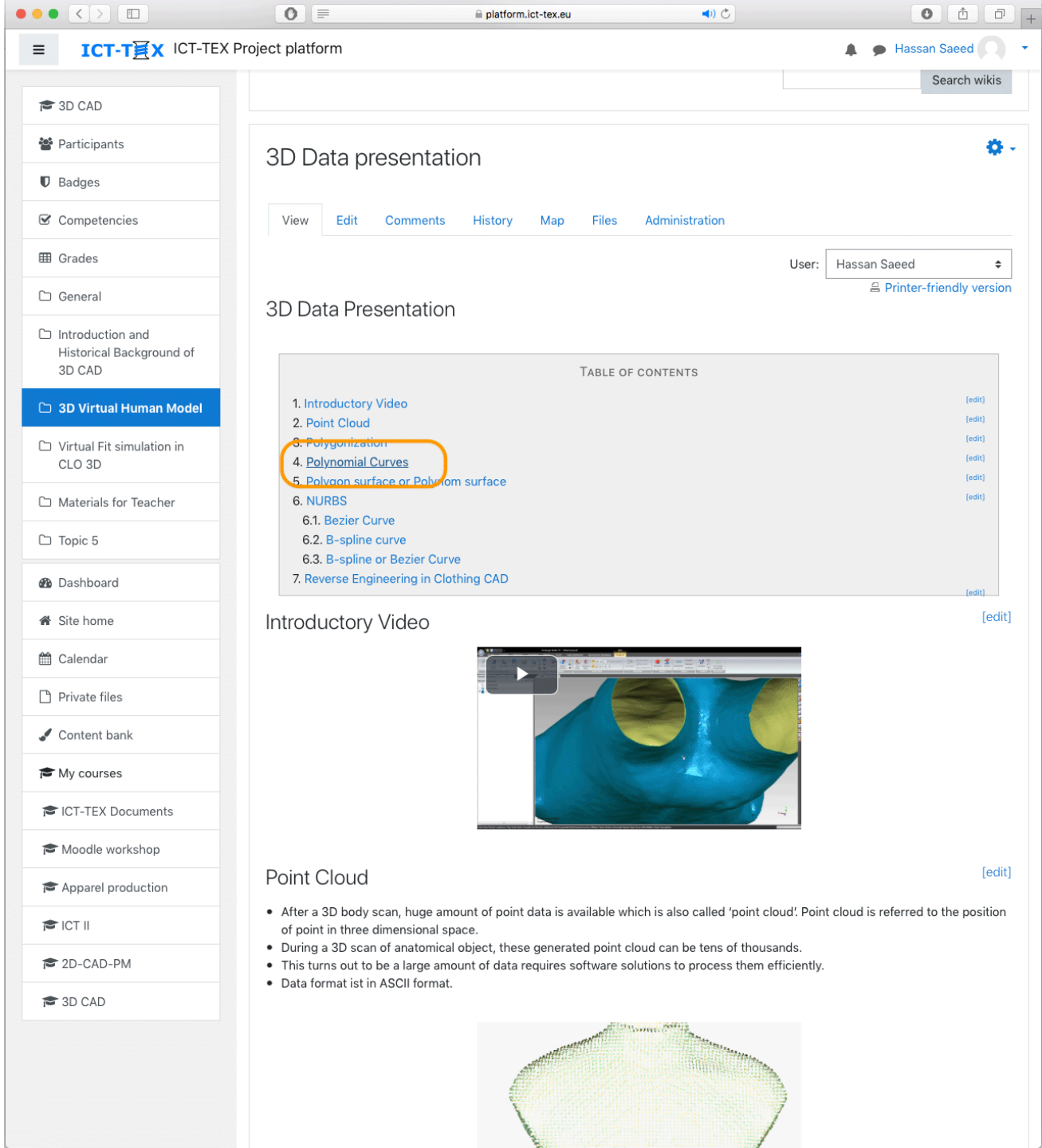
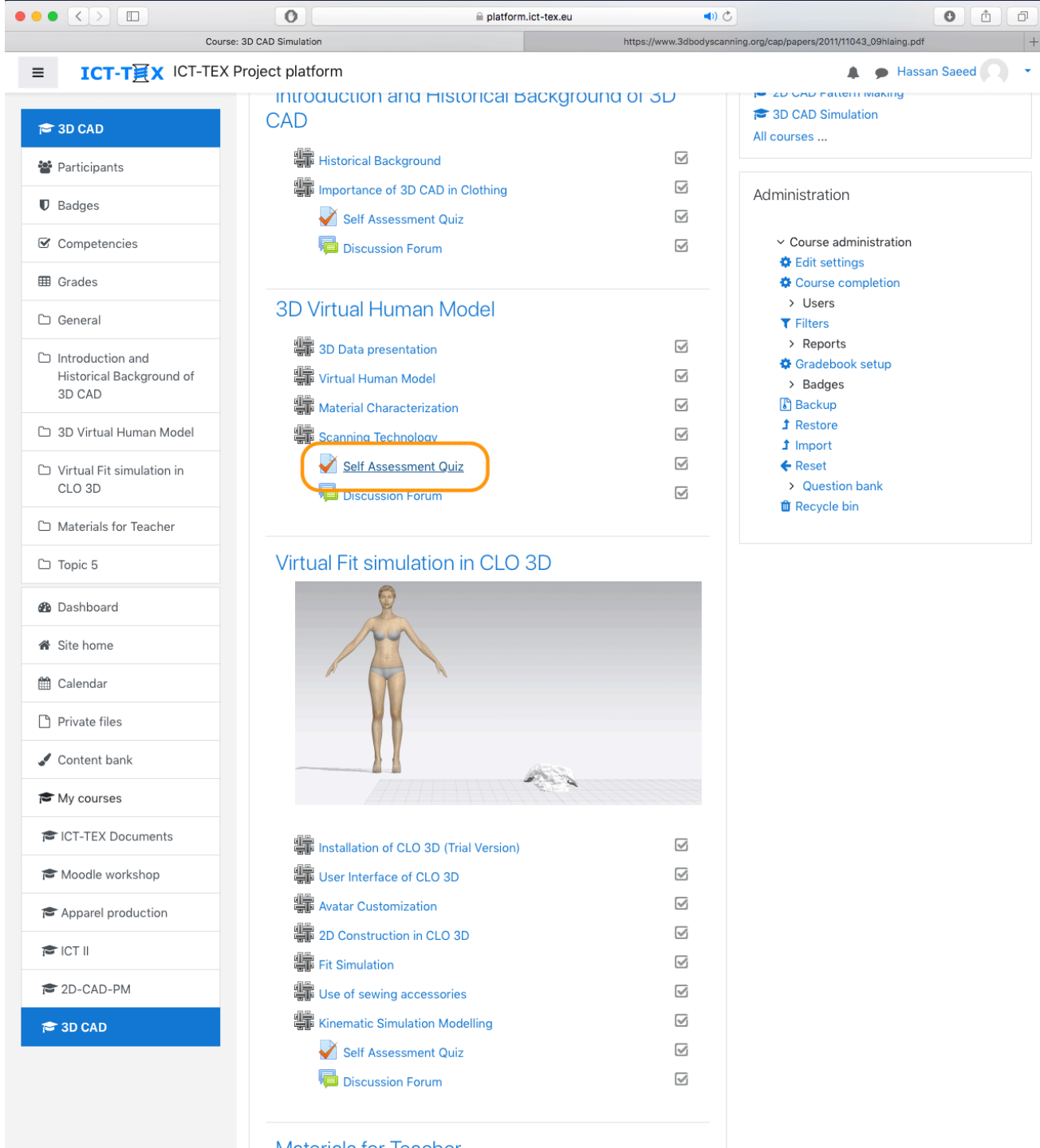


Interactivity Possibilities

Interactions on Moodle platform- Quizes

- The Quiz sections help to perform self assessment of learner.
- The quiz section may tell the learners how good/bad their knowledge about the topic
- Interactions are made by linking correct answers with course content on Moodle platform.
- Shuffling of questions/options is recommended



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THANKS FOR YOUR ATTENTION

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