

SYLLABUS

Production Visualization 7.5 credits A7011A

Produktionsvisualisering

Course syllabus admitted: Autumn 2023 Sp 1 - Present

**DECISION DATE
2022-02-11**

Production Visualization 7.5 credits A7011A

Produktionsvisualisering

Second cycle, A7011A

Education level	Grade scale	Subject	Subject group (SCB)
Second cycle	G U 3 4 5	Arbetsvetenskap	Work Science and Ergonomics

Entry requirements

Completed courses of at least 120 credits, with at least the grade Pass. This must include the following courses: Ergonomics 1 (A0015A) 7,5 credits, Industrial Production Environment (A0011A) 7,5 credits, Human-Machine-Interaction (D0055A) 7,5 credits and Product-and Manufacturing Design (A0013A) 7,5 credits, or equivalent knowledge.

Selection

The selection is based on 30-285 credits

Course Aim

A student who has passed the course will master theories, methods and computer tools for 3D visualization supporting the three following stages in the development of production concepts. Explore: visualization as a tool in the exploration of alternative solutions. Explain: visualization as a tool for explanation of solutions. Express: visualization as a tool to achieve acceptance of design solutions. An eligible student should be able to use this knowledge to ensure a good user and client involvement in the design and development of production concepts.

An eligible student must be able to:

- demonstrate knowledge and understanding of visualization of production concepts,
- explain how visualization can and should be used in this field ,
- analyze visualizations within the area,
- perform a visualization using computer tools,
- use of a reflective and critical approach to the different ways of using visualization,
- self-critically reflect on and justify intramural visualization task.

Contents

Theories of visualization Presentation theory, picture and sound theory , perception theory Applications of visualizing Technologies and tools for visualization Programs suitable for modeling Animation and "walk- throughs " Text, lighting and sound Theory and practice of production layout design Simplified systematic layout planning based on proximity needs Practical recommendations for the design of factory layouts Application of visualization Visualization of a production concept (a fictional work) Research in production visualization Literature study of relevant research papers

Realization

Each course occasion's language and form is stated and appear on the course page on Luleå University of Technology's website.

The course begins with lectures on theories that can be applied to visualization, after which current computer tools and technologies are introduced. Thereafter each student must undertake an individual investigation and reporting of the present research front for production visualization. The results are presented as a written background in a fictive research application or a research outline application. This is followed by supervised exercises in three application areas; explore, explain, express. After the exercises the students solve individual tasks in each area, guided by teachers who give constructive feedback. Once this is completed the students start an individual project with production visualization of a fictitious industrial production environment that they model. A factory layout should be designed according to layout theories and practices. In this work teachers offer guidance tailored to current individual needs. Final submission of the project work is done after the exam period so that students can improve their work based on teacher's feedback.

Examination

If there is a decision on special educational support, in accordance with the Guideline Student's rights and obligations at Luleå University of Technology, an adapted or alternative form of examination can be provided. Students are assessed through critical examination of their solutions of the following assignments and through supervision during the project work.

- Individual literature review of theoretical research, presented in a written report.
- Individual written assignment of the areas: explore, explain, express.
- Individual project, visual and oral final report.

Attendance is compulsory during final oral presentation.

Unauthorized aids during exams and assessments

If a student, by using unauthorized aids, tries to mislead during an exam or when a study performance is to be assessed, disciplinary measures may be taken. The term "unauthorized aids" refers to aids that the teacher has not previously specified as permissible aids and that may assist in solving the examination task. This means that all aids not specified as permissible are prohibited. The Swedish version has interpretative precedence in the event of a conflict.

Remarks

Students must register to the courses themselves or contact the ETKS educational administration not later than three days after the quarter commences. Failure to do so can result in the place being lost. This also applies to the students with a place guarantee. Contact: ETKS educational administration eduetks@ltu.se.

Course offered by

Department of Social Sciences, Technology and Arts

Modules

Code	Description	Grade scale	Cr	Status	From period	Title
0003	Project	G U 3 4 5	5	Mandatory	A14	
0005	Literature review	U G#	2	Mandatory	A16	
0006	Exercises	U G#	0.5	Mandatory	A16	

Study guidance

Study guidance for the course is to be found in our learning platform Canvas before the course starts. Students applying for single subject courses get more information in the Welcome letter. You will find the learning platform via My LTU.

Last revised

by Director of Undergraduate Studies Daniel Örtqvist, Department of Social Sciences, Technology and Arts 2022-02-11

Syllabus established

by Director of Undergraduate Studies Bo Jonsson, Department of Business Administration, Technology and Social Sciences 2014-02-14