

SYLLABUS

Production visualization, basic course 7.5 credits A0016A

Produktionsvisualisering, grundkurs

Course syllabus admitted: Autumn 2015 Sp 1 - Spring 2017 Sp 4

**DECISION DATE
2015-02-16**

Production visualization, basic course 7.5 credits A0016A

Produktionsvisualisering, grundkurs

First cycle, A0016A

Education level	Grade scale	Subject	Subject group (SCB)
First cycle	G U 3 4 5	Industriell produktionsmiljö	Work Science and Ergonomics

Entry requirements

In order to meet the general entry requirements for first cycle studies you must have successfully completed upper secondary education and documented skills in English language +

Swedish upper secondary school courses Physics 2, Chemistry 1, Mathematics 4 (specifik entry A9).

Or:

Swedish upper secondary school courses Physics B, Chemistry A, Mathematics E (specifik entry 9)

Selection

The selection is based on final school grades or Swedish Scholastic Aptitude Test.

Examiner

Magnus Stenberg

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
 - 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 review 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 students must undertake an 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 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 Lectures

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.

- Literature review of theoretical research, presented in a written
- Assignments in the areas explore, explain, express
- Individual project, visual and oral final presentation

Remarks

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

Literature. Valid from Autumn 2015 Sp 1

Bohgard M et al (2008) Work and technology on human terms, Stockholm , Prentice

Phillips EJ (1997) Manufacturing plant layout: fundamentals and fine points of optimum facility design , Society of Manufacturing Engineers

Muther R and Wheeler JD (1994) Simplified Systematic Layout Planning, Management and Industrial Research Publications, Marietta , Georgia, USA

Relevant research papers

Manuals for current computer programs for visualization.

Course offered by

Department of Social Sciences, Technology and Arts

Items/credits

No items/credits available

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.

Syllabus established

by Director of Undergraduate Studies Bo Jonsson, Department of Business Administration, Technology and Social Sciences 2015-02-16