Building Performance Simulation (BPS) in Teaching

This survey is initiated in the framework of the "Ständige Konferenz Bauphysik und Technischer Ausbau" of the university lecturers in German language institutions. It will be shared with all the lecturers at the German language applied universities.

The aim of this questionnaire is to find out how Building Performance Simulation (BPS) is taught at institutions teaching in German language to explore the reality and experiences on BPS in teaching.

The planned outcome is:

1. to provide an internal information to all participants about the status and findings (internal report naming participants to allow direct contact). An example from a small survey from 2006 can be downloaded from here.

2. A conference paper summarizing the findings in anonymous form as part of the common work of the "Konferenz Bauphysik und Technischer Ausbau". A comparable conference paper from 2017 can be downloaded from here.

This questionnaire is planned to be a part of a PhD study in the school of architecture that aims at developing an approach to performance based design in teaching.

For I am - as the author of this questionnaire - is not a native German, the questions are in English, but of course all text fields can be filled out in German.

Your cooperation and support are really appreciated.

Kindly enter your e-mail address into the related field below and click the **Continue** button. The email is used to personalize your answers and allows you to continue the input when not filling out all fields within one session. Answers are stored for each completed section.

For there is no return/change option in the questionnaire, the number of courses and the BPS software used in the courses should be entered carefully. To prevent any mistakes, we provide you an empty preview version of the questionnaire here. Please see it before starting the questionnaire.

If you have any questions, please don't hesitate to contact me or Prof. Dr.-Ing. Karsten Voss.

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E-mail: Enter Your E-mail...

Continue

Building Performance Simulation (BPS) in Teaching

PERSONAL INFORMATION

IN RELATION WITH THE INSTITUTION

1.Academic Title: *

Enter Your Academic Title...

2. Name and Surname: *

Enter Your Name and Surname...

3. Type of the Institution: *

- (•) University
- ( ) Applied University
- ( ) Other Please Specify...

4. Name of the Institution: *

Enter the Name of the Institution...

5. Department: *

Enter the Name of the Department...

6. Are You the Responsible Head of the Department? *

- (•) Yes
- ( ) No

7. Field: *

(*Your educational background.*)

You can select multiple answers.

- [ ] Architect
- [ ] Civil Engineer
- [ ] Mechanical Engineer
- [ ] Physicist
- [ ] Other Please specify...

8. E-Mail: *

deneme8@mail.com

9. For how long have you been teaching BPS? (years) *

- (•) Less than 5
- ( ) 5-10
- ( ) 11-15
- ( ) 16-20
- ( ) More than 20

Continue

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COURSES

In this part, please specify the number of courses in which BPS is used. Than a group of questions is going to be repeated for each course.

How many courses apply BPS in your department?*

1

Send

Building Performance Simulation (BPS) in Teaching

COURSE 1

1. Name of the Course:*

Enter the Name of the Course...

2. Level of the Course:*

- (•) Graduate
- ( ) Undergraduate — Please Select the Semester

3. From which field are the target students of this course?

You can select multiple answers

- [ ] Architecture
- [ ] Civil Engineering
- [ ] Other — Please Specify...

4. How many credits belong to this course?

1

5. Is the course compulsory or elective?

- (•) Compulsory
- ( ) Elective

6. Are there any compulsory courses as prerequisite for this course?

- ( ) Yes
- (•) No

Please Enter the Types, Names and the Typical Contents of the Courses...

7. What is the average number of students of this course per semester?

- (•) Less than 10
- ( ) 11-20
- ( ) 21-30
- ( ) 31-40
- ( ) More than 40

8. What is the teaching method in this course?

You can select multiple answers

- [ ] Face to Face
- [ ] Online Teaching
- [ ] Online Tutorials
- [ ] Other — Please Specify...

9. Percentage of time spent on theory, software training, application & parameter studies, analysis & post-processing?

Theory	0	%
Software Training	0	%
Application & Parameter Studies	0	%
Analysis & Post-Processing	0	%

10. Is the course more design driven or case-study driven?

(Is the course aiming more towards design stimulation or more towards application for already existing designs or projects as case studies?)

Design Driven		Case Study Driven
50 %		50 %

11. Percentage of the BPS within credits of this course:

0 %

12. Format of this course:

- (•) Part of Design Studio
- ( ) A Separate Course, but Supports Design Studio
- ( ) An Independent Course
- ( ) Other — Please Specify...

13. Format of the studies:

- (•) Group Study
- ( ) Individual Study
- ( ) Both

14. Format of the exams:

You can select multiple answers

- [ ] Oral Presentation with Slideshow
- [ ] Oral Poster Presentation
- [ ] Oral Examination
- [ ] Written Elaboration
- [ ] Other — Please Specify...

15. Which types of projects are handled in this course?

You can select multiple answers

- [ ] Residential
- [ ] Hotel
- [ ] Office
- [ ] Educational
- [ ] Healthcare
- [ ] Other — Please Specify...

16. Which scales are taken into consideration?

You can select multiple answers

- [ ] Urban Scale
- [ ] District Scale
- [ ] Building Block
- [ ] Building
- [ ] Building Envelop
- [ ] Room/Single Zone
- [ ] System
- [ ] Element
- [ ] Material
- [ ] Other — Please Specify...

17. What are the design and documentation tools used in this course?

You can select multiple answers

- [ ] Hand Drawing
- [ ] Rules of Thumb
- [ ] Physical Models
- [ ] CAD
- [ ] BIM
- [ ] Other — Please Specify...

18. Which Building Performance Simulation softwares are used in this course?*

(You can select multiple answers. On the following pages, a group of questions is going to be repeated for each BPS software used in this course. As more tools you choose, more tool related questions will appear. Choose those tools that are essential for the course.)

- [ ] 3D Max
- [ ] AECOsim
- [ ] CATT-Acoustic
- [ ] EnerCalC
- [ ] DaySIM
- [ ] DesignBuilder
- [ ] DIALux evo
- [ ] Diva
- [ ] Ecotect
- [ ] EnergyPlus
- [ ] IES VE
- [ ] Insight 360/Revit
- [ ] Ladybug & Honeybee
- [ ] OpenStudio
- [ ] Radiance
- [ ] Relux/Dialux
- [ ] Sefaira
- [ ] SimRoom
- [ ] TRNSYS
- [ ] VisualDOE
- [ ] Wufi
- [ ] Delphin
- [ ] Other — Please Specify...
- [ ] Other — Please Specify...
- [ ] Other — Please Specify...

Continue

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QUESTIONS ON BPS SOFTWARE

"SAMPLE"

USED IN

"DERS" COURSE

1. For what purpose does this BPS software is used in this course?

You can select multiple answers

Energy & Indoor Comfort:

- [ ] Thermal Behavior
- [ ] Energy Demand & Cost
- [ ] Thermal Comfort
- [ ] Energy Balance Calculation
- [ ] Air Quality
- [ ] Air Flow
- [ ] Solar Collector Systems
- [ ] Photovoltaic Systems

Hygrothermal:

- [ ] Heat and Moisture Transport
- [ ] Thermal Bridges

Acoustic:

- [ ] Noise Protection
- [ ] Sound Insulation
- [ ] Room Acoustics

Lighting:

- [ ] Daylight Planning
- [ ] Interior Artificial Lighting Design
- [ ] Outdoor Lighting Design

Life Cycle Assessment:

- [ ] Cost
- [ ] Carbon Footprint
- [ ] Circulatory

Fire Protection:

- [ ] Fire Protection

Urban Micro Climate:

- [ ] Urban Micro Climate

Other:

- [ ] Other Please Specify...

2. In this course is it required for the students to know the software beforehand?

- ( ) Yes
- ( ) No

3. Version of the Software:

4. Does the BPS software have different design stage options for simulation?

- ( ) Only for Early Design Stage
- ( ) Only for Advanced Design Stage
- ( ) Both

5. What kind of representation format this software provides for the simulation results?

- ( ) Visual
- ( ) Numerical
- ( ) Both

6. Please select the features this BPS software provides:

You can select multiple answers

- [ ] Context or climate based early design advice
- [ ] Comparing design alternatives
- [ ] Generating design alternatives by using parameters
- [ ] Support for new building technologies
- [ ] Real-time simulation preview
- [ ] Outputs available within 3D modeling environment
- [ ] Ready to go report templates

7. How often do errors occur?

0 %

8. How user friendly is the Graphical User Interface (GUI) of the Software?

0 %

9. How is your overall satisfaction about this software?

0 %

10.Please separately specify the main reasons why you use that software for teaching:

(*For example. because you are an expert for that BPS or / and BPS is based on validated simulation engine(s) or / and provide easy file exchange or / and offers different design stages etc.*)

Please Enter the Reason(s)...

11. If available, please share a link(s) for students' works (also sending via e-mail is possible: kalp@uni-wuppertal.de):

Links...

Continue

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COMMENTS

Suggestion(s) for Future Techniques for Incorporating Building Performance Assessments within Courses for Architects and Engineers:

Suggestions...

Comments:

Comments...

Finish

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END OF SURVEY

Your response is submitted.

Your cooperation and support are really appreciated.

Thank you very much.

Isil Kalpkirmaz Rizaoglu