

VBF021 - 2021, Building physics, advanced course

Week	Date	Start	End	Room	Content	Activity	Teacher	Readings
w12	March 22 Monday	08:00	11:45	in Zoom	Intro: course objectives, alignment of time table, examination date Thermal inertia of buildings <ul style="list-style-type: none">Free-running indoor temperatureLumped thermal model of a building	L & E	Angela	Compendium Chapter 1
	March 24 Wednesday	10:00	11:45	in Zoom	Thermal inertia of buildings - continuation <ul style="list-style-type: none">Lumped system analysis - response to step change in ToutdoorPeak heating and coolind demand	L & E	Angela	Compendium Chapter 1
		13:15	15:00	in Zoom (SB-D020)	Simulink 1: lumped model of a building	Computer lab	Yichi	Simulink tutorial
		15:15	17:00	in Zoom	Thermal inertia of buildings - continuation <ul style="list-style-type: none">Lumped system analysis - response to periodic ToutdoorPeriodic complex solutionsPeriodic penetration depth	L & E	Angela	Compendium Chapter 1

w13	March 29 Monday	08:00	11:45	in Zoom	Heat loss to the ground <ul style="list-style-type: none">Seasonal temperature variations in the ground	L & E	Angela	Compendium Chapter 2
	March 31 Wednesday	10:00	11:45	in Zoom	Heat loss to the ground (cont) <ul style="list-style-type: none">Stationary and transient heat loss from a building to the groundThermal pillow billow a building	L & E	Angela	Compendium Chapter 2
		13.15	15:00	in Zoom (SB-D020)	Simulink 2: lumped model of a building; adding a heater: hydronic and air heating	Computer lab	Yichi	Simulink tutorial
		15:15	17:00	in Zoom	Periodic heat storage in the ground <ul style="list-style-type: none">Coupling of building and ground models	L & E	Angela	Compendium Chapter 2

Easter break

Week	Date	Start	End	Room	Content	Activity	Teacher	Readings
w15	April 12 Monday	08:00	11:45	in Zoom	Building and radiator - thermal coupling <ul style="list-style-type: none">Effects of future climate change	L & E	Angela	Compendium Chapter 9
	April 14 Wednesday	10:00	11:45	in Zoom	PID controller, Anders T	L & E	Anders T	Lecture notes
		13:15	15:00	in Zoom (SB-D020)	Simulink 3: PID controller	Computer lab	Yichi	Simulink tutorial
		15:15	17:00	in Zoom	Heat loss from air channels / water pipes /boreholes <ul style="list-style-type: none">Ground heat pumps	L & E	Angela	Compendium Chapter 6

	April 19 Monday	08:00	11:45	in Zoom	Long-wave radiation exchange in an enclosure <ul style="list-style-type: none">Black and grey surfaces. Radiosity. View factorsNetwork for LWR	L & E	Angela	Compendium Chapter 4
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w16	April 21 Wednesday	12:00	13:00	Course evaluation meeting 1&2				
		10:00	11:45	in Zoom	Long-wave radiation exchange in an enclosure, cont • Operative temperature	L & E	Angela	Compendium Chapter 4
		13:15	15:00	in Zoom (SB-D020)	Comsol 1:intro; thermal pillow	Computer lab	Jan	Comsol manual
		15:15	17:00	in Zoom	Long-wave radiation exchange in an enclosure, cont • Operative temperature	L & E	Angela	Compendium Chapter 4

w17	April 26 Monday	08:00	11:45	in Zoom	Building integrated systems - floor heating Get ready for the lecture by repeating: LWR, heat loss from air channels, heat loss to the ground	Lecture and practical exercise	Henrik Karlsson	Slides from the lecture
	April 28 Wednesday	13:15	15:00	In Zoom (SB-D020)	Comsol 2: LWR heat exchange between surfaces (HA 4); floor heating module	Computer lab	Jan	Comsol manual
		15:15	17:00	Self studies				

w18	May 3 Monday	08:00	11:45	in Zoom	Moisture balance for ventilated spaces • Models of indoor humidity • Moisture balance for a ventilated space • Vapour tight and vapour open surfaces	L & E	Angela	Compendium Chapter 3
	May 5 Wednesday	10:00	11:45	Zoom	Moisture risk constructions: Flat roofs and roofs terraces	Practical exercise	Angela	Slides from the lecture
		13:15	15:00	SB-D020	Comsol 3: Consultations HA 4; floor heating module	Computer lab	Jan	Comsol manual
		15:15	17:00	Self studies				

w19	May 10 Monday	10:00	11:45	Zoom	Moisture risk constructions 1: inside insulation	L & E	Pär J	Slides from the lecture
	May 12 Wednesday	10:00	17:00 (lunch break 12-13)	Atrium SB-II	Dare 2 Build?			

Week	Date	Start	End	Room	Content	Activity	Teacher	Readings
w20	May 17 Monday	08:00	11:45	Zoom	Natural and uncontrolled ventilation of buildings • Calculation techniques for finding indoor air pressure	L & E	Angela	Compendium Chapter 5
		10:00	12:00	Zoom	• Driving forces • Models for airflow through openings			

	May 19 Wednesday	13:00	17:00	Zoom	• Calculation techniques for finding indoor air pressure
w21	May 24 Monday				
	May 26 Wednesday				
w 22	June 2	08:00	16:00	HOME EXAM	
w 24	September X	12:00	13:00	tbd	Course evaluation meeting 3