AGENDA OF THE COURSE -
GREEN BUILDINGS INTRODUCTION and ENVELOPES two day course

nb	Title	Contents	Time	
		DAY 1		
	Introduction to day 1		5	9:30
1.Background and main principles			1 hour 45	
1.1	**Why green buildings?**	Short introduction on the environmental impacts of buildings and green buildings economics and development	5	
1.2	**What are green building**	Workshop “Please discuss what are the possible design features of green buildings?	10	
1.3	**Energy**	For each section:		
1.4	**Water**	- description of each issue - why is it important ?		
1.5	**Materials and Waste**	- How can the building be improved		
1.6	**Wellbeing**		90	
1.7	**Pollution**			
1.8	**Ecology and the green infrastructure**			
		BREAK	15	11:20
2. Green building design			30 min	11:35
2.1	**What is a green building?**		5	
2.2	**The metabolism of buildings**	How buildings use energy and resources, circular concepts and biomimetic approach	5	
2.3	**Designing Green Buildings**	Using targets and environmental ratings systems	10	
2.4		WORKSHOP: groups are asked to put together an environmental design system	15	
3. Passive and Bioclimatic Design			1 hour 30	12:05
3.1	**Insulation of buildings**	U-values, thermal bridging, air-tightness	10	
3.2	**The passivhaus Standard**	Description	10	
3.3	**Envelopes and green buildings**	Workshop “Please discuss the role of the envelope in the design of a (green) building”	5	
3.4	**Introduction to passive, bioclimatic and low energy building design**	Introduction to bioclimatic / passive design concepts. A definition of bioclimatic / and passive buildings. The relationship between bioclimatic design and envelopes	15	
3.5	**Site and climate**	Climate analysis and climate files. Software	15	
3.6	**Workshop**	Workshop Climate analysis using a local climate file (20 minutes)	20	
3.7	**Modelling bioclimatc and passive buildings**	Introduction to dynamic thermal analysis software	5	13:35
		LUNCH BREAK		
4. Sunlight and daylight			2h 15	14:35
4.1	**The principles of light**	What is light - The electromagnetic spectrum The physics of light		
4.2	**Daylight**	Daylight and the sky Design solutions and rules of thumb Windows design Software		

		Examples		
BREAK			15	
4.3	**Sunlight and passive solar design**	The sun, and how it works The sunpath diagram in detail Sunlight and passive solar design Masterplanning and layout Design solutions Location of glazing Software Examples		
4.4	**Workshop**	Workshop / interactive discussion contents –discussion in relation to solar design using the local climate analysis	20	
END OF DAY 1				17:00

DAY 2				
5. Wind and ventilation			1 hour 30	9:00
5.1	**Principles of natural ventilation**	The principles of wind flows around buildings Wind speed The basics of natural ventilation. Building form / design rules Openings / windows design for natural ventilation	60	
5.2	**Natural ventilation systems and design**	Chimneys, solar towers, wind-catchers and other designs Software for design Examples		
5.3	**Workshop**	Workshop / interactive discussion contents –discussion in relation to natural ventilation using the local climate analysis	30	
BREAK			15min	10:30
4. Dynamic and multipurpose envelopes			1 hour	10:45
4.1	**Double skin facades**	Principles Design Examples	20	
4.2	**Green roofs and walls**	Principles Benefits Examples	20	
4.3	**Integrated renewable energy**	Photovoltaics Solar air collectors Domestic hot water Wind turbines	20	
5. Green refurbishment of envelopes			30min	11:45
5.1.	**Introduction**	Principles, what can be done, life cycle	10	
5.2	**Some technical solutions**	Internal and external insulation, double skin, etc	10	
5.3	**Examples**	Examples of projects	10	
6. Environmental impacts of materials and envelope design			30 min	12:15
6.1	**Environmental impacts of materials**	Environmental impacts, the green construction guidance, labels and selection etc.	10	
6.2	**Some natural and alternative materials**	Examples of ‘green’ envelope materials, and some projects	10	
LUNCH BREAK			1h	12:45
7. The green building design process			30	13:45

8. Projects	15	14:45
Test	30	15:00
END OF DAY 2		15:30