

Syllabus: System Dynamics Modelling for Business Analysis TU Berlin Summer University 2020 Term 3

Week 1 July 20th - 24th

	20	21	22	23	24
	Monday	Tuesday	Wednesday	Thursday	Friday
9:00 - 10:30	Welcome Day! Orientation and 1st session (2h)	System Thinking vs Linear Thinking	Tools for System Dynamics Modelling	Building a model with causal loop diagrams	No class
11:00 - 12:30		Examples of System thinking approaches (industry - financial market – urban management)	Tools for System Dynamics Modelling	Building a model with causal loop diagrams	Cultural Program
13:30 - 15:30		System Thinking and Business Dynamics	Cultural Program	Feedback Analysis	
16:00 +					

Week 2 July 27th - 31st

	27	28	29	30	31
	Monday	Tuesday	Wednesday	Thursday	Friday
9:00 - 10:30	Reinforcing and Balancing loops in business dynamics	Statistical modelling of business dynamics	Introduction of System Dynamics Softwares	Settings and features in Vensim	No class
11:00 - 12:30	Concepts of Integration and Differential Equations in business dynamics	Mapping the stock and flow structure of systems	Introduction of Vensim	Casual loop tools in Vensim	Cultural Program
13:30 - 15:30	Examples of Integration and Differential Equations in business models	Mapping the stock and flow structure of systems	Cultural Program	Casual loop tools in Vensim	
16:00 +	Cultural Program				

Week 3 August 3rd - 7th

	03	04	05	06	07
	Monday	Tuesday	Wednesday	Thursday	Friday
9:00 - 10:30	Stock and flow diagram in Vensim	Result analysis of SD modelling in Vensim	SD Modelling case studies (industries)	System behavior analysis and revising SD model	No class
11:00 - 12:30	Equations and formulation in Vensim	Visualisation and reporting the results	Working Group Industrial cases (Production lines, inventory systems)	Growth Strategies: path dependence	
13:30 - 15:30	Equations and formulation in Vensim	Visualisation and reporting the results	Cultural Program	Model Validation and Verification approaches	
16:00 +	Cultural Program				

Week 4 August 10th - 14th

	10	11	12	13	14
	Monday	Tuesday	Wednesday	Thursday	Friday
9:00 - 10:30	SD Modelling case studies (organizations)	SD Modelling case studies (Urban Management)	Course reviews and conclusion	final presentations	No class
11:00 - 12:30	Working Group Cases Performance and Project Management	Working Group Urban cases (Traffic Systems, Environment)	Working group – Group assignments	final presentations	Result reviews of group assignments
13:30 - 15:30	Working Group Cases Marketing	Working Group Urban cases (Resources management)	Working group – Group assignments	No Class	Certificates Ceremony
16:00 +	Cultural Program				

Key

Lecture	Field Trip or Practical	Assessment	Cultural Program activity*
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*The cultural program timetable will be emailed to you shortly before your course starts. For more information about the cultural program, and for examples of previous schedules, head here:

https://www.tu-berlin.de/menue/summer_university/cultural_program/

Assessment information

You will be assessed in the following ways (see yellow sessions in schedule, if applicable):

- Group presentation, due 13.08.2020
- Group assignment, due 12.08.2020

Your assessments will be weighted as follows:

- Group assignment 70%
- Group presentation 30%

Grading information

All participants of the TU Berlin Summer & Winter University are required to select their grading option at the time of registration. The two options available are (i) graded or (ii) pass/fail.

All participants who select option (i) graded, will receive a grade under the German grading system. The following table provides an overview of the grading system and equivalent scores for international credit transfers:

Total mark	German grade	English description
More or equal to 95	1,0	Excellent
More or equal to 90	1,3	Very good
More or equal to 85	1,7	Good
More or equal to 80	2,0	Good
More or equal to 75	2,3	Good
More or equal to 70	2,7	Satisfactory
More or equal to 65	3,0	Satisfactory
More or equal to 60	3,3	Satisfactory
More or equal to 55	3,7	Sufficient
More or equal to 50	4,0	Sufficient
Less than 50	5,0	Failed

Credit Points

ECTS is a point system and European standard developed by the Commission of the European Community. ECTS stands for European Credit Transfer System. The aim is to provide common procedures and guarantee academic recognition of studies abroad. The credit system is based on student workload. All lectures, seminars, excursions and homework count towards the workload. One point is awarded for the equivalent of 25-30 hours of workload.

Reading list

Here are reading materials which will be used or referred to during the course. You are not required to read these in advance – this is for your information and reference.

All sources below are available either open source, in the TU Berlin library, or will be provided to you directly by your lecturers, during the course.

To search resources available in the TU Berlin library, check here: <https://www.ub.tu-berlin.de/en/searching-for-resources/>

- Business Dynamics: Systems Thinking and Modeling for a Complex World ,John Sterman, Irwin/McGraw-Hill, 2000 –
- An Introduction to General Systems Thinking, Gerald M. Weinberg, Dorset House Publishing Co Inc.,U.S.2001
- Free Download of Vensim : <http://vensim.com/free-download/>