



COURSE: Simulation of dynamical systems

DEGREE: Industrial technologies

YEAR: 4

TERM: 1

WEEKLY PLANNING

| WEEK | SESSION | DESCRIPTION | GROUPS (mark X) | | SPECIAL ROOM FOR SESSION (Computer class room, audio-visual class room) | Indicate YES/NO If the session needs 2 teachers | WEEKLY PROGRAMMING FOR STUDENT | | |
|------|---------|--|--------------------|----------|---|--|--------------------------------|-------------|--|
| | | | LECTURES | SEMINARS | | | DESCRIPTION | CLASS HOURS | HOMEWORK HOURS (Max. 7h week) |
| 1 | 1 | Introduction to modeling and simulation | X | | Computer class room with Matlab | No | | 1,6 | 3 |
| 1 | 2 | Definition and basic concepts | X | | Computer class room with Matlab | No | | 1,6 | |
| 2 | 3 | Basic types of models of dynamical systems | X | | Computer class room with Matlab | No | | 1,6 | |

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|---|----|---|---|---|---------------------------------|----|-----------------------|-----|---|
| 2 | 4 | Modeling and simulation languages review | X | | Computer class room with Matlab | No | | 1,6 | |
| 3 | 5 | Introduction to block oriented languages for simulation | | X | Computer class room with Matlab | No | Programming exercises | 1,6 | 4 |
| 3 | 6 | Vectors and matrix handling | | X | Computer class room with Matlab | No | Programming exercises | 1,6 | |
| 4 | 7 | Exercises on vector and matrices definition | | X | Computer class room with Matlab | No | Programming exercises | 1,6 | |
| 4 | 8 | Programming and flow control (I) | | X | Computer class room with Matlab | No | Programming exercises | 1,6 | |
| 5 | 9 | Programming and flow control (II) | | X | Computer class room with Matlab | No | Programming exercises | 1,6 | 5 |
| 5 | 10 | Evaluation test (I) | | X | Computer class room with Matlab | No | Test exercises | 1,6 | |
| 6 | 11 | Functions and libraries (I) | | X | Computer class room with Matlab | No | Programming exercises | 1,6 | |
| 6 | 12 | Functions and libraries (II) | | X | Computer class room with Matlab | No | Programming exercises | 1,6 | 4 |
| 7 | 13 | Evaluation test (II) | | X | Computer class | No | Test exercises | 1,6 | 5 |

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|----|----|--|--|---|---------------------------------|----|-----------------------|-----|---|
| | | | | | room with Matlab | | | | |
| 7 | 14 | Libraries for diferencial ecuations solving (I) | | X | Computer class room with Matlab | No | Programming exercises | 1,6 | |
| 8 | 15 | Libraries for diferencial ecuations solving (II) | | X | Computer class room with Matlab | No | Programming exercises | 1,6 | |
| 8 | 16 | Evaluation test (III) | | X | Computer class room with Matlab | No | Test exercises | 1,6 | 6 |
| 9 | 17 | Graphics (I) | | X | Computer class room with Matlab | No | Programming exercises | 1,6 | |
| 9 | 18 | Graphics (II) | | X | Computer class room with Matlab | No | Programming exercises | 1,6 | 6 |
| 10 | 19 | Graphics (III) | | X | Computer class room with Matlab | No | Programming exercises | 1,6 | |
| 10 | 20 | Case study implementation (I) | | X | Computer class room with Matlab | No | Model development | 1,6 | 6 |
| 11 | 21 | Case study implementation (II) | | X | Computer class room with Matlab | No | Model development | 1,6 | |
| 11 | 22 | Case study implementation (III) | | X | Computer class room with Matlab | No | Model implementation | 1,6 | 7 |

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|----|----|---|--|---|---------------------------------|----|------------------------------|-----|---|
| 12 | 23 | Case study implementation (IV) | | X | Computer class room with Matlab | No | Model implementation | 1,6 | 7 |
| 12 | 24 | Case study implementation (V) | | X | Computer class room with Matlab | No | Model implementation | 1,6 | |
| 13 | 25 | Evaluation test (IV) | | X | Computer class room with Matlab | No | Test exercises | 1,6 | |
| 13 | 26 | Simulation Project implementation (I) | | X | Computer class room with Matlab | No | Personal work for evaluation | 1,6 | |
| 14 | 27 | Simulation Project implementation (II) | | X | Computer class room with Matlab | No | Personal work for evaluation | 1,6 | |
| 14 | 28 | Simulation Project implementation (III) | | X | Computer class room with Matlab | No | Personal work for evaluation | 1,6 | |
| | 29 | Simulation Project implementation (IV) | | X | Computer class room with Matlab | No | Personal work for evaluation | 1,6 | |

Subtotal 1 **48,33** **81**

Total 1 (*Hours of class plus student homework hours between weeks 1-14*)

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|----|--|----------------------------|--|--|--|--|--|----|----|
| 15 | | Tutorials, handing in, etc | | | | | | 10 | 21 |
| 16 | | Assessment | | | | | | 3 | |
| 17 | | | | | | | | | |
| 18 | | | | | | | | | |

Subtotal 2 **13** **21**

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| Total 2 (<i>Hours of class plus student homework hours between weeks 15-18</i>) | 34 |
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| TOTAL (<i>Total 1 + Total 2. Maximum 180 hours</i>) | 163,33 |
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