

Manifesto of the Master's Degree in Artificial Intelligence Systems - 0342H Curricula: *Methodologies and Applications, AI and Innovation, Systems, Neurocognitive Architectures* Cohort of Students 2020/2021

A - Curriculum Methodologies and Applications

(1) Mandatory courses (48 CFU)

The following 6 courses must be included in all study plans.

| Titolo / Note | SSD | CFU | Tipo | Anno | Sem. | Docente |
|--|------------------|------|------|------|-------------------|-----------------|
| 145856 - Fundamentals of Artificial Intelligence | ING-INF/05 | 12 | Car. | 1 | 1 | Sebastiani |
| 145857 - Machine Learning Module I | ING-INF/05 12 Ca | Car. | 1 | 1 | Melgani/Passerini | |
| Module II - Sharing with LM: AIS, INFO course 145764 - Deep learning, Mat (145903), DS (145718) | | 12 | Car. | 1 | 2 | Ricci |
| 145858 - Signal, Image and Video Sharing with LM: AIS, INFO | ING-INF/03 | 6 | Aff. | 1 | 1 | De Natale |
| 145859- Natural Language Understanding Sharing with LM: AIS, INFO | ING-INF/05 | 6 | Car. | 1 | 2 | Riccardi |
| 145860 - Law and Ethics in Artificial Intelligence | IUS/21 | 6 | Aff. | 1 | 1 | Casonato/Penasa |
| 145861- Artificial and biological neural systems | ING-INF/05 | 6 | Car. | 1 | 2 | Hasson |



(2) Depth requirement (12 CFU)

Select 2 (12 CFU) among the following courses.

| Titolo / Note | SSD | CFU | Tipo | Anno | Sem. | Docente |
|--|--------------|-----|------|------|------|----------------|
| 145862 – Automated Planning: Theory and Practice | ING-INF/05 | 6 | Car. | 2 | 1 | Roveri |
| 145863 - Automated Reasoning Sharing with LM: INFO course 145056 Formal Methods Module I, AIS | ING-INF/05 | 6 | Car. | 1 | 2 | Sebastiani |
| 145864 - Human-Machine Dialogue | ING-INF/05 | 6 | Car. | 2 | 1 | Riccardi |
| 145865 - Optimization techniques Sharing with LM: INFO course 145615 Intelligent Optimization for data science, COM course 145615 Intelligent Optimization for data science AIS, DS | ING-INF/05 | 6 | Car. | 1 | 2 | Battiti |
| 145866 - Introduction to Robotics Sharing 6 CFU with LM: ING MECC course 145959 Introduction to Robotics , AIS | ING – INF/04 | 6 | Car. | 1 | 2 | Focchi Michele |
| 145867 - Autonomous Software Agents Sharing with LM: INFO, AIS | ING INF/05 | 6 | Car. | 1 | 2 | Giorgini |

Choose one among the following paths (*Computer Vision, Methodologies, Intelligent Robots*) and select 18 CFU from it.

(3a) Path Computer Vision

Select the following 3 courses (18 CFU) if you choose the path *Computer Vision*.

| Titolo / Note | SSD | CFU | Tipo | Anno | Sem. | Docente | |
|---------------|-----|-----|------|------|------|---------|--|
|---------------|-----|-----|------|------|------|---------|--|



| 140266 - Computer Vision Sharing with LM: COM, INFO, AIS | ING-INF/03 | 6 | Aff. | 1 | 2 | Conci |
|--|------------|---|------|---|---|-------------------------------|
| 145869 - Advanced Computer Vision | ING-INF/05 | 6 | Car. | 2 | 1 | Sebe /Ricci |
| 145870 - Trends and Applications of Computer Vision Sharing with LM: AIS, COM | ING-INF/05 | 6 | Car. | 2 | 1 | Conci/Sebe/De Natale/Ricci |

(3b) Path Methodologies (18 CFU)

Select the following 3 courses (18 CFU) if you choose the path *Methodologies*.

| Titolo / Note | SSD | CFU | Tipo | Anno | Sem. | Docente |
|---|------------|-----|------|------|------|-----------|
| 145871 - Advanced Topics in Machine Learning and Optimization | MAT/09 | 6 | Aff. | 2 | 1 | Passerini |
| Other 2 courses among {Depth courses, Advanced Computer Vision} | ING-INF/05 | 12 | Car. | 1/2 | 2/1 | |

(3c) Path Intelligent Robots (18 CFU)

Select the following 3 courses (18 CFU) if you choose the path *Intelligent Robots*.

| Titolo / Note | SSD | CFU | Tipo | Anno | Sem. | Docente |
|---|------------|-----|------|------|------|------------|
| 145872 - Distributed Robot Perception Sharing with LM: ING MECC course 140472 Distributed systems for measurement and automation, AIS | ING-INF/07 | 6 | Aff. | 2 | 1 | Fontanelli |
| 145873 - Optimisation Based Robot Control Sharing with LM: AIS, ING MECC | ING-INF/04 | 6 | Car. | 2 | 1 | Del Prete |



| Sharina with LM: INFO AIS | 145874 - Robot Planning and its application Sharing with LM: INFO, AIS | ING-INF/05 | 6 | Car. | 2 | 1 | Palopoli |
|---------------------------|--|------------|---|------|---|---|----------|
|---------------------------|--|------------|---|------|---|---|----------|

(4) Free-choice courses (12 credits)

Select 2 free-choice courses (12 credits) among the ones offered by the Master's Degree in *Computer Science* or *Information and Communications Engineering* of the Department of Information Communication and Computer Science (DISI) of the University of Trento. The courses listed in the tables above, those listed in the free-choice courses table listed below, and those suggested in the online tool for study plan of ESSE3 are automatically approved. In case other courses offered by the University of Trento are selected, a personalized study plan must be completed and submitted to the commission for study plan examination.

| Titolo / Note | SSD | CFU | Tipo | Anno | Sem. | Docente |
|--|------------|-----|--------|------|------|--------------------|
| 145779 - Dynamics and control of vehicles and robots Sharing 6 credits with LM: ING MECC course 145779 (sharing 6 credits from 140501 - 9 CFU, AIS | ING-IND/13 | 6 | Scelta | 2 | 2 | Biral/Papini |
| 140466- Computational methods for mechatronics Sharing with LM: ING MECC, AIS | MAT/08 | 6 | Scelta | 2 | 1 | Biral/Bertolazzi |
| 145875 - Modeling and simulation of mechatronic systems Sharing 6 credits with LM: ING MECC course 140469 - 9 CFU, AIS | ING IND/13 | 6 | Scelta | 1 | 2 | Biral/Bertolazzi |
| 145763 - Bio-Inspired Artificial Intelligence Sharing with LM: COM, INFO, AIS | ING-INF/05 | 6 | Scelta | 2 | 2 | Iacca |
| 145876 - Model Checking ^(NOTE) Sharing with LM: INFO course 145056 Formal Methods Module II, AIS | ING-INF/05 | 6 | Scelta | 1 | 2 | Sebastiani |
| 145774 - Automatic Control Sharing with LM: ING MECC, AIS | ING-INF/04 | 6 | Scelta | 1 | 2 | Zaccarian/Giordano |



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| 154086 - Functional anatomy of language Sharing with LM: CIMEC, AIS | M-PSI/02 | 6 | Scelta | 2 | 2 | Papagno |
|--|------------|---|--------|---|-----|---------------------------------|
| 154107 - Neuroimaging for Data Science Sharing with LM: DS 145801 Neuroimaging for Data Science, CIMEC, AIS | M-PSI/02 | 6 | Scelta | 2 | 1 | Tettamanti/ Baldauf |
| 145877 - Logical Structure in Natural Language Sharing with LM CIMEC course 154061, AIS | M-FIL/05 | 6 | Scelta | 2 | 2 | Zamparelli |
| 145453 - Data Mining Sharing with LM: COM, AIS, INFO, MAT, DS | ING-INF/05 | 6 | Scelta | 2 | 1 | Velegrakis |
| 145972 - High Performance Computing for Data Science condivide con LM: Info, Com, AIS | ING-INF/05 | 6 | Scelta | 1 | 2 | Fiore S.L. |
| 145091 – Technical Writing | L- LIN /12 | 6 | Scelta | 1 | 1/2 | Centro Linguistico di Ateneo |
| 145879 – Italian Language ^(NOTE) | | 6 | Scelta | 1 | 1/2 | Centro Linguistico di Ateneo |

NOTES:

- > 145876: Model Checking (aka Formal Methods Module II) requires as prerequisite Automated Reasoning (aka Formal Methods Module I)
- > 145879: This course is reserved to foreign students only.
 Please note that foreign students lacking a sufficient level of knowledge of the Italian language will be required to include 145879 Italian Language, offered by CLA (University Language Center) in their study plan.

The study course is completed by:

- 145884 Tesi / Thesis: 24 CFU
- 145885 Tirocini formativi e di orientamento / Internship: 6 CFU



B - Curriculum *AI* and Innovation

(1) Mandatory courses (48 CFU)

The following 6 courses must be included in all study plans.

| Titolo / Note | SSD | CFU | Tipo | Anno | Sem. | Docente |
|--|---------------------------|----------|------|-------------------|------|-----------------|
| 145856 - Fundamentals of Artificial Intelligence | ING-INF/05 | 12 | Car. | 1 | 1 | Sebastiani |
| 145857 - Machine Learning Module I | - Deep ING-INF/05 12 Car. | 12 Car 1 | 1 | Melgani/Passerini | | |
| Module II - Sharing with LM: AIS, INFO course 145764 - Deep learning, Mat (145903), DS (145718) | | 12 | Gui. | 1 | 2 | Ricci |
| 145858 - Signal, Image and Video Sharing with LM: AIS, INFO | ING-INF/03 | 6 | Aff. | 1 | 1 | De Natale |
| 145859- Natural Language Understanding | ING-INF/05 | 6 | Car. | 1 | 2 | Riccardi |
| 145860 - Law and Ethics in Artificial Intelligence | IUS/21 | 6 | Aff. | 1 | 1 | Casonato/Penasa |
| 145861- Artificial and biological neural systems | ING-INF/05 | 6 | Car. | 1 | 2 | Hasson |

(2) Depth requirement (12 CFU)

Select 2 (12 CFU) among the following courses.

| Titolo / Note | SSD | CFU | Tipo | Anno | Sem. | Docente | |
|---------------|-----|-----|------|------|------|---------|--|
|---------------|-----|-----|------|------|------|---------|--|



| 145862 – Automated Planning: Theory and Practice | ING-INF/05 | 6 | Car. | 2 | 1 | Roveri |
|---|--------------|---|------|---|---|----------------|
| 145863 - Automated Reasoning Sharing with LM: INFO course 145056 Formal Methods Module I, AIS | ING-INF/05 | 6 | Car. | 1 | 2 | Sebastiani |
| 145864 - Human-Machine Dialogue | ING-INF/05 | 6 | Car. | 2 | 1 | Riccardi |
| 145865 - Optimization techniques Sharing with LM: INFO course 145615 Intelligent Optimization for data science, COM course 145615 Intelligent Optimization for data science, AIS, DS | ING-INF/05 | 6 | Car. | 1 | 2 | Battiti |
| 145866 - Introduction to Robotics Sharing 6 CFU with LM: ING MECC course 145959 Introduction to Robotics , AIS | ING – INF/04 | 6 | Car. | 1 | 2 | Focchi Michele |
| 145867 - Autonomous Software Agents Sharing with LM: INFO, AIS | ING INF/05 | 6 | Car. | 1 | 2 | Giorgini |

(3) Path AI and Innovation (18 CFU)

Select the following 3 courses (18 CFU) related to the path *AI and Innovation*.

| Titolo / Note | SSD | CFU | Tipo | Anno | Sem. | Docente |
|---|------------|-----|------|------|------|---------------|
| 145880 - ICT Innovation Sharing with LM: INFO, COMM course 145455 ICT Innovation (6 credits) | ING-INF/05 | 6 | Car. | 1 | 2 | Formentini M. |
| 145881 - AI and Innovation | ING IND/35 | 6 | Aff. | 2 | 1 | TBD |
| 145936 - Innovation and Entrepreneurship Basic Sharing with LM: INFO, AIS, COM course 145761 – Innovation and Business in ICT | SECS-P/10 | 6 | Aff. | 2 | 1 | TBD |



(4) Free-choice courses (12 credits)

Select 2 free-choice courses (12 credits) among the ones offered by the Master's Degree in *Computer Science* or *Information and Communications Engineering* of the Department of Information Communication and Computer Science (DISI) of the University of Trento. The courses listed in the tables above, those listed in the free-choice courses table listed below, and those suggested in the online tool for study plan of ESSE3 are automatically approved. In case other courses offered by the University of Trento are selected, a personalized study plan must be completed and submitted to the commission for study plan examination.

| Titolo / Note | SSD | CFU | Tipo | Anno | Sem. | Docente |
|--|------------|-----|--------|------|------|---------------------|
| 145779 - Dynamics and control of vehicles and robots Sharing 6 credits with LM: ING MECC course 145779 (sharing 6 credits from 140501 - 9 CFU, AIS | ING-IND/13 | 6 | Scelta | 2 | 2 | Biral/Papini |
| 140466- Computational methods for mechatronics Sharing with LM: ING MECC, AIS | MAT/08 | 6 | Scelta | 2 | 1 | Bertolazzi |
| 145875 - Modeling and simulation of mechatronic systems Sharing 6 credits with LM: ING MECC course 140469 - 9 CFU,, AIS | ING IND/13 | 6 | Scelta | 1 | 2 | Biral/Bertolazzi |
| 145763 - Bio-Inspired Artificial Intelligence Sharing with LM: COM, INFO, AIS | ING-INF/05 | 6 | Scelta | 2 | 2 | Iacca |
| 145876 - Model Checking (NOTE) Sharing with LM: INFO course 145056 Formal Methods Module II, AIS | ING-INF/05 | 6 | Scelta | 1 | 2 | Sebastiani |
| 145774 - Automatic Control Sharing with LM: ING MECC, AIS | ING-INF/04 | 6 | Scelta | 1 | 2 | Zaccarian/Giordano |
| 154086 - Functional anatomy of language Sharing with LM: CIMEC, AIS | M-PSI/02 | 6 | Scelta | 2 | 2 | Papagno |
| 154107 - Neuroimaging for Data Science Sharing with LM: DS 145801 Neuroimaging for Data Science, CIMEC, AIS | M-PSI/02 | 6 | Scelta | 2 | 1 | Tettamanti/ Baldauf |
| 145877 - Logical Structure in Natural Language Sharing with LM CIMEC course 154061, AIS | M-FIL/05 | 6 | Scelta | 2 | 2 | Zamparelli |

| 145453 - Data Mining Sharing with LM: COM, AIS, INFO, MAT, DS | ING-INF/05 | 6 | Scelta | 2 | 1 | Velegrakis |
|---|------------|---|--------|---|-----|---------------------------------|
| 145972 - High Performance Computing for Data Science condivide con LM: Info, Com, AIS | ING-INF/05 | 6 | Scelta | 1 | 2 | Fiore S.L. |
| 145091 – Technical Writing | L- LIN /12 | 6 | Scelta | 1 | 1/2 | Centro Linguistico di Ateneo |
| 145879 – Italian Language ^(NOTE) | | 6 | Scelta | 1 | 1/2 | Centro Linguistico di Ateneo |

NOTES:

- > 145876: Model Checking (aka Formal Methods Module II) requires as prerequisite Automated Reasoning (aka Formal Methods Module I)
- > 145879: This course is reserved to foreign students only.
 Please note that foreign students lacking a sufficient level of knowledge of the Italian language will be required to include 145879 Italian Language, offered by CLA (University Language Center) in their study plan.

The study course is completed by:

- 145884 Tesi / Thesis: 24 CFU
- 145885 Tirocini formativi e di orientamento / Internship: 6 CFU

C - Curriculum *Systems*

(1) Mandatory courses (48 CFU)

The following 6 courses must be included in all study plans.

| Titolo / Note | SSD | CFU | Tipo | Anno | Sem. | Docente |
|---------------|-----|-----|------|------|------|---------|
|---------------|-----|-----|------|------|------|---------|

| 145856 - Fundamentals of Artificial Intelligence | ING-INF/05 | 12 | Car. | 1 | 1 | Sebastiani |
|--|------------|------|------|---|-------------------|-----------------|
| 145857 - Machine Learning Module I | | Car | 1 | 1 | Melgani/Passerini | |
| | | Car. | 1 | 2 | Ricci | |
| 145858 - Signal, Image and Video Sharing with LM: AIS, INFO | ING-INF/03 | 6 | Aff. | 1 | 1 | De Natale |
| 145859- Natural Language Understanding | ING-INF/05 | 6 | Car. | 1 | 2 | Riccardi |
| 145860 - Law and Ethics in Artificial Intelligence | IUS/21 | 6 | Aff. | 1 | 1 | Casonato/Penasa |
| 145861- Artificial and biological neural systems | ING-INF/05 | 6 | Car. | 1 | 2 | Hasson |

(2) Depth requirement (12 CFU)

Select 2 (12 CFU) among the following courses.

| Titolo / Note | SSD | CFU | Tipo | Anno | Sem. | Docente |
|--|------------|-----|------|------|------|------------|
| 145862 – Automated Planning: Theory and Practice | ING-INF/05 | 6 | Car. | 2 | 1 | Roveri |
| 145863 - Automated Reasoning Sharing with LM: INFO course 145056 Formal Methods Module I, AIS | ING-INF/05 | 6 | Car. | 1 | 2 | Sebastiani |
| 145864 - Human-Machine Dialogue | ING-INF/05 | 6 | Car. | 2 | 1 | Riccardi |
| 145865 - Optimization techniques | ING-INF/05 | 6 | Car. | 1 | 2 | Battiti |



| Sharing with LM: INFO course 145615 Intelligent Optimization for data science, COM course 145615 Intelligent Optimization for data science AIS, DS | | | | | | |
|--|--------------|---|------|---|---|----------------|
| 145866 - Introduction to Robotics Sharing 6 CFU with LM: ING MECC course 145959 Introduction to Robotics , AIS | ING – INF/04 | 6 | Car. | 1 | 2 | Focchi Michele |
| 145867 - Autonomous Software Agents Sharing with LM: INFO, AIS | ING INF/05 | 6 | Car. | 1 | 2 | Giorgini |

(3) Path Systems (18 CFU)

Select 3 (18 CFU) among the following courses related to the path *Systems*.

| Titolo / Note | SSD | CFU | Tipo | Anno | Sem. | Docente |
|--|------------|-----|------|------|------|----------|
| 145762 - Ultrasound Technologies for Medical Applications Sharing with LM: COM, INFO, AIS | ING-INF/05 | 6 | Car. | 2 | 1 | Demi |
| 145613 - Imaging and diagnostic techniques Sharing with LM: COM, AIS | ING-INF/02 | 6 | Aff. | 2 | 1 | Rocca |
| 145883 - Sensing and Radar Technologies Sharing with LM: COM course 145612 Advance Remote Sensing Systems, INFO, AIS | ING-INF/03 | 6 | Aff. | 2 | 1 | Bruzzone |

(4) Free-choice courses (12 credits)

Select 2 free-choice courses (12 credits) among the ones offered by the Master's Degree in *Computer Science* or *Information and Communications Engineering* of the Department of Information Communication and Computer Science (DISI) of the University of Trento. The courses listed in the tables above, those listed in the free-choice



courses table listed below, and those suggested in the online tool for study plan of ESSE3 are automatically approved. In case other courses offered by the University of Trento are selected, a personalized study plan must be completed and submitted to the commission for study plan examination.

| Titolo / Note | SSD | CFU | Tipo | Anno | Sem. | Docente |
|--|------------|-----|--------|------|------|---------------------|
| 145779 - Dynamics and control of vehicles and robots Sharing 6 credits with LM: ING MECC course 145779 (sharing 6 credits from 140501 - 9 CFU, AIS | ING-IND/13 | 6 | Scelta | 2 | 2 | Biral/Papini |
| 140466- Computational methods for mechatronics Sharing with LM: ING MECC, AIS | MAT/08 | 6 | Scelta | 2 | 1 | Bertolazzi |
| 145875 - Modeling and simulation of mechatronic systems Sharing 6 credits with LM: ING MECC course 140469 - 9 CFU, AIS | ING IND/13 | 6 | Scelta | 1 | 2 | Biral/Bertolazzi |
| 145763 - Bio-Inspired Artificial Intelligence Sharing with LM: COM, INFO, AIS | ING-INF/05 | 6 | Scelta | 2 | 2 | Iacca |
| 145876 - Model Checking ^(NOTE) Sharing with LM: INFO course 145056 Formal Methods Module II, AIS | ING-INF/05 | 6 | Scelta | 1 | 2 | Sebastiani |
| 145774 - Automatic Control Sharing with LM: ING MECC, AIS | ING-INF/04 | 6 | Scelta | 1 | 2 | Zaccarian/Giordano |
| 154086 - Functional anatomy of language Sharing with LM: CIMEC, AIS | M-PSI/02 | 6 | Scelta | 2 | 2 | Papagno |
| 154107 - Neuroimaging for Data Science Sharing with LM: DS 145801 Neuroimaging for Data Science, CIMEC, AIS | M-PSI/02 | 6 | Scelta | 2 | 1 | Tettamanti/ Baldauf |
| 145877 - Logical Structure in Natural Language Sharing with LM CIMEC course 154061, AIS | M-FIL/05 | 6 | Scelta | 2 | 2 | Zamparelli |
| 145453 - Data Mining Sharing with LM: COM, AIS, INFO, MAT, DS | ING-INF/05 | 6 | Scelta | 2 | 1 | Velegrakis |

| 145972 - High Performance Computing for Data Science condivide con LM: Info, Com, AIS | ING-INF/05 | 6 | Scelta | 1 | 2 | Fiore S.L. |
|---|------------|---|--------|---|-----|---------------------------------|
| 145091 – Technical Writing | L- LIN /12 | 6 | Scelta | 1 | 1/2 | Centro Linguistico di Ateneo |
| 145879 – Italian Language ^(NOTE) | | 6 | Scelta | 1 | 1/2 | Centro Linguistico di Ateneo |

NOTES:

- > 145876: Model Checking (aka Formal Methods Module II) requires as prerequisite Automated Reasoning (aka Formal Methods Module I)
- > 145879: This course is reserved to foreign students only.

 Please note that foreign students lacking a sufficient level of knowledge of the Italian language will be required to include 145879 Italian Language, offered by CLA (University Language Center) in their study plan.

The study course is completed by:

- 145884 Tesi / Thesis: 24 CFU
- 145885 Tirocini formativi e di orientamento / Internship: 6 CFU

D - Curriculum Neurocognitive Architectures

(1) Mandatory courses (48 CFU)

The following 6 courses must be included in all study plans.

| Titolo / Note | SSD | CFU | Tipo | Anno | Sem. | Docente | |
|---------------|-----|-----|------|------|------|---------|--|
|---------------|-----|-----|------|------|------|---------|--|

| 145856 - Fundamentals of Artificial Intelligence | ING-INF/05 | 12 | Car. | 1 | 1 | Sebastiani |
|--|----------------|----|------|---|---|-------------------|
| 145857 - Machine Learning Module I | ING-INF/05 | 12 | Car. | 1 | 1 | Melgani/Passerini |
| Module II - Sharing with LM: AIS, INFO course 145764 - Deep learning, Mat (145903), DS (145718) | iiva-iivi / 03 | 12 | car. | 1 | 2 | Ricci |
| 145858 - Signal, Image and Video Sharing with LM: AIS, INFO | ING-INF/03 | 6 | Aff. | 1 | 1 | De Natale |
| 145859- Natural Language Understanding | ING-INF/05 | 6 | Car. | 1 | 2 | Riccardi |
| 145860 - Law and Ethics in Artificial Intelligence | IUS/21 | 6 | Aff. | 1 | 1 | Casonato/Penasa |
| 145861- Artificial and biological neural systems | ING-INF/05 | 6 | Car. | 1 | 2 | Hasson |

(2) Track Neurocognitive Architecture (30 CFU)

The following 4 courses must be included in all study plans.

| Titolo / Note | SSD | CFU | Tipo | Anno | Sem. | Docente |
|--|-----|------------|------|------|------|------------|
| 154115 - Understanding Cognitive Psychology and Neuroscience Sharing with LM: CIMEC, AIS | 9 | ING-INF/05 | Car. | 2 | 1 | Bottini |
| 154057 - Computational Linguistics Sharing with LM: CIMEC, AIS | 9 | ING-INF/05 | Car. | 2 | 1 | Bernardi |
| 154036 - Intro to Human Language Sharing with LM: CIMEC, AIS | 6 | L-LIN/01 | Aff. | 2 | 1 | Zamparelli |



| 154108 - Language and Social Cognition | 6 | M PSI/02 | Aff. | 2 | 1 | Hasson |
|--|---|----------|------|---|---|--------|
| Sharing with LM: CIMEC, AIS | | | | | | |

(4) Free-choice courses (12 credits)

Select 2 free-choice courses (12 credits) among the ones offered by the Master's Degree in *Computer Science* or *Information and Communications Engineering* of the Department of Information Communication and Computer Science (DISI) of the University of Trento. The courses listed in the tables above, those listed in the free-choice courses table listed below, and those suggested in the online tool for study plan of ESSE3 are automatically approved. In case other courses offered by the University of Trento are selected, a personalized study plan must be completed and submitted to the commission for study plan examination.

| Titolo / Note | SSD | CFU | Tipo | Anno | Sem. | Docente |
|--|------------|-----|--------|------|----------------|------------------|
| 145779 - Dynamics and control of vehicles and robots Sharing 6 credits with LM: ING MECC course 145779 (sharing 6 credits from 140501 - 9 CFU, AIS | ING-IND/13 | 6 | Scelta | 2 | 2 Biral/Papini | |
| 140466- Computational methods for mechatronics Sharing with LM: ING MECC, AIS | MAT/08 | 6 | Scelta | 2 | 1 Bertolazzi | |
| 145875 - Modeling and simulation of mechatronic systems Sharing 6 credits with LM: ING MECC course 140469 - 9 CFU, AIS | ING IND/13 | 6 | Scelta | 1 | 2 | Biral/Bertolazzi |
| 145763 - Bio-Inspired Artificial Intelligence Sharing with LM: COM, INFO, AIS | ING-INF/05 | 6 | Scelta | 2 | 2 | Iacca |
| 145876 - Model Checking ^(NOTE) Sharing with LM: INFO course 145056 Formal Methods Module II, AIS | ING-INF/05 | 6 | Scelta | 1 | 2 | Sebastiani |
| 145774 - Automatic Control Sharing with LM: ING MECC, AIS | ING-INF/04 | 6 | Scelta | 1 | 2 | Zaccarian |
| 154086 - Functional anatomy of language Sharing with LM: CIMEC, AIS | M-PSI/02 | 6 | Scelta | 2 | 2 | Papagno |

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| 154107 - Neuroimaging for Data Science Sharing with LM: DS 145801 Neuroimaging for Data Science, CIMEC, AIS | M-PSI/02 | 6 | Scelta | 2 | 1 Tettamanti/ Baldauf | |
|--|------------|---|--------|---|-----------------------|---------------------------------|
| 145877 - Logical Structure in Natural Language Sharing with LM CIMEC course 154061, AIS | M-FIL/05 | 6 | Scelta | 2 | 2 | Zamparelli |
| 145453 - Data Mining Sharing with LM: COM, AIS, INFO, MAT, DS | ING-INF/05 | 6 | Scelta | 2 | 1 | Velegrakis |
| 145972 - High Performance Computing for Data Science condivide con LM: Info, Com, AIS | ING-INF/05 | 6 | Scelta | 1 | 2 | Fiore S.L. |
| 145091 – Technical Writing | L- LIN /12 | 6 | Scelta | 1 | 1/2 | Centro Linguistico di Ateneo |
| 145879 – Italian Language ^(NOTE) | | 6 | Scelta | 1 | 1/2 | Centro Linguistico di Ateneo |

NOTES:

- > 145876: Model Checking (aka Formal Methods Module II) requires as prerequisite Automated Reasoning (aka Formal Methods Module I)
- > 145879: This course is reserved to foreign students only.
 Please note that foreign students lacking a sufficient level of knowledge of the Italian language will be required to include 145879 Italian Language, offered by CLA (University Language Center) in their study plan.

The study course is completed by:

- 145884 Tesi / Thesis: 24 CFU
- 145885 Tirocini formativi e di orientamento / Internship: 6 CFU

Please note:

CFU : Credits

LM: corso di laurea magistrale / Master of Science

LT: corso di laurea / Bachelor of Science



INFO: Computer Science

COM: Computer Science and Communication

ING MECC: Mechatronics Engineering CIMEC: Psychology and Cognitive Science

MAT: Mathematics

CURRICULA RECAP

| A - Methodologies | and Applications | B - AI for Innovation C - Systems | | D - Neurocognitive Architectures | | |
|----------------------------------|---|---|----------------------------|---|--|--|
| 48 CFU Mandatory | courses | 48 CFU Mandatory courses 48 CFU Mandatory courses | | 48 CFU Mandatory courses | | |
| 12 CFU Depth requirement | | 12 CFU Depth requirement | 12 CFU Depth requirement | | | |
| 18 CFU Path | Computer Vision | | | 30 CFU Track Neurocognitive Architectures | | |
| | Methodologies | 18 CFU Path AI and Innovation | 18 CFU Path Systems | | | |
| choose among | Intelligent Robots | | | | | |
| 12 CFU Free-choice | 12 CFU Free-choice courses 12 CFU Free-choice courses | | 12 CFU Free-choice courses | 12 CFU Free-choice courses | | |
| 24 CFU Thesis | | 24 CFU Thesis | 24 CFU Thesis | 24 CFU Thesis | | |
| 6 CFU Internship 6 CFU Internshi | | 6 CFU Internship | 6 CFU Internship | 6 CFU Internship | | |
| 1 | 120 CFU 120 CFU | | 120 CFU | 120 CFU | | |