

# BACHELOR CURRICULUM – MAJORS EE & AT – 2022/2023

| Basic courses EE & AT |                              |    |      |   |          |
|-----------------------|------------------------------|----|------|---|----------|
| Code                  | Course                       | EC | Year | Q | Timeslot |
| <a href="#">2WBBO</a> | Calculus 2                   | 5  | 1    | 1 | A/B/C    |
| <a href="#">3NBBO</a> | Applied natural sciences     | 5  | 1    | 2 | A/B      |
| <a href="#">2IABO</a> | Data analytics for engineers | 5  | 1    | 3 | B        |
| <a href="#">OSABO</a> | USE                          | 5  | 1    | 4 | A/C/E    |
| <a href="#">4WBBO</a> | Engineering design           | 5  | 2    | 1 | C        |

| Major courses EE      |  |    |      |   |          |
|-----------------------|--|----|------|---|----------|
| Code                  | Course                                 | EC | Year | Q | Timeslot |
| <a href="#">5EE01</a> | Safety and health, first year instr.   | 0  | 1    | 1 | X        |
| <a href="#">5ECA0</a> | Circuits                               | 5  | 1    | 1 | C        |
| <a href="#">5EIA0</a> | Computation I: hardware/software int.  | 5  | 1    | 1 | E        |
| <a href="#">5ESE0</a> | Signal processing basics (Signals I)   | 5  | 1    | 2 | A        |
| <a href="#">5ECB0</a> | Electronic circuits 1                  | 5  | 1    | 3 | C        |
| <a href="#">2DE20</a> | Mathematics I                          | 5  | 1    | 3 | E        |
| <a href="#">5ESB0</a> | Systems                                | 5  | 1    | 4 | B        |
| <a href="#">5EPA0</a> | Electromagnetics I                     | 5  | 2    | 1 | D        |
| <a href="#">5EWB0</a> | Electrical power systems               | 5  | 2    | 2 | B        |
| <a href="#">5EWA0</a> | Electromechanics                       | 5  | 2    | 2 | C        |
| <a href="#">5ECC0</a> | Electronic circuits 2                  | 5  | 2    | 2 | D        |
| <a href="#">5EIB0</a> | Computation II: embedded system design | 5  | 2    | 3 | C        |
| <a href="#">5ETA0</a> | Intro telecommunications               | 5  | 2    | 3 | E        |
| <a href="#">5EPB0</a> | Electromagnetics II                    | 5  | 2    | 4 | C        |
| <a href="#">5EMA0</a> | Mathematics II                         | 5  | 2    | 4 | E        |
| <a href="#">5ESCO</a> | DSP fundamentals (signals II)          | 5  | 3    | 1 | B        |
| <a href="#">5ESD0</a> | Control systems                        | 5  | 3    | 1 | C        |
| <a href="#">5ETB0</a> | Communication theory                   | 5  | 3    | 2 | B        |

| BEP EE & AT           |  |    |      |       |          |
|-----------------------|--|----|------|-------|----------|
| Code                  | Course                                 | EC | Year | Q     | Timeslot |
| <a href="#">5XEC0</a> | Final bachelor project (BEP)           | 10 | 3    | 3 & 4 | X        |
| <a href="#">5XED0</a> | Extension final bachelor project (BEP) | 5  | 3    | 3 & 4 | X        |

| Major courses AT       |   |    |      |   |          |
|------------------------|---|----|------|---|----------|
| Code                   | Course                                      | EC | Year | Q | Timeslot |
| <a href="#">5EE01</a>  | Safety and health, first year instr.        | 0  | 1    | 1 | X        |
| <a href="#">5ATA0</a>  | Spectrum of automotive                      | 5  | 1    | 1 | A&D      |
| <a href="#">5EIA0</a>  | Computation I: hardware/software int.       | 5  | 1    | 1 | E        |
| <a href="#">5ESE0</a>  | Signal processing basics (Signals I)        | 5  | 1    | 2 | A        |
| <a href="#">5ASC0</a>  | Dynamics for automotive applications        | 5  | 1    | 3 | C        |
| <a href="#">2DE20</a>  | Mathematics I                               | 5  | 1    | 3 | E        |
| <a href="#">5ESB0</a>  | Systems                                     | 5  | 1    | 4 | B        |
| <a href="#">5EPA0</a>  | Electromagnetics I                          | 5  | 2    | 1 | D        |
| <a href="#">5EWA0</a>  | Electromechanics                            | 5  | 2    | 2 | C        |
| <a href="#">5XCA0</a>  | Fundamentals of electronics                 | 5  | 2    | 2 | E        |
| <a href="#">4AUB10</a> | Electric & hybrid vehicle powertrain design | 5  | 2    | 3 | C        |
| <a href="#">5APA0</a>  | Power electronics                           | 5  | 2    | 3 | D        |
| <a href="#">4AUB20</a> | Road vehicle dynamics                       | 5  | 2    | 4 | D        |
| <a href="#">5AIB0</a>  | Sensing computing & actuating               | 5  | 2    | 4 | E        |
| <a href="#">5AIC0</a>  | Vehicle networking                          | 5  | 3    | 1 | B        |
| <a href="#">5ESD0</a>  | Control systems                             | 5  | 3    | 1 | C        |
| <a href="#">2IWA0</a>  | Automotive software engineering             | 5  | 3    | 2 | B        |
| <a href="#">5AID0</a>  | DBL Auton. vehicles conquering the world    | 5  | 3    | 2 | D        |

# BACHELOR CURRICULUM – MAJORS EE & AT – 2022/2023

| Electives EE & AT     |  |    |                |      |          |
|-----------------------|--|----|----------------|------|----------|
| Code                  | Course                                     | EC | Category       | Q    | Timeslot |
| <a href="#">5XFAO</a> | DBL Rock your baby                         | 5  | 1 Introductory | 2    | C & D    |
| <a href="#">5XIAO</a> | DBL Automotive design project energy       | 5  | 1 Introductory | 2    | E        |
| <a href="#">5XIBO</a> | DBL Venus exploration                      | 5  | 1 Introductory | 4    | D        |
| <a href="#">5XEBO</a> | Student project in EE or AU                | 5  | 2 Deepening    | YEAR | X        |
| <a href="#">5XSCO</a> | DBL Autom.design pr electr.differential    | 5  | 2 Deepening    | 1    | A        |
| <a href="#">5XPCO</a> | Neurophysiology and neurostimulation       | 5  | 2 Deepening    | 2    | A        |
| <a href="#">5XSHO</a> | Cognitive neuroscience                     | 5  | 2 Deepening    | 3    | D2       |
| <a href="#">5XSJO</a> | Automotive sensing                         | 5  | 3 Advanced     | 1    | E        |
| <a href="#">5XTBO</a> | Photonics                                  | 5  | 3 Advanced     | 1    | E        |
| <a href="#">5XSLO</a> | Fundamentals of machine learning           | 5  | 3 Advanced     | 2    | A        |
| <a href="#">5XWCO</a> | Energy management                          | 5  | 3 Advanced     | 2    | A        |
| <a href="#">5XSMO</a> | MRI for the brain                          | 5  | 3 Advanced     | 2    | E        |
| <a href="#">5XSEO</a> | Information theory                         | 5  | 3 Advanced     | 3    | A        |
| <a href="#">5XWBO</a> | Electric drive systems                     | 5  | 3 Advanced     | 3    | B        |
| <a href="#">5XCBO</a> | Electronic and photonic components         | 5  | 3 Advanced     | 3    | D        |
| <a href="#">5XSKO</a> | Data fusion & semantic interpretation      | 5  | 3 Advanced     | 3    | E        |
| <a href="#">5XTCO</a> | Components in wireless technologies        | 5  | 3 Advanced     | 3    | E        |
| <a href="#">5XCCO</a> | Biopotential and neural interface circuits | 5  | 3 Advanced     | 3    | E        |
| <a href="#">5XSAO</a> | Introduction to medical image processing   | 5  | 3 Advanced     | 4    | A        |
| <a href="#">5XWFO</a> | OGO Design project on wireless charging    | 5  | 3 Advanced     | 4    | A        |
| <a href="#">5XTAO</a> | Telecommunications systems                 | 5  | 3 Advanced     | 4    | B        |
| <a href="#">5XWGO</a> | Power system computation & simulation      | 5  | 3 Advanced     | 4    | C        |
| <a href="#">5XIFO</a> | Neuro computation                          | 5  | 3 Advanced     | 4    | D        |
| <a href="#">5XSDO</a> | Medical ultrasound                         | 5  | 3 Advanced     | 4    | E        |
| <a href="#">5XIEO</a> | Computational modeling                     | 5  | 3 Advanced     | 4    | E        |
| <a href="#">5XPBO</a> | Nano devices and integration               | 5  | 3 Advanced     | 4    | E        |
| <a href="#">5XWAO</a> | Power system analysis and optimization     | 5  | 3 Advanced     | 4    | E        |
| <a href="#">5XSNO</a> | Monitoring brain functions in healthcare   | 5  | 3 Advanced     | 4    | E        |

| USE Electives EE & AT |                          |    |                |   |          |
|-----------------------|--------------------------|----|----------------|---|----------|
| Code                  | Course                   | EC | Category       | Q | Timeslot |
| <a href="#">5UEUO</a> | From idea to a blueprint | 5  | 1 Introductory | 1 | A        |
| <a href="#">5USUO</a> | Concept vs reality       | 5  | 2 Deepening    | 2 | A        |
| <a href="#">5UAUO</a> | Validation to sales      | 5  | 3 Advanced     | 3 | A        |

| Coherent packages EE & AT  |  |  |  |  |  |
|--|--|--|--|--|--|
| <a href="#">System design &amp; analysis</a>                                   |  |  |  |  |  |
| <a href="#">Machine learning and information processing for communications</a> |  |  |  |  |  |
| <a href="#">Intelligent vehicles: communication, sensing and perception</a>    |  |  |  |  |  |
| <a href="#">Introduction in electrical engineering</a>                         |  |  |  |  |  |
| <a href="#">Introduction in automotive</a>                                     |  |  |  |  |  |
| <a href="#">Electric &amp; hybrid vehicles</a>                                 |  |  |  |  |  |
| <a href="#">Care &amp; cure</a>  |  |  |  |  |  |
| <a href="#">Neuro engineering</a>  |  |  |  |  |  |
| <a href="#">Connected world</a>  |  |  |  |  |  |
| <a href="#">Electrical power conversion and delivery</a>                       |  |  |  |  |  |
| <a href="#">Neuro system design</a>  |  |  |  |  |  |

| USE learning line EE & AT          |  |  |  |  |  |
|------------------------------------|--|--|--|--|--|
| <a href="#">Internet of things</a> |  |  |  |  |  |