

## Msc Vehicle Engineering

**Name of degree programme:** Master in Vehicle Engineering (MSc)

**Academic level of degree:** Masters

**Qualification obtained:** Vehicle Engineer

**Duration of degree programme:** 4 semesters

**Necessary no. credits for degree:** 120 credits

***Obligatory 4-week industrial internship. Can be fulfilled in home country or in Hungary.***

**Curriculum** (beginning in Autumn semester)

(For description of courses please click course code)

### Compulsory courses:

| Nr. | Neptun code of course        | Name of course                              | lessons / week | seminars / week | assessment type | credit points | semester |
|-----|------------------------------|---|----------------|-----------------|-----------------|---------------|----------|
| 1.  | <a href="#">AJNM_BMTA019</a> | Internal Combustion Engines I.              | 3              | 0               | v               | 5             | 1        |
| 2.  | <a href="#">AJNM_BMTA041</a> | Project Autumn                              | 0              | 2               | f               | 5             | 1        |
| 3.  | <a href="#">AJNM_JFTA001</a> | Core elements of whole vehicle engineering  | 2              | 0               | f               | 5             | 1        |
| 4.  | <a href="#">KGNM_VKTA005</a> | Management Competencies                     | 2              | 2               | f               | 5             | 1        |
| 5.  | <a href="#">AJNM_ATTA011</a> | Materials Science                           | 2              | 2               | v               | 5             | 2        |
| 6.  | <a href="#">AJNM_JFTA004</a> | Project Spring                              | 0              | 2               | f               | 5             | 2        |
| 7.  | <a href="#">GKNM_AMTA011</a> | CAE methods                                 | 2              | 1               | v               | 5             | 2        |
| 8.  | <a href="#">GKNM_AUTA011</a> | Automatic Controls                          | 2              | 0               | v               | 5             | 2        |
| 9.  | <a href="#">GKNM_MSTA003</a> | Numerical Analysis                          | 2              | 2               | v               | 5             | 2        |
| 10. | <a href="#">KGNM_VKTA003</a> | Leadership and Organizational Communication | 2              | 2               | v               | 5             | 2        |
| 11. | <a href="#">AJNM_BMTA037</a> | Engine, Motor and Vehicle testing           | 2              | 2               | v               | 5             | 3        |

### Hungarian Language (compulsory)

| Nr. | Neptun code of course        | Name of course                    | lessons / week | seminars / week | assessment type | credit points |
|-----|------------------------------|-----------------------------------|----------------|-----------------|-----------------|---------------|
| 1.  | <a href="#">KGNB_NOKA036</a> | Hungarian Language and Culture 1. | 0              | 3               | a               | 0             |
| 2.  | <a href="#">KGNB_NOKA037</a> | Hungarian Language and Culture 2. | 0              | 3               | a               | 0             |

### Optional courses 1.

**15 credit points** should be obtained from this group of courses.

| Nr. | Neptun code of course | Name of course | lessons / week | seminars / week | assessment type | credit points |
|-----|-----------------------|----------------|----------------|-----------------|-----------------|---------------|
|-----|-----------------------|----------------|----------------|-----------------|-----------------|---------------|

|    |                              |  |   |   |   |   |
|----|------------------------------|--|---|---|---|---|
| 1. | <a href="#">AJNM_ATTA016</a> | Manufacturing Technologies of Modern Vehicles  | 2 | 0 | v | 5 |
| 2. | <a href="#">AJNM_BMTA027</a> | Internal Combustion Engines III                | 2 | 2 | v | 5 |
| 3. | <a href="#">AJNM_BMTA028</a> | Drivetrain development for racing applications | 2 | 0 | v | 5 |
| 4. | <a href="#">AJNM_BMTA032</a> | Tribology + Failure analysis                   | 2 | 2 | v | 5 |
| 5. | <a href="#">AJNM_BMTA045</a> | Simulation of Internal Combustion Engines      | 0 | 2 | v | 5 |
| 6. | <a href="#">AJNM_JFTA008</a> | Vehicle Acoustics I.                           | 2 | 1 | f | 5 |
| 7. | <a href="#">GKNM_AUTA025</a> | Electric Machines                              | 2 | 1 | v | 5 |
| 8. | <a href="#">GKNM_AUTA027</a> | Electric drive systems                         | 2 | 1 | v | 5 |
| 9. | <a href="#">GKNM_MSTA004</a> | Mathematical models and methods                | 2 | 2 | v | 5 |

### Optional courses 2.

**20 credit points** should be obtained from this group of courses.

| Nr. | Neptun code of course        | Name of course                                      | lessons / week | seminars / week | assessment type | credit points |
|-----|------------------------------|---|----------------|-----------------|-----------------|---------------|
| 1.  | <a href="#">AJNM_BMTA020</a> | Internal Combustion Engines II.                     | 2              | 2               | v               | 5             |
| 2.  | <a href="#">AJNM_BMTA026</a> | Controlled storage devices                          | 2              | 1               | v               | 5             |
| 3.  | <a href="#">AJNM_BMTA033</a> | Unmanned vehicles                                   | 2              | 2               | v               | 5             |
| 4.  | <a href="#">AJNM_BMTA034</a> | Hybrid Electric Vehicles                            | 2              | 2               | v               | 5             |
| 5.  | <a href="#">AJNM_BMTA035</a> | Internal Combustion Engine Control                  | 2              | 2               | v               | 5             |
| 6.  | <a href="#">AJNM_BMTA036</a> | Development of Internal Combustion Engines          | 2              | 2               | v               | 5             |
| 7.  | <a href="#">AJNM_JFTA005</a> | Computational fluid dynamics in vehicle engineering | 0              | 2               | f               | 5             |
| 8.  | <a href="#">AJNM_JFTA006</a> | Vehicle properties and conceptual design            | 2              | 2               | f               | 5             |
| 9.  | <a href="#">AJNM_JFTA009</a> | Vehicle Acoustics II.                               | 2              | 2               | f               | 5             |
| 10. | <a href="#">AJNM_JFTA010</a> | Durability and fatigue in vehicle engineering       | 2              | 2               | f               | 5             |
| 11. | <a href="#">AJNM_JFTA014</a> | Sustainable quality management                      | 2              | 0               | v               | 5             |
| 12. | <a href="#">GKNM_AMTA008</a> | Dynamics of Machines                                | 2              | 2               | v               | 5             |
| 13. | <a href="#">KGNB_NOKM024</a> | Exchange Course 4.                                  | 0              | 0               | f               | 5             |

### Optional courses 3.

**15 credit points** should be obtained from this group of courses.

| Nr. | Neptun code of course        | Name of course        | lessons / week | seminars / week | assessment type | credit points |
|-----|------------------------------|-----------------------|----------------|-----------------|-----------------|---------------|
| 1.  | <a href="#">AJNM_BMTA042</a> | Final year project I. | 0              | 4               | f               | 15            |
| 2.  | <a href="#">AJNM_JFTA002</a> | Final year project I. | 0              | 4               | f               | 15            |

### Optional courses 4.

**15 credit points** should be obtained from this group of courses.

| Nr. | Neptun code of course        | Name of course         | lessons / week | seminars / week | assessment type | credit points |
|-----|------------------------------|------------------------|----------------|-----------------|-----------------|---------------|
| 1.  | <a href="#">AJNM_BMTA043</a> | Final year project II. | 0              | 4               | f               | 15            |
| 2.  | <a href="#">AJNM_JFTA003</a> | Final year project II. | 0              | 4               | f               | 15            |

#### \* type of assessment

f - evaluation based on student's performance and work during the semester

v - evaluation based on student's exam grade in a 5-grade system:

excellent (5) – good (4) – satisfactory (3) – passed (2) – fail (1)

**Programme supervisor:** Dr Barna Hanula

**Link to the supervisor's CV:** <https://admissions.sze.hu/images/cv/Hanula%20Barna.pdf>



Please find details of **thesis** and **final exams** on:

[https://ahjk.sze.hu/images/Szab%C3%A1lyzatok/English/AHJK%20Final%20Exam%20Regulations\\_EN.pdf](https://ahjk.sze.hu/images/Szab%C3%A1lyzatok/English/AHJK%20Final%20Exam%20Regulations_EN.pdf)

Information about **admission procedure:** <http://admissions.sze.hu/>