***Curriculum Framework for Automotive Engineering Technology***

| No. | Course Code | Area / Course Title | Total Cr. | Credit Components | | | | | Sem. | Prereq. Code |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Lec. | Prac./ Lab | Disc./Assign. | Proj. | Intern. | | |
| **9.1** | | **General Education** | | | | | | | | |
| **9.1.1** | | **Political Studies** | | | | | | | | |
| **1.** | LP6010 | Marxist-Leninist Philosophy | 3.0 | 3.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1 | |
| **2.** | LP6025 | Marxist-Leninist Political Economy | 2.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2 | |
| **3.** | LP6026 | Scientific Socialism | 2.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4 | |
| **4.** | LP6022 | Ho Chi Minh Thought | 2.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 5 | |
| **5.** | LP6027 | History of the Communist Party of Vietnam | 2.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 6 | |
| **6.** | LP6021 | Introduction to Law | 2.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 7 | |
| **9.1.2** | | **Social Sciences and Humanities** | | | | | | | | |
| **9.1.2.1** | | ***Compulsory*** | | | | | | | | |
| 7. | BS6046 | Intercultural Communication | 2.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2 | |
| **9.1.2.2** | **TCoto1** | ***Electives (select one course from Group 1 and one from Group 2)*** | **4.0** | **4.0** | **0.0** | **0.0** | **0.0** | **0.0** | 4 | |
| **Tc1** | | **Group 1** | **2.0** | **2.0** | **0.0** | **0.0** | **0.0** | **0.0** | | |
| 8. | BS6049 | Humans and the Environment | 2.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 6 | |
| 9. | BS6047 | Introduction to Scientific Research | 2.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 6 | |
| 10. | BS6048 | Labor Relations and Employment | 2.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 6 | |

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|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Lec. | Prac./ Lab | Disc./Assign. | Proj. | Intern. | | |
| 11. | SE6257 | Project Management | 2.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 6 | |
| 12. | SE6218 | Introduction to Economics | 2.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 6 | |
| 13. | SM6186 | Professional Work Practices | 2.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 6 | |
| **Tc2** | | **Group 2** | **2.0** | **2.0** | **0.0** | **0.0** | **0.0** | **0.0** | | |
| 14. | BS6050 | Introduction to Music | 2.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 6 | |
| 15. | BS6052 | Introduction to Fine Arts | 2.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 6 | |
| 16. | BS6051 | Introduction to Art Studies | 2.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 6 | |
| **9.1.3** | **Select one of five foreign language programs** | | **10** | **10** | **0** | **0** | **0** | **0** | | |
| | | **Chinese Language Program** | | | | | | | | |
| 17. | SL6347 | *Chinese 1* | 5.0 | 5.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4 | |
| 18. | SL6348 | *Chinese 2* | 5.0 | 5.0 | 0.0 | 0.0 | 0.0 | 0.0 | 5 | |
| | | **Korean Language Program** | | | | | | | | |
| 19. | SL6351 | *Korean 1* | 5.0 | 5.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4 | |
| 20. | SL6352 | *Korean 2* | 5.0 | 5.0 | 0.0 | 0.0 | 0.0 | 0.0 | 5 | |
| | | **Japanese Language Program** | | | | | | | | |
| 21. | SL6349 | *Japanese 1* | 5.0 | 5.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4 | |
| 22. | SL6350 | *Japanese 2* | 5.0 | 5.0 | 0.0 | 0.0 | 0.0 | 0.0 | 5 | |
| | | **English Language Program** | | | | | | | | |

| No. | Course Code | Area / Course Title | Total Cr. | Credit Components | | | | | Sem. | Prereq. Code |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Lec. | Prac./ Lab | Disc./Assign. | Proj. | Intern. | | |
| 23. | SL6325 | *English for Mechanical and Automotive Engineering 1* | 5.0 | 5.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4 | |
| 24. | SL6326 | *English for Mechanical and Automotive Engineering 1* | 5.0 | 5.0 | 0.0 | 0.0 | 0.0 | 0.0 | 5 | |
| | | ***German Language Program*** | | | | | | | | |
| 25. | FL6582 | *German 1* | 5.0 | 5.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4 | |
| 26. | FL6583 | *German 2* | 5.0 | 5.0 | 0.0 | 0.0 | 0.0 | 0.0 | 5 | |
| **9.1.4** | | **Natural Sciences** | | | | | | | | |
| **9.1.4.1** | | ***Compulsory*** | | | | | | | | |
| | SC6201 | Digital Competency Development[1] | 3.0 | 2.0 | 1.0 | 0.0 | 0.0 | | 3 | |
| 27. | BS6002 | Calculus | 3.0 | 3.0 | 0.0 | 0.0 | 0.0 | | 1 | |
| 28. | BS6040 | Engineering Mathematics | 3.0 | 3.0 | 0.0 | 0.0 | 0.0 | | 2 | |
| 29. | BS6042 | Probability and Statistics | 3.0 | 3.0 | 0.0 | 0.0 | 0.0 | | 3 | |
| 30. | BS6027 | General Physics | 3.0 | 2.0 | 1.0 | 0.0 | 0.0 | 0.0 | 1 | |
| **9.1.4.2** | **TCoto2** | ***Elective*** | **6.0** | **6.0** | 0.0 | 0.0 | 0.0 | 0.0 | | |
| 31. | BS6039 | Numerical Methods | 3.0 | 3.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2 | |
| 32. | SC6221 | Numerical Methods in Programming | 3.0 | 3.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2 | |
| 33. | SC6223 | Discrete Mathematics | 3.0 | 3.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2 | |

[1] Credits: 3 compulsory credits; an additional course covers digital transformation.

| No. | Course Code | Area / Course Title | Total Cr. | Credit Components | | | | | Sem. | Prereq. Code |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Lec. | Prac./ Lab | Disc./Assign. | Proj. | Intern. | | |
| 34. | BS6007 | Physics II | 3.0 | 3.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2 | |
| 35. | CT6279 | General Chemistry | 3.0 | 2.0 | 1.0 | 0.0 | 0.0 | 0.0 | 2 | |
| **9.1.5** | | **National Defense and Security Education**[2] | **8.5** | **8.5** | 0.0 | 0.0 | 0.0 | 0.0 | 1,2 | |
| 36. | | In accordance with Circular No. 05/2020/TT-BGDDT dated March 18, 2020 | | | | | | | | |
| **9.1.6** | | **Physical Education**[3] | **4.0** | **4.0** | 0.0 | 0.0 | 0.0 | 0.0 | 1,2,3 | |
| 37. | | In accordance with the current regulations of Hanoi University of Industry | | | | | | | | |
| **9.2** | | **Professional Education** | | | | | | | | |
| **9.2.1** | | **Broad Discipline Foundations** | | | | | | | | |
| **9.2.1.1** | | **Compulsory** | | | | | | | | |
| 38. | SM6050 | Engineering Drawing | 3.0 | 3.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1 | |
| 39. | SC6208 | Programming Techniques | 3.0 | 2.0 | 1.0 | 0.0 | 0.0 | 0.0 | 5 | |
| 40. | SM6176 | Industrial Safety and Environment | 2.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 5 | |
| 41. | SEE6164 | Electrical and Electronic Engineering | 3.0 | 2.0 | 1.0 | 0.0 | 0.0 | 0.0 | 3 | |
| 42. | SM6140 | Materials Science | 2.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3 | |
| 43. | SM6178 | Engineering Mechanics | 3.0 | 3.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2 | BS6027 |

[2] Credits: 8.5 credits excluded from cumulative GPA calculation (4 courses).

[3] Credits: 3 credits excluded from cumulative GPA calculation (3 courses).

| No. | Course Code | Area / Course Title | Total Cr. | Credit Components | | | | | Sem. | Prereq. Code |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Lec. | Prac./ Lab | Disc./Assign. | Proj. | Intern. | | |
| 44. | SM6055 | Strength of Materials | 2.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3 | SM6178 |
| 45. | SM6054 | Theory of Mechanisms | 2.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3 | |
| 46. | SM6056 | Machine Elements | 2.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4 | |
| 47. | SM6057 | Fundamentals of Mechanical Design Laboratory | 1.0 | 0.0 | 1.0 | 0.0 | 0.0 | 0.0 | 4 | |
| 48. | SM6048 | Introduction to Engineering | 2.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1 | |
| **9.2.2** | | **Discipline Foundations** | | | | | | | | |
| **9.2.2.1** | | **Compulsory** | | | | | | | | |
| 49. | SM6138 | Basic Mechanical Engineering Practice | 2.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 1 | |
| 50. | SM6059 | Tolerances and Measurement Techniques | 2.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4 | |
| 51. | SM6092 | Automotive Engineering Foundation Project | 1.0 | 0.0 | 0.0 | 0.0 | 1.0 | 0.0 | 6 | |
| 52. | SM6153 | Tolerances and Measurement Practice | 1.0 | 0.0 | 1.0 | 0.0 | 0.0 | 0.0 | 4 | |
| 53. | SM6049 | Introduction to Engineering Project | 1.0 | 0.0 | 0.0 | 0.0 | 1.0 | 0.0 | 1 | |
| 54. | SM6190 | Engineering Thermodynamics | 2.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2 | |
| 55. | SM6195 | Computer-Aided Design (CAD) | 2.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 3 | SM6050 |
| 56. | SM6093 | Automotive Construction | 2.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3 | SM6049 |
| 57. | SM6167 | Vehicle Dynamics and Theory | 3.0 | 2.0 | 0.0 | 1.0 | 0.0 | 0.0 | 4 | SM6049 |
| 58. | SM6094 | Internal Combustion Engines | 3.0 | 3.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4 | |

| No. | Course Code | Area / Course Title | Total Cr. | Credit Components | | | | | Sem. | Prereq. Code |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Lec. | Prac./ Lab | Disc./Assign. | Proj. | Intern. | | |
| 59. | SM6029 | Automotive Electrical and Electronic Systems | 2.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4 | |
| **9.2.2.2** | **Tcoto3** | **Elective** | **2.0** | **2.0** | **0.0** | **0.0** | **0.0** | **0.0** | 5 | |
| 60. | SM6096 | Sensors and Measurement Systems | 2.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 5 | |
| 61. | SM6121 | Actuators and Control | 2.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 5 | |
| 62. | SM6098 | Intelligent Transportation Systems and Smart Vehicles | 2.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 5 | |
| 63. | SM6099 | Automotive Safety and Comfort Technologies | 2.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 5 | |
| 64. | SM6101 | New Energy Technologies for Vehicles | 2.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 5 | |
| 65. | SM6102 | Exhaust Emissions and Environmental Pollution | 2.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 5 | |
| **9.2.3** | | **Specialization** | | | | | | | | |
| **9.2.3.1** | | ***Compulsory*** | | | | | | | | |
| 66. | SM6103 | Software Applications in Automotive Simulation | 2.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 6 | SM6167 |
| 67. | SM6163 | Automotive Engineering Specialization Project | 2.0 | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 7 | SM6169 |
| 68. | SM6169 | Automotive Design and Engineering Calculations | 3.0 | 2.0 | 0.0 | 1.0 | 0.0 | 0.0 | 5 | SM6093 |
| 69. | SM6104 | Automotive Diagnostics and Maintenance | 2.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 5 | BS6042<br>SM6093 |
| 70. | SM6105 | Automotive Diagnostics and Maintenance Practice | 2.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 6 | SM6093<br>SM6153 |
| 71. | SM6162 | Automotive Manufacturing and Assembly Technology | 2.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 6 | |
| 72. | SM6106 | Automotive Testing and Data Processing | 1.0 | 0.0 | 1.0 | 0.0 | 0.0 | 0.0 | 7 | BS6042<br>SM6104 |

| No. | Course Code | Area / Course Title | Total Cr. | Credit Components | | | | | Sem. | Prereq. Code |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Lec. | Prac./ Lab | Disc./Assign. | Proj. | Intern. | | |
| 73. | SM6168 | Vehicle Inspection and Operation Techniques | 2.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 7 | |
| 74. | SM6107 | Automotive Automatic Control | 2.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 7 | |
| **9.2.3.2** | **TCoto4** | ***Elective*** | **2.0** | **2.0** | **0.0** | **0.0** | **0.0** | **0.0** | 7 | |
| 75. | SM6109 | Automotive Hydraulic and Pneumatic Technology | 2.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 7 | |
| 76. | SM6110 | Automotive Body and Chassis Technology | 2.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 7 | |
| 77. | SM6111 | Vehicle Vibrations and Noise | 2.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 7 | |
| 78. | SM6146 | Automotive Component Manufacturing Technology | 2.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 7 | |
| 79. | SM6028 | Electric and Hybrid Vehicles | 2.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 7 | |
| 80. | SM6108 | Electric Vehicle Control | 2.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 7 | |
| **9.3** | | **Free Electives** | 12 | 12 | 0.0 | 0.0 | 0.0 | 0.0 | | |
| **9.3.1** | | ***Compulsory*** | 2.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 7 | |
| | | *Additional courses developing students' soft skills may be included according to the field of study.* | | | | | | | | |
| 81. | SE6029 | Innovation and Entrepreneurial Thinking | 2.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 7 | |
| **9.3.2** | | **Electives (select one of four foreign language program groups)** | 5.0 | 5.0 | 0.0 | 0.0 | 0.0 | 0.0 | | |
| | | **Chinese Language Program** | | | | | | | | |

| No. | Course Code | Area / Course Title | Total Cr. | Credit Components | | | | | Sem. | Prereq. Code |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Lec. | Prac./ Lab | Disc./Assign. | Proj. | Intern. | | |
| 82. | FL6560 | *Basic Chinese 1*[4] | 5.0 | 5.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1 | |
| 83. | FL6561 | *Basic Chinese 2* | 5.0 | 5.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2 | |
| | | **Korean Language Program** | | | | | | | | |
| 84. | FL6564 | *Basic Korean 1* | 5.0 | 5.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1 | |
| 85. | FL6565 | *Basic Korean 2* | 5.0 | 5.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2 | |
| | | **Japanese Language Program** | | | | | | | | |
| 86. | FL6562 | *Basic Japanese 1* | 5.0 | 5.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1 | |
| 87. | FL6563 | *Basic Japanese 2* | 5.0 | 5.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2 | |
| | | **English Language Program** | | | | | | | | |
| 88. | SL6311 | *Basic English for Mechanical and Automotive Engineering 1* | 5.0 | 5.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1 | |
| 89. | SL6312 | *Basic English for Mechanical and Automotive Engineering 1* | 5.0 | 5.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2 | |
| | | ***German Language Program*** | | | | | | | | |
| 90. | FL6580 | *Basic German 1* | 5.0 | 5.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1 | |
| 91. | FL6581 | *Basic German 2* | 5.0 | 5.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2 | |
| **9.4** | | **Industry Internship and Graduation Project/Thesis** | **15** | **0.0** | **0.0** | **0.0** | **8.0** | **7.0** | | |

[4] Supplementary foreign language courses are excluded from cumulative GPA calculation: two basic courses (5 credits per course).

| No. | Course Code | Area / Course Title | Total Cr. | Credit Components | | | | | Sem. | Prereq. Code |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Lec. | Prac./ Lab | Disc./Assign. | Proj. | Intern. | | |
| 92. | SM6152 | Industry Internship | 7.0 | 0.0 | 0.0 | 0.0 | 0.0 | 7.0 | 8 | SM6105 |
| 93. | SM6149 | Graduation Project/Thesis | 8.0 | 0.0 | 0.0 | 0.0 | 8.0 | 0.0 | 8 | |