

| Curriculum of the Master's Program at the Department of Chemical and Materials Engineering, Chang Gung University<br>(For students admitted in Fall, 2026) |                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |       |                                   |                                          |       |       |       |             |             |                                            |                                                  |      |                                               |       |       |   |  |
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|                                                                                                                                                            | Course Code                                                                                                                                                                                                                                                                                                                                                                                                                                                       | E / C | SUBJECT                           | Crt.                                     | Grade | 1Sem. | 2Sem. |             | Course Code | E / C                                      | SUBJECT                                          | Crt. | Grade                                         | 1Sem. | 2Sem. |   |  |
|                                                                                                                                                            | CEM009<br>CEM010                                                                                                                                                                                                                                                                                                                                                                                                                                                  | C     | Research on Special Topics (1)(2) | 2                                        | 1     | 1     | 1     | Engineering | CEM710      | E                                          | Instrumentation and Control System Design        | 3    | 1                                             | 3     |       |   |  |
|                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |       |                                   |                                          |       |       |       |             | CEM053      | E                                          | Advanced Process Control                         | 3    | 1                                             |       | 3     |   |  |
|                                                                                                                                                            | CEM011<br>CEM012                                                                                                                                                                                                                                                                                                                                                                                                                                                  | E     | Seminar(1)(2)                     | 4                                        | 1     | 2     | 2     |             | CEM260      | E                                          | Supercritical Fluids and its Applications        | 3    | 1                                             |       | 3     |   |  |
|                                                                                                                                                            | CEM013<br>CEM014                                                                                                                                                                                                                                                                                                                                                                                                                                                  | E     | Seminar(3)(4)                     | 4                                        | 2     | 2     | 2     |             | CEM381      | E                                          | Chemical Process Simulation Practices            | 3    | 1                                             |       | 3     |   |  |
|                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |       |                                   |                                          |       |       |       |             |             |                                            |                                                  |      |                                               |       |       |   |  |
|                                                                                                                                                            | College of Engineer                                                                                                                                                                                                                                                                                                                                                                                                                                               |       | E                                 | English Speaking and Presentation (I)    | 2     | —     | 2     |             |             | Biotechnology<br>Field/Professional        | CEM360                                           | E    | Applied Industrial Microbiology               | 3     | 1     | 3 |  |
|                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |       | E                                 | English Speaking and Presentation ( II ) | 2     | —     |       |             | 2           |                                            | CEM571                                           | E    | Biochemical Engineering                       | 3     | 1     | 3 |  |
|                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |       | E                                 | English Technical Writing (1)            | 1     | —     | 1     |             |             |                                            | CEM040                                           | E    | Applications of Nanobiotechnonlgy in Medicine | 2     | 1     | 2 |  |
|                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |       | E                                 | English Technical Writing (2)            | 1     | —     |       |             | 1           |                                            |                                                  |      |                                               |       |       |   |  |
|                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |       |                                   |                                          |       |       |       |             |             | Materials Technology<br>Field/Professional | CEM172                                           | E    | Ceramic Materials                             | 3     | 1     | 3 |  |
|                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |       |                                   |                                          |       |       |       | CEM103      | E           |                                            | Biomaterial                                      | 3    | 1                                             | 3     |       |   |  |
|                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |       |                                   |                                          |       |       |       | CEM036      | E           |                                            | Introduction to Energy Technology                | 3    | 1                                             | 3     |       |   |  |
|                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |       |                                   |                                          |       |       |       | CEM132      | E           |                                            | Physical Metallurgy                              | 3    | 1                                             | 3     |       |   |  |
|                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |       |                                   |                                          |       |       |       | CEM001      | E           |                                            | Equipment-advanced technology of semiconductor   | 3    | 1                                             | 3     |       |   |  |
|                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |       |                                   |                                          |       |       |       | CEM025      | E           |                                            | The Photoelectrochemical Technology              | 3    | 1                                             |       | 3     |   |  |
|                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |       |                                   |                                          |       |       |       |             | E           |                                            | Density Functional Theory for Materials Modeling | 3    | 1                                             | 3     |       |   |  |
|                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |       |                                   |                                          |       |       |       |             |             |                                            |                                                  |      |                                               |       |       |   |  |
| Remarks                                                                                                                                                    | 1 At least 40 credit hours are required to receive Master degree.<br>(1)2 credit hours from the required courses.(including Research on Special Topics (1)(2))<br>(2)32 credit hours from the elective courses. Elective courses offered by the departmental doctoral program may be taken and credited toward the master's degree requirements.<br>(3)6 credits of thesis.(grant upon graduation)                                                                |       |                                   |                                          |       |       |       |             |             |                                            |                                                  |      |                                               |       |       |   |  |
|                                                                                                                                                            | 2 Max.of 3 credit hours outside of CME Department and Biomed Graduate Institute are counted for graduation requirement.                                                                                                                                                                                                                                                                                                                                           |       |                                   |                                          |       |       |       |             |             |                                            |                                                  |      |                                               |       |       |   |  |
|                                                                                                                                                            | 3 Doctoral-level courses Advanced Reaction Engineering, Advanced Transport Phenomena, Advanced Thermodynamics, Advanced Organic Materials, and Advanced Inorganic Materials are designated as core elective courses for the master's program. Students are required to complete at least one of these courses.                                                                                                                                                    |       |                                   |                                          |       |       |       |             |             |                                            |                                                  |      |                                               |       |       |   |  |
|                                                                                                                                                            | 4.1 Seminar (1) (2) (3) (4) should be taken during the master program study.                                                                                                                                                                                                                                                                                                                                                                                      |       |                                   |                                          |       |       |       |             |             |                                            |                                                  |      |                                               |       |       |   |  |
|                                                                                                                                                            | 4.2 Students who graduate earlier than regular two years may waive Seminar (3) (4) courses, but still need to obtain 40 credit hours to fulfill graduation requirement.                                                                                                                                                                                                                                                                                           |       |                                   |                                          |       |       |       |             |             |                                            |                                                  |      |                                               |       |       |   |  |
|                                                                                                                                                            | 5 International students may take elective courses in English provided by other departments/graduate institutes of CGU toward graduation requirement, within the caps of 12 credit hours for M.S. students and 9 credit hours for Ph.D. students. These courses are subject to be reviewed by advisor and graduate student affairs committee. This regulation applies to the international students admitted through the international student admission process. |       |                                   |                                          |       |       |       |             |             |                                            |                                                  |      |                                               |       |       |   |  |
|                                                                                                                                                            | 6 All graduate students must pass/meet the English proficiency test/requirement as outlined in "English Proficiency Assessment for Foreign Students, College of Engineering, Chang Gung University".                                                                                                                                                                                                                                                              |       |                                   |                                          |       |       |       |             |             |                                            |                                                  |      |                                               |       |       |   |  |
|                                                                                                                                                            | 7 E:Elective / C:Compulsory                                                                                                                                                                                                                                                                                                                                                                                                                                       |       |                                   |                                          |       |       |       |             |             |                                            |                                                  |      |                                               |       |       |   |  |
|                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |       |                                   |                                          |       |       |       |             |             |                                            |                                                  |      |                                               |       |       |   |  |
|                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |       |                                   |                                          |       |       |       |             |             |                                            |                                                  |      |                                               |       |       |   |  |