



"El saber de mis hijos  
hará mi grandeza"

# Curriculum Map

## Masters in Engineering Science: Chemical Engineering

|                     | I  | II             | III                              | IV | COURSES |  |                   |                                      |   |    |  |                    |  |   |    |  |                     |                                 |   |    |  |
|---------------------|--|----------------|----------------------------------|----|---------|--|-------------------|--------------------------------------|---|----|--|--------------------|--|---|----|--|---------------------|---------------------------------|---|----|--|
| 1                   | <table border="1"> <tr> <td>2320</td> <td>Advanced Mathematics MAT</td> <td>8</td> <td>4</td> </tr> </table>         | 2320           | Advanced Mathematics MAT         | 8  | 4       | <table border="1"> <tr> <td>2321</td> <td>Numerical Methods in Engineering MAT</td> <td>8</td> <td>4</td> </tr> </table> | 2321              | Numerical Methods in Engineering MAT | 8 | 4  |  |                    | <b>Mathematics Courses</b> <ul style="list-style-type: none"> <li>Advanced Mathematics (mandatory)</li> <li>Numerical Methods in Engineering</li> </ul>                                    |   |    |  |                     |                                 |   |    |  |
| 2320                | Advanced Mathematics MAT   | 8              | 4                                |    |         |  |                   |                                      |   |    |  |                    |  |   |    |  |                     |                                 |   |    |  |
| 2321                | Numerical Methods in Engineering MAT   | 8              | 4                                |    |         |  |                   |                                      |   |    |  |                    |  |   |    |  |                     |                                 |   |    |  |
| 2                   | <table border="1"> <tr> <td>Basic Course I</td> <td>BAS</td> <td>8</td> <td>4</td> </tr> </table>                    | Basic Course I | BAS                              | 8  | 4       | <table border="1"> <tr> <td>Basic Course II</td> <td>BAS</td> <td>8</td> <td>4</td> </tr> </table>                       | Basic Course II   | BAS                                  | 8 | 4  |  |                    | <b>Basic Courses</b> <ul style="list-style-type: none"> <li>Mass Transfer Operations</li> <li>Advanced Thermodynamics</li> <li>Transport Phenomena</li> <li>Reactor Engineering</li> </ul> |   |    |  |                     |                                 |   |    |  |
| Basic Course I      | BAS  | 8              | 4                                |    |         |  |                   |                                      |   |    |  |                    |  |   |    |  |                     |                                 |   |    |  |
| Basic Course II     | BAS  | 8              | 4                                |    |         |  |                   |                                      |   |    |  |                    |  |   |    |  |                     |                                 |   |    |  |
| 3                   | <table border="1"> <tr> <td>2369</td> <td>Advanced Research Techniques INV</td> <td>8</td> <td>4</td> </tr> </table> | 2369           | Advanced Research Techniques INV | 8  | 4       | <table border="1"> <tr> <td>Elective Course I</td> <td>OPT</td> <td>8</td> <td>4</td> </tr> </table>                     | Elective Course I | OPT                                  | 8 | 4  | <table border="1"> <tr> <td>Elective Course II</td> <td>OPT</td> <td>8</td> <td>4</td> </tr> </table>                | Elective Course II | OPT  | 8 | 4  | <table border="1"> <tr> <td>Elective Course III</td> <td>OPT</td> <td>8</td> <td>4</td> </tr> </table>               | Elective Course III | OPT                             | 8 | 4  | <b>Research and Thesis Courses</b> <ul style="list-style-type: none"> <li>Advanced Research Techniques</li> <li>Graduate Seminar</li> <li>Research</li> <li>Doctorate in Science Thesis</li> </ul>   |
| 2369                | Advanced Research Techniques INV   | 8              | 4                                |    |         |  |                   |                                      |   |    |  |                    |  |   |    |  |                     |                                 |   |    |  |
| Elective Course I   | OPT  | 8              | 4                                |    |         |  |                   |                                      |   |    |  |                    |  |   |    |  |                     |                                 |   |    |  |
| Elective Course II  | OPT  | 8              | 4                                |    |         |  |                   |                                      |   |    |  |                    |  |   |    |  |                     |                                 |   |    |  |
| Elective Course III | OPT  | 8              | 4                                |    |         |  |                   |                                      |   |    |  |                    |  |   |    |  |                     |                                 |   |    |  |
| 4                   | <table border="1"> <tr> <td>2371</td> <td>Research (M) INV</td> <td>3</td> <td>TC</td> </tr> </table>                | 2371           | Research (M) INV                 | 3  | TC      | <table border="1"> <tr> <td>2371</td> <td>Research (M) INV</td> <td>3</td> <td>TC</td> </tr> </table>                    | 2371              | Research (M) INV                     | 3 | TC | <table border="1"> <tr> <td>2371</td> <td>Research (M) INV</td> <td>3</td> <td>TC</td> </tr> </table>                | 2371               | Research (M) INV   | 3 | TC | <table border="1"> <tr> <td>2371</td> <td>Research (M) INV</td> <td>3</td> <td>TC</td> </tr> </table>                | 2371                | Research (M) INV                | 3 | TC | <b>Elective Courses</b> <ul style="list-style-type: none"> <li>Computational Fluid Dynamics</li> <li>Process Simulation</li> <li>Bioprocess Design</li> <li>Biosseparation</li> <li>Advanced Biochemistry</li> <li>Cell Culturing Basics I</li> <li>Bioprocess Engineering</li> <li>Energy Generation Technologies</li> <li>Energy Sustainability and Prospective</li> <li>Alternative Energy Sources</li> <li>Water Treatment Plant Design</li> <li>Environmental Microbiology</li> <li>Environmental Chemistry</li> <li>Industrial Waste Handling and Treatment</li> <li>Multiphase System Models</li> <li>Surface and Interphase Physical Chemistry</li> <li>Processing of Materials</li> <li>Aqueous Materials Processing</li> <li>Chemical Materials Processing at High Temperatures</li> <li>Solid-Fluid Reaction Engineering</li> <li>Electro-chemical Materials Processing</li> <li>Select Engineering Topics I</li> <li>Select Engineering Topics II</li> <li>Soil Chemistry</li> <li>Advanced Instrumental Analysis</li> <li>Experiment Design</li> <li>Solar Energy Engineering</li> <li>Separation Processes</li> <li>Solid-Liquid Separation</li> </ul> |
| 2371                | Research (M) INV   | 3              | TC                               |    |         |  |                   |                                      |   |    |  |                    |  |   |    |  |                     |                                 |   |    |  |
| 2371                | Research (M) INV   | 3              | TC                               |    |         |  |                   |                                      |   |    |  |                    |  |   |    |  |                     |                                 |   |    |  |
| 2371                | Research (M) INV   | 3              | TC                               |    |         |  |                   |                                      |   |    |  |                    |  |   |    |  |                     |                                 |   |    |  |
| 2371                | Research (M) INV   | 3              | TC                               |    |         |  |                   |                                      |   |    |  |                    |  |   |    |  |                     |                                 |   |    |  |
| 5                   | <table border="1"> <tr> <td>2372</td> <td>Graduate Seminar (M) INV</td> <td>2</td> <td>2</td> </tr> </table>         | 2372           | Graduate Seminar (M) INV         | 2  | 2       | <table border="1"> <tr> <td>2372</td> <td>Graduate Seminar (M) INV</td> <td>2</td> <td>2</td> </tr> </table>             | 2372              | Graduate Seminar (M) INV             | 2 | 2  | <table border="1"> <tr> <td>2372</td> <td>Graduate Seminar (M) INV</td> <td>2</td> <td>2</td> </tr> </table>         | 2372               | Graduate Seminar (M) INV   | 2 | 2  | <table border="1"> <tr> <td>2372</td> <td>Graduate Seminar (M) INV</td> <td>2</td> <td>2</td> </tr> </table>         | 2372                | Graduate Seminar (M) INV        | 2 | 2  |  |
| 2372                | Graduate Seminar (M) INV   | 2              | 2                                |    |         |  |                   |                                      |   |    |  |                    |  |   |    |  |                     |                                 |   |    |  |
| 2372                | Graduate Seminar (M) INV   | 2              | 2                                |    |         |  |                   |                                      |   |    |  |                    |  |   |    |  |                     |                                 |   |    |  |
| 2372                | Graduate Seminar (M) INV   | 2              | 2                                |    |         |  |                   |                                      |   |    |  |                    |  |   |    |  |                     |                                 |   |    |  |
| 2372                | Graduate Seminar (M) INV   | 2              | 2                                |    |         |  |                   |                                      |   |    |  |                    |  |   |    |  |                     |                                 |   |    |  |
| 6                   | <table border="1"> <tr> <td>2375</td> <td>Doctorate in Science Thesis INV</td> <td>6</td> <td>TC</td> </tr> </table> | 2375           | Doctorate in Science Thesis INV  | 6  | TC      | <table border="1"> <tr> <td>2375</td> <td>Doctorate in Science Thesis INV</td> <td>6</td> <td>TC</td> </tr> </table>     | 2375              | Doctorate in Science Thesis INV      | 6 | TC | <table border="1"> <tr> <td>2375</td> <td>Doctorate in Science Thesis INV</td> <td>6</td> <td>TC</td> </tr> </table> | 2375               | Doctorate in Science Thesis INV  | 6 | TC | <table border="1"> <tr> <td>2375</td> <td>Doctorate in Science Thesis INV</td> <td>6</td> <td>TC</td> </tr> </table> | 2375                | Doctorate in Science Thesis INV | 6 | TC |  |
| 2375                | Doctorate in Science Thesis INV  | 6              | TC                               |    |         |  |                   |                                      |   |    |  |                    |  |   |    |  |                     |                                 |   |    |  |
| 2375                | Doctorate in Science Thesis INV  | 6              | TC                               |    |         |  |                   |                                      |   |    |  |                    |  |   |    |  |                     |                                 |   |    |  |
| 2375                | Doctorate in Science Thesis INV  | 6              | TC                               |    |         |  |                   |                                      |   |    |  |                    |  |   |    |  |                     |                                 |   |    |  |
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| KEY     |       |
|---------|-------|
| COURSE  |       |
| CREDITS | HOURS |

BAS - Basic Course  
 MAT - Mathematics Course  
 OPT - Elective Course  
 INV - Investigation Course  
 TC - Full Time  
 H - Hours per Week