

**University of San Diego Shiley-Marcos School of Engineering**  
**IntEngr - Embedded Software Concentration Degree Checklist (2021/22 catalog)**

| Complete | Core Curriculum   | Course that Satisfies Requirement                                  | Units       |
|----------|---|--|-------------|
|          | First Year Writing (CFYW)                               | FYW 150  | 3           |
|          | Mathematical Reasoning (CMRP)                           | MATH 150   |             |
|          | Second Language Competency                              |  | 3 to 9      |
|          | Lower-Division Theological and Religious Inquiry (FTRI) |  | 3           |
|          | Upper-Division Theological and Religious Inquiry (FTRI) |  | 3           |
|          | Philosophical Inquiry (FPHI)                            |  | 3           |
|          | Ethical Inquiry (FETI)                                  | PHIL 342   | 3           |
|          | Scientific and Technological Inquiry (ESTI)             | ENGR 101   |             |
|          | Historical Inquiry (EHSI)                               |  | 3           |
|          | Social and Behavioral Inquiry (ESBI)                    |  | 3           |
|          | Literary Inquiry (ELTI)                                 |  | 3           |
|          | Artistic Inquiry (EARI)                                 |  | 3           |
|          | Diversity, Inclusion, Social Justice (FDD1)             | ENGR 103   |             |
|          | Diversity, Inclusion, Social Justice (FDD2 or FDG2)     | GENG 350   |             |
|          | Advanced Writing (CADW)                                 | GENG 350   |             |
|          | Oral Communication (CORL)                               | COMM 203   | 3           |
|          | Quantitative Reasoning (CQR)                            | ISYE 330   |             |
|          | First Year Integration (CINL)                           | LLC course   |             |
|          | Advanced Integration (CINT)                             | GENG 492   |             |
| Complete | Math/Science Courses                                    | Prerequisites/(Corequisites)                                       |             |
|          | CHEM 151/151L - General Chemistry                       |  | 4           |
|          | Additional Math or Science (based on concentration)     |  | 3           |
|          | MATH 150 - Calculus I                                   |  | 4           |
|          | MATH 151 - Calculus II                                  | MATH 150 (C- or better)  | 4           |
|          | MATH 310 - Applied Math for Science and Engineering I   | MATH 151 (C- or better)  | 3           |
|          | MATH 262 - Discrete Math                                | MATH 151 (C- or better)  | 3           |
|          | ISYE 330 - Engineering Probability & Statistics         | MATH 151   | 3           |
|          | PHYS 270/270L – Mechanics +lab                          | MATH 150   | 4           |
|          | PHYS 271/271L – Electricity & Magnetism +lab            | PHYS 270 (C- or better), MATH 151                                  | 4           |
| Complete | Engineering Core Courses                                | Prerequisites/(Corequisites)                                       | 32          |
|          | ENGR 101 - Introduction to Engineering                  | MATH 115 or (MATH 150)   | 3           |
|          | ENGR 102 – Electromechanical System Design              | ENGR 101, ENGR 121, MATH 150                                       | 3           |
|          | ENGR 103 – User-Centered Design                         | ENGR 101, MATH 150   | 3           |
|          | COMP 110– Computational Problem Solving                 | (MATH 150)   | 3           |
| Complete | GENG Required Courses                                   | Prerequisites/(Corequisites)                                       | 12          |
|          | GENG 250: Integrated Approach to Energy                 | PHYS 271, PHYS 271L, ENGR 102, ENGR 103, (MATH 310)                | 3           |
|          | GENG 311 - Engineering Materials Science                | CHEM 151&L, MATH 151, PHYS 271&L (all with C- or better)           | 3           |
|          | GENG 288: Integrated Approach to Electrical Engineering | PHYS 271, MATH 310   | 4           |
|          | GENG 380 - Sustainability and Engineering               |  | 3           |
|          | MENG 210 - Statics                                      | PHYS 270, MATH 150   | 3           |
|          | Engineering Elective (lower or upper division)          |  | 3           |
|          | Engineering Elective (upper division)                   |  | 3           |
|          | GENG 350 - Engineering and Social Justice               | ENGR 103, (GENG 250 or GENG 288 or MENG 311 C- or better)          | 3           |
|          | GENG 360 - Experimental Engineering                     | ENGR 102, GENG 288 or ELEC 201, MENG 210, GENG 250 or MENG 260, GE | 3           |
|          | GENG 491 - Engineering Senior Design I                  | GENG 350&360   | 4           |
|          | GENG 492 - Engineering Senior Design II                 | GENG 491   | 3           |
| Complete | Embedded Software Concentration                         |  | 35          |
|          | COMP 120 - Programming Abstractions and Methodologies   | COMP 110 (C- or better)  | 3.5         |
|          | COMP 280 - Introduction to Computer Systems             | COMP 120 (C- or better)  | 3.5         |
|          | COMP 300 - Principles of Digital Hardware               | COMP 280, MATH 160   | 3.5         |
|          | COMP 310 - Operating Systems                            | COMP 280   | 3.5         |
|          | COMP 365 - Principles of Information Security           | COMP 280   | 3           |
|          | COMP 375 - Networking                                   | COMP 280   | 3.5         |
|          | GENG 421 - Embedded System Performance                  | COMP 385   | 3           |
|          | GENG 422 - Advanced Embedded Software Development       | GENG 421   | 3           |
|          |   |  | <b>26.5</b> |
|          |   | <b>Total GENG units</b>  | <b>147</b>  |