

I-SHOU UNIVERSITY Department of Chemical Engineering, Graduate Institute of Biotechnology and Chemical Engineering Curriculum for *Doctor’s Students Admitted in Academic Year 2025*

Category	First Year (2025)		Second Year (2026)		
Required Professional Courses (12Credits)	D05645 Seminar (I) [2] 1st D05646 Seminar (II) [2] 2nd D05649 Independent Study (I) [1] 1st D05650 Independent Study (II) [1] 2nd		D05647 Seminar (III) [2] 1st D05648 Seminar (IV) [2] 2nd D05651 Independent Study (III) [1] 1st D05652 Independent Study (IV) [1] 2nd D05D00 Doctoral dissertation [0] 2nd D05D01 Research Ethics [0] 2nd		
Elective Professional Courses (≥ 21Credits) (Elective courses “Independent Study” will not be included.)	D05603 Advanced Chemical Engineering Thermodynamics [3] D05606 Advanced Transport Phenomena [3] D05611 Advanced Biochemistry [3] D05627 Advanced Organic Chemistry [3] D05607 Material Chemistry [3] D05665 Statistics and Experimental Design [3] D05604 Advanced Chemical Reaction [3] D05605 Advanced Physical Chemistry [3] D05618 Phase Equilibrium [3] D05626 Advanced Polymer Physics [3] D05636 Advanced Electrochemistry [3] D05613 Cell Biology [3] D05639 Bio-inorganic Chemistry [3] D05616 Applied Immunology [3] D05667 Technical Thesis Writing [3] D05470 Marketing and management of Bio-tech industry [3] D05612 Genetic Engineering [3]		D05609 Molecular Biology [3] D05623 Advanced Polymer Chemistry [3] D05489 Fermentation Technology [3] D05621 Advanced Mathematics in Chemical [3] D05633 Special Topics of Nanotechnology [3] D05608 Advanced Biochemical Engineering [3] D05610 Biotechnology Processes [3] D05624 Advanced Process Control [3] D05632 Material Analysis [3] D05617 Bioinformatics [3] D05612 Genetic Engineering [3] D05376 Enzyme Engineering [3] D05635 Separation and Application of Natural Products [3] D05671 Introduction to Biotechnology [3]		
Category	Third Year (2027)	Fourth Year (2028)	Fifth Year (2029)	Sixth Year (2030)	Seventh Year 2031)
Elective Professional Courses	D05653 Independent Study (V) [1] 1st D05654 Independent Study (VI) [1] 2nd	D05657 Independent Study (VII) [1] 1st D05658 Independent Study (VIII) [1] 2nd	D05659 Independent Study (IX) [1] 1st D05660 Independent Study (X) [1] 2nd	D05661 Independent Study (XI) [1] 1st D05662 Independent Study (XII) [1] 2nd	D05663 Independent Study (XIII) [1] 1st D05664 Independent Study (XIV) [1] 2nd
Dissertation	Dissertation required courses without credits (capstone courses)				
Credits required for graduation from the Program	33 Credits				
Note	1. Students must complete the required total number of credits within the designated period of study and fulfill the regulations of the Ph.D. Program in Biotechnology and Chemical Engineering, Department of Chemical Engineering, in order to be eligible for graduation. 2. Elective courses should primarily be selected from the graduate courses offered by the department. A maximum of 12 credits from graduate courses offered by other departments may be recognized, excluding courses that are jointly offered with undergraduate programs. 3. Students who enter the Ph.D. program directly from a bachelor’s degree must complete at least 45 credits of courses recognized by the program. Up to 12 credits from master’s-level courses may be counted toward this requirement. 4. Courses taken during the master’s program may not be retaken in the doctoral program if the course titles are the same; repeated courses will not be recognized for credit.				