

**Study Plan Guide - BSc. in Pharmaceutical & Chemical Engineering – Dual Study Track**

<b>First Year</b>		
<b>First Semester (18 CH)</b>	<b>Second Semester (18 CH)</b>	<b>Summer Semester (6 CH)</b>
Course Title	Course Title	Courses + Training
English III - ENGL101 (1CH)	GERL102-German II (3CH)	PCE221-DS :Thermodynamics for Pharmaceutical and Chemical Engineering(3CH) prerequisite: MATH102-Calculus II
German I – GERL101 (3CH)	ENGL102-English IV(1CH)	<b>DS101: Dual Studies Practical course I (3CH)</b> Prerequisite: Department Approved
PHYS101-Physics I (3CH)	MATH102-Calculus II(3CH)	
CHEM103-General Chemistry(3CH)	PHYS104-Physics II(3CH)	
CHEM106-General Chemistry Lab(1CH)	PHYS106-General Physics Lab(1CH)	
Arabic – ARB100 (3CH)	CS116-Computing FundamentalTechnical(3CH)	
Calculus I – MATH101 (3CH)	CS1160-Computing Fundamentallab(1CH)	
IE121-Workshop (1CH)	BIO111-HumanBiology(3CH)	

<b>Second Year</b>		
<b>First Semester (16 CH)</b>	<b>Second Semester (20 CH)</b>	<b>Summer Semester (6 CH)</b>
Course Title	Course Title	Courses + Training
GERL201-German III(3CH)	GERL202-German IV(3CH)	<b>PCE321-DS:Chemical Reaction Engineering (3CH)</b> Prerequisite: Principles of Chemical Engineering PCE212
ENGL201-English V(2CH)	PCE254-Organic Chemistry(2CH)	<b>DS201: Dual Studies Practical course II (3CH)</b> Prerequisite: DS101
PCE211-Introduction to Pharmaceutical and Chemical Engineering(1CH)	ENGL202-English VI(2CH)	
PCE251-Analytical Chemistry(3CH)	PCE2523-Microbiology(3CH)	
PCE281-Analytical ChemistryLab(1CH)	PCE282-Microbiology Lab(1CH)	
MATH205-Differential Equations(3CH)	PCE242-Pharmaceutical Physical Chemistry(2CH)	
MATH203-Applied Mathematics for Engineers(3CH)	PCE272-Pharmaceutical Physical Chemistry Lab(1CH)	
	PCE212-Principles of Chemical Engineering(3CH) PCE222-Fluid Mechanics for Chemical and MedicalEngineers(3CH)	

<b>Third Year</b>		
<b>First Semester (20 CH)</b>	<b>Second Semester (21 CH)</b>	<b>Summer Semester (3 CH)</b>
Course Title	Course Title	Courses + Training
GERL301-German V(3 CH)	GERL302-German VI(3 CH)	<b>DS301: Practical Course III (0 CH)</b> Prerequisite: DS201, DA
BM371-Numerical Methods forEngineers(3 CH)	PCE344-Pharmaceutical Technology –Solid Forms(3 CH)	<b>PCE5333-DS:Hazardous Waste and Risk Management(3 CH)</b> prerequisite: PCE2523-
PCE311-Transport Phenomena(3 CH)	PCE374-Pharmaceutical Technology –Solid	

PCE341-Pharmaceutical Organic Chemistry (2 CH)	Forms Lab(1 CH) PCE342-Instrumental Analysis(3 CH)	Microbiology and PCE282- Microbiology Lab
PCE371-Pharmaceutical Organic Chemistry Lab(1 CH)	PCE372-Instrumental Analysis Lab(1 CH)	
PCE3513-Biochemistry(3 CH)	PCE362-Fluid, Heat and Reaction Engineering Lab(1 CH)	
PCE381-Biochemistry Lab(1 CH)	IE0121-Probability and Statistics (3 CH)	
PCE343-Pharmaceutical Technology –Liquid Forms(3 CH)	PCE312-Separation Processes(3 CH)	
PCE373-Pharmaceutical Technology –Liquid Forms Lab(1 CH)	PCE332-Chemical Engineering Economics(3 CH)	

Fourth Year	
First Semester (12 CH)	Second Semester (12 CH)
4 Elective Courses at German Partner University (12CH)	International Industry Internship – 20 weeks in German Company- PCE499* (12 CH)

Fifth Year	
First Semester (14 CH)	Second Semester (14 CH)
Course Title	Course Title
PCE543-Pharmaceutical Plant Design(3 CH)	PCE5322-Quality Assurance and Process Validation(2 CH)
BM325-Automatic Control Systems for Medical Applications(3 CH)	NE101-National Education(3 CH)
BM328-Automatic Control Systems for Medical Applications Lab(1 CH)	MILS100-Military Science*For Jordanian Only(3 CH)
PCE511-Unit Operations and Industrial Safety(3 CH)	PCE562-Separation Processes Lab(1 CH)
PCE541-Medicinal Chemistry(3 CH)	PCE5423-Pharmaceutical Packaging Technology(3 CH)
PCE591-Graduation Project I(1 CH)	PCE592-Graduation Project II(2 CH)