B.Sc. Pharmaceutical and Chemical Engineering | Undergraduate Program Map

German Jordanian University · School of Applied Medical Sciences · Department of Pharmaceutical and Chemical Engineering

Academic Year 2026–2027 · 170 credit hours · 5-year program including the German Year (Year 4)

PLACEMENT — Remedial courses — not in the 170

- Elementary English (remedial) — ENGL0098 | 3 Cr.
- Intermediate English (remedial) — ENGL0099 | 3 Cr.
- AI Literacy and Digital Security (remedial) — AI0099 | 0 Cr.
- Pre-Mathematics (remedial) — MATH0099 | 3 Cr.
- Elementary Arabic (remedial) — ARB0099 | 3 Cr.

YEAR 1 — Semester 1 — 19 Cr.

- German I (B1 Track) — GERL101B1 | 3 Cr.
- Upper-Intermediate English — ENGL1001 | 3 Cr.
- Physics I — PHYS103 | 3 Cr.
- General Chemistry — CHEM103 | 3 Cr.
- General Chemistry Lab — CHEM106 | 1 Cr.
- Calculus I — MATH101 | 3 Cr.
- Arabic — ARB100 | 3 Cr.

YEAR 1 — Semester 2 — 19 Cr.

- German II (B1/B2 Track) — GERL102B1/B2 | 3 Cr.
- Advanced English — ENGL1002 | 3 Cr.
- Physics II — PHYS104 | 3 Cr.
- General Physics Lab — PHYS106 | 1 Cr.
- Engineering Workshop — IE0141 | 1 Cr.
- Introduction to Pharmaceutical and Chemical Engineering — PCE211 | 1 Cr.
- Calculus II — MATH102 | 3 Cr.
- Computing Fundamentals — CS116 | 3 Cr.
- Computing Fundamentals Lab — CS1160 | 1 Cr.

YEAR 2 — Semester 1 — 17 Cr.

- German III (B1/B2 Track) — GERL201B1/B2 | 3 Cr.
- University Elective I — UE I | 2 Cr.
- Analytical Chemistry — PCE2101 | 2 Cr.
- Analytical Chemistry Lab — PCE281 | 1 Cr.
- Thermodynamics for Pharmaceutical and Chemical Engineering — PCE221 | 3 Cr.
- Applied Mathematics for Engineers — MATH203 | 3 Cr.
- Differential Equations — MATH205 | 3 Cr.

YEAR 2 — Semester 2 — 18 Cr.

- German IV (B1/B2 Track) — GERL202B1/B2 | 3 Cr.
- University Elective II — UE II | 2 Cr.
- Organic Chemistry for PCE — PCE2201 | 3 Cr.
- Organic Chemistry Lab for PCE — PCE2202 | 1 Cr.
- Principles of Chemical Engineering — PCE212 | 3 Cr.
- Fluid Mechanics for Chemical and Medical Engineers — PCE222 | 3 Cr.
- Pharmaceutical Physical Chemistry — PCE242 | 2 Cr.
- Pharmaceutical Physical Chemistry Lab — PCE272 | 1 Cr.

YEAR 3 — Semester 1 — 19 Cr.

- German V (B1/B2 Track) — GERL301B1/B2 | 3 Cr.
- University Elective III — UE III | 2 Cr.
- Biochemistry — PCE3513 | 3 Cr.
- Biochemistry Lab — PCE381 | 1 Cr.
- Chemical Reaction Engineering — PCE321 | 3 Cr.
- Transport Phenomena — PCE311 | 3 Cr.
- Pharmaceutical Technology – Liquid Forms — PCE343 | 3 Cr.
- Pharmaceutical Technology – Liquid Forms Lab — PCE373 | 1 Cr.

YEAR 3 — Semester 2 — 16 Cr.

- German VI (B1/B2 Track) — GERL302B1/B2 | 3 Cr.
- Instrumental Analysis — PCE3101 | 2 Cr.
- Instrumental Analysis Lab — PCE372 | 1 Cr.
- Field Training (160 h, Jordan) — PCE391 | 0 Cr. | 160 h
- Mass Transfer — PCE3201 | 3 Cr.
- Separation Processes — PCE312 | 3 Cr.
- Pharmaceutical Technology – Solid Forms — PCE344 | 3 Cr.
- Pharmaceutical Technology – Solid Forms Lab — PCE374 | 1 Cr.

YEAR 4 — German Year — Semester 1 — 12 Cr.

Program electives are taken at a German partner university; all electives need department approval.

- Program Elective I — Elective | 3 Cr.
- Program Elective II — Elective | 3 Cr.
- Program Elective III — Elective | 3 Cr.
- Program Elective IV — Elective | 3 Cr.

YEAR 4 — German Year — Semester 2 — 12 Cr.

PCE499 prerequisite: pass 3 of PCE3201, PCE321, PCE343, PCE344 + department approval.

- International Internship (Germany, ≥ 20 weeks) — PCE499 | 12 Cr.

YEAR 5 — Semester 1 — 18 Cr.

- Graduation Project I — PCE591 | 1 Cr.
- Chemical Engineering Economics — PCE332 | 3 Cr.
- Fluid, Heat and Reaction Engineering Lab — PCE362 | 1 Cr.
- Chemical Process Dynamics and Control — PCE5102 | 3 Cr.
- Chemical Process Dynamics and Control Lab — PCE5103 | 1 Cr.
- Unit Operations — PCE5101 | 3 Cr.
- Process Safety and Hazardous Waste Management — PCE5104 | 3 Cr.
- Numerical Methods for Engineers — BM371 | 3 Cr.

YEAR 5 — Semester 2 — 20 Cr.

- Graduation Project II — PCE592 | 2 Cr.
- National Education (Arabic/English) — NE101/NEE101 | 3 Cr.
- Military Science — MILS100 | 3 Cr.
- Medicinal Chemistry — PCE541 | 3 Cr.
- Computer-Aided Plant Design — PCE5105 | 3 Cr.
- Computer-Aided Plant Design Lab — PCE5106 | 0 Cr.
- Separation Processes Lab — PCE562 | 1 Cr.
- Pharmaceutical Packaging — PCE5202 ‡ | 2 Cr.
- Statistical Analysis and Quality Assurance — PCE5201 | 3 Cr.

LEGEND

- Chemical and Process Engineering
- Pharmaceutical Sciences and Biochemistry
- Chemistry and Analytical Sciences
- Mathematics, Physics, Computing, Workshop
- Languages (Arabic, English, German)
- University requirements and electives
- Graduation project
- Field training and international internship
- Dashed border = elective slot
- Dotted border = remedial (placement)
- Prerequisite (solid arrow)
- Corequisite: same semester (dashed arrow)

‡ PCE5202: prerequisite is PCE343 OR PCE344 (both arrows are alternatives). German tracks: one box per level; B1/B2 options in the verification report.

CREDIT STRUCTURE

University requirements	21 + 6 elective = 27
School requirements	37
Program compulsory (incl. PCE499 12 Cr.; PCE391 0 Cr.)	94
Program electives (German Year)	12
TOTAL	**170 Cr.**

GERMAN YEAR

- Semester 1: four 3-credit program electives (12 Cr.), taken at a German partner university; pool of 29 PCE electives plus courses from other schools (e.g. PCE401 Biotechnology, PCE413 Membrane Separation, PCE446 Pharmacokinetics, PCE447 Toxicology, PCE448 Modern Drug Forms & Delivery).
- Semester 2: PCE499 International Internship, at least 20 weeks, 12 Cr. Requires passing 3 of these 4 courses: PCE3201, PCE321, PCE343, PCE344, plus department approval.
- PCE391 Field Training (160 h in Jordan) is completed before the German Year.

Unofficial visualization of the PCE Study Plan 2026–2027. Not formally approved; see the verification report for open items.

Course boxes show: course name, code | credit hours. Arrows point from the required course to the dependent course; arrow colour identifies the required course. Source: GJU PCE Study Plan 2026–2027 (study-plan guide; detailed tables used where they differ).