Course No.	Course Title	CH	Lecture	Lab.	PreR	CoR
PCE321	Chemical Reaction Engineering	3	3	0	PCE212	–
PCE391	Field Training (*)	0	0	0	GERL301	–
PCE343	Pharmaceutical Technology – Liquid Forms	3	3	0	PCE242	–
PCE373	Pharmaceutical Technology – Liquid Forms Lab	1	0	3	PCE343	–
	Total	23	18	9		

* Students must complete 160 hours of field training in approved indust

Year 3 – second semester

Course No.	Course Title	CH	Lecture	Lab.	PreR	CoR
PCE342	Instrumental Analysis	3	3	0	PCE251	–
PCE372	Instrumental Analysis Lab	1	0	3	PCE281	PCE342
GERL302	German VI	3	6	0	GERL301	–
PCE202	Applied Statistics and Probability for Engineers	3	3	0	MATH102	–
PCE362	Fluid, Heat and Reaction Engineering Lab	1	0	3	PCE222 PCE311 PCE321	–
PCE312	Separation Processes	3	3	0	PCE311	–
PCE344	Pharmaceutical Technology – Solid Forms	3	3	0	PCE242	–
PCE374	Pharmaceutical Technology – Solid Forms Lab	1	0	3	–	PCE344
PCE332	Chemical Engineering Economics	3	0	0	PCE212	–
	Total	21	18	9		

Year 4, German year

Course No.	Course Title	CH	Lecture	Lab.	PreR	CoR
	Technical Elective I	3	3	–	–	–
	Technical Elective II	3	3	–	–	–
	Technical Elective III	3	3	–	–	–
	Technical Elective IV	3	3	–	–	–
	International Internship	12				
	Total	24				

Year 5 – first semester

Course No.	Course Title	CH	Lecture	Lab.	PreR	CoR
PCE511	Unit Operations and Industrial Safety	3	3	0	PCE312	–
PCE543	Pharmaceutical Plant Design	3	3	0	PCE332 PCE343 PCE344	–
BM325	Automatic Control Systems for Medical Applications	3	3	0	MATH205 PHYS104	–
BM328	Automatic Control Systems for Medical Applications Lab	1	0	3	–	BM325
PCE591	Graduation Project I	1	0	0	DA	–
PCE541	Medicinal Chemistry	3	3	0	PCE351	
ENGL202	English VI	2	3	0	ENGL201	
PCE533	Hazardous Waste and Risk Management	3	3	0	PCE252 PCE311	
	Total	19	18	3		

Year 5 – second semester

Course No.	Course Title	CH	Lecture	Lab.	PreR	CoR
PCE592	Graduation Project II	2	–	–	PCE591	–
PCE542	Pharmaceutical Packaging Technology	3	3	0	PCE343 or PCE344	–
–	University Elective II	3	3	0	–	–
NE101	National Education	3	3	0	–	–
MILS100	Military Science	3	3	0	–	–
PCE532	Quality Assurance and Process Validation	2	2	0	PCE344	–
PCE562	Separation Processes Lab	1	0	3	–	PCE511
	Total	17	14	3		

GJU
الجامعة الألمانية الأردنية
German Jordanian University

School of Applied Medical Sciences (SAMS)

B.Sc Degree in Pharmaceutical & Chemical Engineering

CONTACT US

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"Joining the German Jordanian University was one of the best academic decisions I have ever made. It was a life changing experience and it has opened new opportunities for the future. The quality of teaching and the number of exchange programmes between Jordan and Germany have made me a strong candidate on an international level. I won a few international business awards and I have recently joined the National Aeronautics and Space Agency (NASA) as an intern before starting my postgraduate studies in industrial systems at Cambridge University. All in all, GJU was definitely a great turning point in my life"

Eng. Abdelrahman Budair, Pharmaceutical &Chemical Engineering, Class of 2017

Pharmaceutical and Chemical Engineering (PCE) is the branch of engineering that deals with the conception, design, construction, and operation of manufacturing plants and research facilities. PCE engineers are also involved in the scaling up, manufacturing, and labeling and packaging processes in the conversion of chemical and biological materials into valuable chemicals, pharmaceuticals and pharmaceutical therapies.

In addition, the engineers have to implement the Food and Drugs Administration (FDA) regulations, validation assurance (VA), Quality Control (QC), and maintain Good Manufacturing Practices (GMP) and Good Engineering Practices (GEP) compliant facilities. That's besides the safety of the end product as well as the personal and environmental safety. Department staff members are Ph.D holders with international and industrial experience. The department comprises a fully equipped high standard laboratories and scientific research facilities. The department staff is extended to include highly qualified M.Sc./B.Sc. teaching and research assistants.

At the German Jordanian Univer
sity, the Department of Pharmaceutical and Chemical Engineering offers a five yearsbachelor degree program. All students at SAMS (the School of Applied Medical Sciences), at the Bachelor level, must spend one year in Germany, studying for one semester at a partner university and fulfilling twenty weeks internship in the German industries as a compulsory requirements of graduation The curriculum focuses on the preparation of students for professional positions in the pharmaceutical and chemical production, control, and development sectors of the pharmaceutical, chemical and biotechnology industry.

AFTER GRADUATION

Opportunities for jobs are national, regional international and there is a high demand for pharmaceutical and chemical engineers who produce and manufacture them. There is a wide variety of careers in each sector of the industry including research of new drugs and drug delivery systems, scale up process, manufacturing, labeling and packaging, facility design, management, sales, and education.
Although many job inquiries are not listed as pharmaceutical and chemical engineering positions, they may be listed under several different engineering and science positions, such as chemical engineering, Bioprocesses engineering,

MISSION

The pharmaceutical and chemical engineering B.Sc. program at GJU is a hybrid integration of fields that promotes both disciplines and is committed to:

- Provide outstanding undergraduate degree program, educating pharmaceutical and chemical engineers empowered with excellent technical skills, integrity, and social responsibility.

- Be recognized in research related to pharmaceutical and chemical engineering sciences, creating novel and sustainable solutions to serve public interests and to address global challenges in areas such as health sector and environment technologies.

- Promote inclusive, safe, collaborative and respectful community for learning and work.

OUR VALUES

- Establishing a learning environment that embraces diversity.
- Quality and integrity in teaching, research, practice and service.
- Organizational values that promote and reward critical thinking and continuous quality improvement.
- Embodiment of ethical standards in our education, research, practice and service activities.

VISION

- To be a leader in education, research, practice and service.
- To be a respected institution that advances basic, pharmaceutical and chemical engineering and translational research.
- To provide an academic environment that promotes effective mentoring, professional growth and development, and long life learning.

THE STUDY PLAN

Study plan credit hours' requirements
The student is required to complete successfully (180) credit hours as detailed below

Requirements	Credit Hours		
	Compulsory	Elective	Total
University Requirements	21	6	27
School Requirements	27		27
Program Requirements	114	12	126
Total	162	18	**180**

Guide Plan for Pharmaceutical and Chemical Engineering Program

Year 1 – first semester

Course No.	Course Title	CH	Lecture	Lab.	PreR	CoR
GERL101	German I	3	9	0	–	–
ENGL101	English III	1	3	0	ENGL099	–
CHEM103	General Chemistry	3	3	0	–	–
CHEM106	General Chemistry Lab	1	0	3	–	CHEM103
MATH101	Calculus I	3	3	0	MATH99	–
PHYS103	Physics I	3	3	0	–	–
ARB100	Arabic	3	3	0	ARB099	–
IE121	Workshop	1	0	3	–	–
	Total	18	24	6		

Year 1 – second semester

Course No.	Course Title	CH	Lecture	Lab.	PreR	CoR
GERL102	German II	3	9	0	GERL101	–
ENGL102	English IV	1	3	0	ENGL101	–
MATH102	Calculus II	3	3	0	MATH101	–
PHYS104	Physics II	3	3	0	PHYS103	–
PHYS106	Physics Lab	1	0	3	–	PHYS104
BIO111	Human Biology	3	3	0	–	–
CS116	Computing Fundamentals	3	3	0	–	–
CS1160	Computing Fundamentals Lab	1	0	3	–	CS116
	Total	18	24	6		

Year 2 – first semester

Course No.	Course Title	CH	Lecture	Lab.	PreR	CoR
GERL201	German III	3	6	0	GERL102	–
MATH203	Applied Mathematics for Engineers	3	3	0	MATH102	–
PCE221	Thermodynamics for Pharmaceutical and Chemical Engineering	3	3	0	MATH102	–
PCE211	Introduction to Pharmaceutical and Chemical engineering	1	1	0	–	–
PCE251	Analytical Chemistry	3	3	0	CHEM103	–
PCE281	Analytical Chemistry Lab	1	0	3	CHEM106	PCE251
MATH205	Differential Equations	3	3	0	MATH102	–
	University Elective I	3	3	0	–	–
	Total	20	25	3		

Year 2 – second semester

Course No.	Course Title	CH	Lecture	Lab.	PreR	CoR
GERL202	German IV	3	6	0	GERL201	–
PCE254	Organic Chemistry	2	2	0	CHEM103	–
PCE252	Microbiology	3	3	0	BIO111	–
PCE282	Microbiology Lab	1	0	3	–	PCE252
PCE242	Pharmaceutical Physical Chemistry	2	2	0	PCE221	–
PCE272	Pharmaceutical Physical Chemistry Lab	1	0	3	PCE221	PCE242
PCE212	Principles of Chemical Engineering	3	3	0	PCE221	–
ENGL201	English V	2	3	0	ENGL102	–
PCE222	Fluid Mechanics for Chemical and Medical Engineers	3	3	0	MATH203	–
	Total	20	22	6		

Year 3 – first semester

Course No.	Course Title	CH	Lecture	Lab.	PreR	CoR
GERL301	German V	3	9	0	GERL202	–
BM371	Numerical Methods for Engineers	3	2	3	MATH203 MATH205 CS116	–
PCE311	Transport Phenomena	3	3	0	PCE212 PCE222	–
PCE341	Pharmaceutical Organic Chemistry	2	2	0	PCE254	–
PCE371	Pharmaceutical Organic Chemistry Lab	1	0	3	–	PCE341
PCE351	Biochemistry	3	2	0	BIO111 PCE254	–
PCE381	Biochemistry Lab	1	0	3	–	PCE351