

KATHOLIEKE HOGESCHOOL KEMPEN

Health Care and Chemistry
Department
GEEL



Katholieke Hogeschool Kempen
Campus Geel
Kleinhoefstraat 4
B – 2440 GEEL
Tel.: +32 14 56 23 10
Fax : +32 14 58 48 59

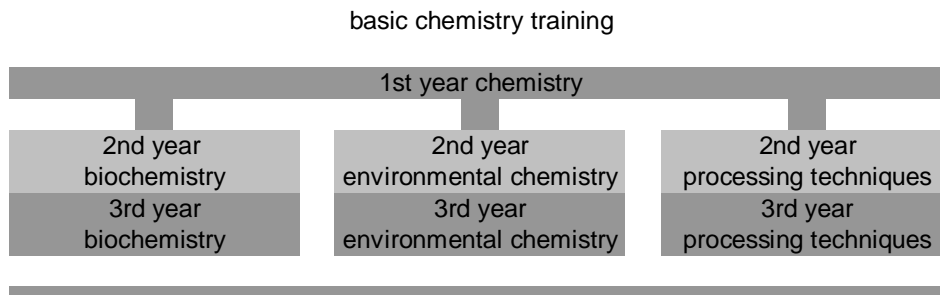
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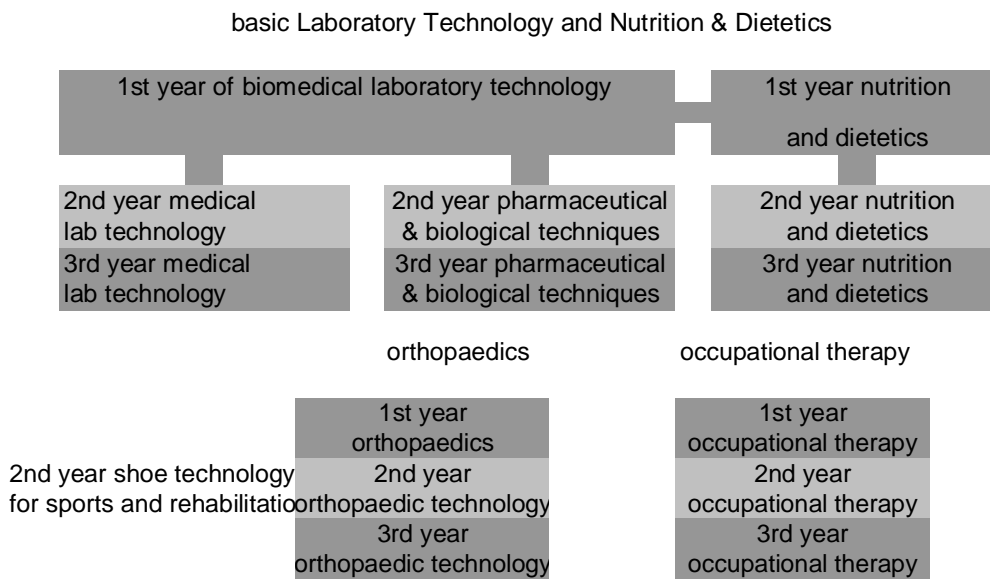
Bachelor of Chemistry
Bachelor of Laboratory Technology
Bachelor of Nutrition & Dietetics
Bachelor of Orthopaedics
Bachelor of Occupational Therapy

Structure of the H&C department

Study field of Industrial Sciences and Technology



study field of Health Care



■ Introduction

📍 Welcome

Welcome to the brochure, which will take you on a tour through the different options of the Health Care and Chemistry department, H&C in short.

📍 Department

H&C is an autonomous department within the Katholieke Hogeschool Kempen with some 550 students studying Chemistry, Biomedical Laboratory Technology and Nutrition & Dietetics, Occupational Therapy or Orthopaedics. Although you will become one of the nearly 6,000 students of the KH Kempen, you'll study in small classes. In the labs, you'll work in groups of 12 to 20 students. Small-scale teaching is definitely one of our trump cards: the department atmosphere is pleasant. Students and teachers work closely together, enabling us to guide you intensively through your studies. But it's a demanding way of learning too: hiding in a large group is not an option; you will have to prove what you are worth.

Campus Geel

The Campus of the Katholieke Hogeschool Kempen in Geel offers all facilities that can be expected from a large university college: an extensive multimedia library, state-of-the-art ICT applications, modern labs... Everything is there for you to fully develop your talents. 'Multi' is the keyword here: on our campus, different branches of science meet , allowing no one to be a blinkered specialist.

Quality

The two aspects mentioned - a pleasant atmosphere and an open campus spirit - are a sound basis for the quality of our training. The business world highly appreciates our graduates - a mere consequence of permanent quality control.

Teachers

In H&C, theory and practice are taught by a group of experienced, enthusiastic lecturers, all of them specialists in their own fields. But we do not want to offer you fragmented subjects. An integrated approach is what you're entitled to: the business world asks for people who can see relations, who can analyse, assess and solve a problem as a whole. Chemistry and (micro) biology take a central place in the programme, but obviously you have to learn the possibilities that mathematical and statistical techniques, ICT applications, etc. have to offer, too.

Practice

We don't train theoreticians, but people who can do practical research based on thorough insight, who can conduct analyses and syntheses or who can develop food schedules. Theoretical classes are always taught with practical applications in mind. That is why you will spend a large part of your time in labs, where you will work both independently and in team - two essential qualities for a graduate. During the work placements in the third year, you will finally have the opportunity to prove what you can do, how competent you are in a work environment and how fast you can adapt to new circumstances. We won't have any trouble finding you a challenging work placement subject, at home or abroad. It's your choice.

And then what?

Where can you go, once you have graduated? We help you answer that question further on in this brochure.

It is certain that the business world knows and appreciates our training. They often contact us when they are recruiting qualified employees. Our Job Service is the link between you and your future employer.

Our graduates have proved that continued study at national and international universities is perfectly possible. In two years you can get the diploma of master of industrial sciences. The entrance to other master degrees is being negotiated. Would you perhaps like to do a work placement abroad? Together, we will look for an appropriate trainee post or post-graduate training. Providing accommodation and finding out about possible grants are part of our service. The choice is yours.

The options chemistry, biochemistry, environmental chemistry and processing techniques

Each option is oriented towards a specialised field of chemistry. But first and foremost you will be a chemist, with the necessary polyvalence, of course.

Chemistry, the first science

Ever since Ancient Greece, man has been searching for the particles uniting the world, for the building bricks of matter and life. After 2,500 years, we're still digging deeper into this matter and our quest is not over yet. Modern science replaced alchemy a long time ago, and it's a fascinating adventure.

Biochemistry

Biochemistry combines chemistry and biology, or life, as it were. Many biochemical processes let our body function the way it should. Many microorganisms ensure biochemical processes in food, including alcohol fermentation and the preparation of bread, cheese and yoghurt. Much modern technology uses microorganisms for preparing medicine. There is also the progress in gene technology, such as the selective integration of properties in the genetic material of plants to avoid illness and the cloning of organisms. Food analysis is a necessary step in the preparation of food and quality control. Thanks to a strict control it is possible to enjoy healthy, unpolluted food on supermarket shelves and on our plates.

Chemistry

The option Chemistry intends to give you a wide chemical training without specialisation in any one given discipline.

As a graduate of this option, you will be able to develop and execute different chemical and physicochemical analyses and syntheses in the research labs and production supporting labs of various industries and institutions.

During the training, the emphasis is on subjects such as analytic, organic and physical chemistry. After a thorough theoretical study, we offer you a wide range of exercises and applications.

Environmental chemistry

Care for the environment is ever increasing. Laws, regulations and standards on this matter are growing ever more severe and compelling. Companies therefore found their own environmental departments, occupying themselves with the problems of gas, liquid and fixed waste products.

That's why we organise specialised environmental training on a bachelor level. Environmental Chemistry teaches various environmental techniques, besides classical analytic techniques. We move deeper into the sources of pollution, its influence on humans, plants and animals, into pollution measuring and decontamination procedures. Again, multi-disciplinary is the key word: physicochemical and biological environmental studies are interwoven with microbial ecology, ecotoxicology, environmental technology and law.

Processing techniques

In chemical industry, there is a wide gap between engineers and chemistry experts. It arises as a result of increasing automation on the one hand, and increasingly complicated production processes on the other.

That's why we train graduate chemists with a knowledge of large-scale production methods. Besides a chemical training, the option Processing Techniques offers students a process-oriented training. Subjects such as Practical Mechanics, Electricity/Electronics, Chemical Processing Technology and Quality Control are essential parts of this training. You will also learn about mechanical, physical and (bio) chemical unit manufacturing, transport systems for mass and energy, measuring, regulation and protection units and materials.

■ Career opportunities

■ Bachelor of chemistry, basic training

Irrespective of the option you choose in the second year, you can start your chemical career in the research, development and control labs of industry, government and research institutions. This lab work is versatile, and focuses on:

- the structures, compositions, qualities and functions of chemical combinations ;
- the possibilities to synthesise new chemical combinations ;
- quality control, in support of production processes.

You can be an assistant in the realisation of chemical, physical, biochemical and microbiological reactions for production processes.

You will be able to analyse the impact of production processes on the environment and, preferably, contribute to decontamination. You are up to a technical-commercial function, too, and you can also go into teaching if you obtain a diploma of teacher of secondary education.

Perhaps you can be a scientific researcher, quality control agent, lab manager, project leader, production manager, etc.

■ Bachelor of chemistry, option biochemistry

As a Bachelor in Chemistry, with a specialisation in biochemistry you can work for companies in the biochemistry and food industry sector. Thanks to the thorough knowledge you will acquire in general biochemistry as well as enzymology, immunology, applied microbiology and food chemistry, and technology and analysis, you can work as a biochemist in the agri-food industry, pharmaceutical and cosmetic sector as well as in the biotechnological industry. You can therefore become a laboratory analyst, a research employee, a quality official, a processing or production employee, or a technical commercial employee.

■ Bachelor of chemistry, option chemistry

Bachelors of chemistry, option chemistry are employed in research centres and chemical or chemistry related industries, especially in synthetic production, in the pharmaceutical industry, basic chemicals production and processing, the food, photographic and paint industries, metallurgy and petrol refineries.

In this professional area, there is a wide range of jobs for you:

- as a lab technologist, you are responsible for general chemical analyses, quality control of raw materials and products etc.
- as a research and development assistant, you develop new methods of analysis and synthesis or you take part in processing or product development;
- as a quality services assistant, you conduct on-line measurements, you are in charge of quality coordination or you take part in the validation of methods of analysis;
- as a co-worker in production, you can be appointed a work manager, production coordinator or process operator;
- as a commercial-technical co-worker, you can be in charge of purchasing and forwarding products, technical marketing, etc.

In research centres, you can work in both fundamental and practical scientific research.

Bachelor of chemistry, option environmental chemistry

As a bachelor of Chemistry, option Environmental Protection, there are opportunities both in industry and in research centres and government services.

The main industrial employers are food, polymer and synthetic industries and the pharmaceutical industry, where you can start working in their environmental departments.

In control labs, you are responsible for sampling, analysing and processing measurement data. Quality and environmental controls are also your responsibility, as are environmental audits and environmental effect reports.

In research labs, you can be called upon for developing and optimising methods of analysis and decontamination techniques. Environmental biotechnology, too, is a new, booming branch of research, aimed at bio-remedies.

On the municipal level, you can apply for a function as an environment official; our training is recognised by AMINAL (the Flemish Ministry's administration of environment, nature, land and water management).

Bachelor of chemistry, option processing techniques

As a bachelor of Chemistry, option Processing Techniques, your job is most likely in the chemical processing industry, i.e. in production, although you are also able to work for supply companies and government services.

In the processing industry, you will work as a processing technician who checks up on the production process and optimises it in order for the final products to meet requirements and to minimise environmental pressure. You will work together with information technologists, electronic engineers, mechanics etc., often in a multiple shift system. As a processing technician, being able to take the right decisions in a calm and controlled way under difficult circumstances is essential.

In development and control labs, you will conduct analyses of raw materials, semi-finished and finished products and you will interpret the results in view of the improvement of production procedures. You are able to assist with processing and product development in the lab and in pilot research: new technologies enable you to develop new procedures, thus improving the final products.

Basic Training Chemistry: work placement

In the third year, students go on a **work placement** in the second half of the academic year in a laboratory or a production unit of industry or of a scientific research institution. A work placement abroad is an option as well. The subject of the work placement is a clearly defined lab or production problem. A company project leader and a lecturer supervise your placement activities. The lecturer regularly contacts the placement company to check whether you keep to your planning.

After your work placement, your external supervisor will fill out a work placement assessment form. His assessment of your social, intellectual and technical skills and flaws determine your overall mark. In a **final report**, you describe your work placement project, and you present it to and defend it before an exam commission, consisting of lecturers and people from the industry.

1st year chemistry

General chemistry (part 1)	5
Chemistry (part 2) Chemistry (part 2) Practicals Chemistry	6
Organic Chemistry	4
Chemistry Lab	6
Biology Biology including ecology, anatomy and physiology	4
Microbiology General Microbiology Microbiology lab	5
Physics (part 1) Mechanics and fluid-mechanics Practicals mechanics and fluid dynamics	6
Physics (part 2) Waves, Electricity and Thermodynamics Practicals	6
Mathematics and Statistics Mathematics and Statistics Math Exercises	6
Communication and Information skills Information skills English and communication ICT	6
Science and Society Science and society Lab and seminar science and society	6
Total	60

2nd year Chemistry - option biochemistry

Quality management and statistics Quality Management Statistics	5
Analytical Chemistry Traditional methods of analysis Spectrometric techniques Electrochemical methods Separation techniques	11
Organic Chemistry	6
Environmental water pollution	4
Physical Chemistry	4
English and communication	4
Lab Analytical Chemistry Lab classical and spectrometric methods Lab electrochemical and separation methods	9
Lab organic chemistry	5

Biochemistry 4 <i>Biochemistry</i>	4
Microbiology Microbiology Lab microbiology	4
Gene technology Gene technology Lab gene technology	4
Total	60

3rd year chemistry – option biochemistry

<u>Religion and meaning of life</u>	<u>4</u>
<u>Food chemistry and analysis</u> _____ food chemistry _____ foodstuff analysis	<u>5</u>
<u>Ecotoxicology and food safety</u> _____ ecotoxicology _____ food safety	<u>5</u>
<u>Biochemistry</u> _____ dynamic biochemistry _____ immunology	<u>7</u>
Lab foodstuff analysis	<u>5</u>
Lab biochemistry lab biochemical techniques lab immunological techniques lab fermentation technology	<u>5</u>
Work placement placement, seminars, company visits	<u>21</u>
Final project	<u>8</u>
Total	<u>60</u>

2nd year Chemistry - option chemistry

Quality management and statistics <i>Quality Management</i> <i>Statistics</i>	5
Analytical Chemistry <i>Traditional methods of analysis</i> <i>Spectrometric techniques</i> <i>Electrochemical methods</i> <i>Separation techniques</i>	11
Organic Chemistry	6
Environmental pollution, water	4
Physical Chemistry	4
English and communication	4
Lab Analytical Chemistry Lab classical and spectrometric methods	9

Lab electrochemical and separation methods	
Lab organic chemistry	5
Biochemistry 4 <i>Biochemistry</i>	4
Structure definition	3
Applied mechanics <i>Applied mechanics</i> <i>Lab mechanics</i>	5
Total	60

3rd year chemistry, option chemistry

Religion and meaning of life	4
Analytical and physical chemistry	5
Organic chemistry and polymer chemistry	5
Chemical technology and electronics	7
Lab analytical chemistry	5
Lab organic chemistry	5
Work placement placement, seminar, company visits	21
Final project	8
Total	60

2nd year chemistry, option environmental technology

Quality care and statistics	5
Analytical chemistry <i>Classical analysis methods</i> <i>Spectrometric methods</i> <i>Electrochemical methods</i> <i>Separation methods</i>	11
Organic chemistry	6
Environmental pollution <i>Environmental water pollution</i>	4
Physical Chemistry	4
English and communication	4
Lab analytical chemistry <i>lab classical and spectrometrical methods</i> <i>lab electrochemical and separation methods</i>	9
lab organic chemistry	5
biochemistry <i>descriptive biochemistry</i>	4
microbiology and lab microbiology	4
gene technology and lab gene technology	4
total	60

3rd year chemistry, option environmental technology

Religion and meaning of life	4
Environmental pollution <i>air</i> <i>sound</i> <i>soil and solid waste</i>	10
Ecotoxicology and environmental legislation	7

Lab environmental water and sound pollution	5
Lab environmental air and soil pollution	5
Work placement Placement, seminars, company visits	21
Final project	8
Total	60

2nd year chemistry, option process technology

Quality management and statistics	5
analytical chemistry <i>classical analysis methods</i> <i>Spectrometric methods</i> <i>electrochemical methods</i> <i>separation methods</i>	11
organic chemistry	6
Environmental water pollution	4
Physical chemistry	4
English and communication	4
Lab analytical chemistry <i>lab classical and spectrometric methods</i> <i>lab electrotechnical and separation methods</i>	9
Lab organic chemistry	5
Applied mechanics and lab	6
Control engineering <i>control engineering</i> <i>workshop electricity</i>	6
Total	60

3rd year chemistry, option process technology

Religion and meaning of life	4
Physical chemistry and polymer chemistry	5
chemical technology and electronics	9
lab organic chemistry	5
lab chemical technology	8
Work placement <i>Placement, seminars, company visits</i>	21
Final project	8
total	60

BIOMEDICAL LABORATORY TECHNOLOGY

MEDICAL LABORATORY TECHNOLOGY

Biomedical laboratory technology trains paramedical scientists who can conduct chemical, physical and biological analyses on substances originating from the human body or from other living creatures, such as plants, animals and microorganisms. The training is also closely linked to biomedical sciences: we pay attention to the functioning of (human) cells and organs in healthy and ill conditions, though not in so much detail.

Analysing presupposes that you have sufficient lab skills and that you are in command of the techniques required for sample taking, research etc. within clinical chemistry, microbiology, haematology, cyto (histo)logy and in-vivo technology. The training is very practical, but the nature of the work demands a solid theoretical and scientific basis: e.g. you need to have insight in the importance of different research projects and their mutual relations to be able to interpret results correctly, and, obviously, you must be able to assess the safety risks involved.

PHARMACEUTICAL AND BIOLOGICAL LABORATORY TECHNIQUES

The option PBT trains you to be a co-worker in the pharmaceutical or biomedical sectors. This requires a profound insight into the relations between structure, behaviour and function of the natural and synthetic bio-molecules present in man, animal and plant. This, in turn, demands a thorough knowledge of anatomy, physiology, histology, pharmaceutical chemistry, pharmacology, toxicology and the integration of these subjects into one. Furthermore, insight in galenic design and pharmaceutical production processes is absolutely necessary for jobs in quality control.

A second important pillar is biotechnological science, where knowledge of molecular biology, virology, gene technology and immunology is essential.

PBT is a practical training, in which a lot of attention is paid to the safe and accurate execution of techniques and analyses in pharmaceutical-biotechnological research.

■ Career opportunities

🏥 Medical laboratory technology

Medical Lab Technologists mainly work in medical labs, labs for fundamental scientific research, institutions for practical R&D, government services, medical services or services of industrial medicine, and research, development and check labs of industry.

Within this line of work, you can take up a wide range of activities.

You have the required skills and the legal qualifications to work as a medical lab technologist in medical labs. In other words, you can conduct activities supporting medical diagnosis and follow-up of the progress of an illness and therapy. These activities involve sample taking, lab analyses, functional tests and technical activities with in vivo supply (e.g. you measure and assess the parameters of different biological functions, you use lab equipment to observe function systems). You can work in these departments:

- the clinical chemistry department (determination of enzymes, hormones, antibodies...)
- the haematology department (determination of blood types, coagulation mechanisms etc.)
- the microbiology department (identification of pathogenic germs as viruses and bacteria)

You can also start your career as an assistant in research and check-up labs of pharmaceutical and diagnostic industries, where you conduct analytical, biochemical, clinical, microbiological, haematological, immunological and histological analyses on substances originating from humans, plants, animals or micro-organisms. You can also work in research programmes for the development of new lab techniques, products and applications in medicine.

There are jobs for you in quality services in the pharmaceutical industry, in recognised clinical labs, the food industry etc. As a technical-commercial assistant, you can be in sales and distribution, technical marketing and services for biomedical lab diagnostics and equipment, of pharmaceutical articles and medical equipment.

Finally, you can work in secondary and higher education.

Depending on your experience, personal qualities and efforts, you can become a chief lab technologist, project leader or quality control officer.

■ **Pharmaceutical and biological techniques**

As a bachelor of pharmaceutical and biological techniques, you have the choice: you can work in industry or in research centres and governmental services. You can work in pharmaceutical and molecular-biological companies, in biological and toxicological labs and in pharmacies.

For a research function, you can start work in the molecular-biological sector, where you do research of viral, microbial, vegetable or animal systems. With the results of that research, you can develop new techniques and/or varieties for biotechnology. This research is mainly done at big universities. In the pharmaceutical sector, your job will be to organise and conduct lab tests to develop new products. You will also be responsible for quality control.

Also technical - commercial functions in the pharmaceutical and biotechnological sectors are within your reach. You can start your career as a pharmacy or doctor visitor or as an assistant

■ **WORK PLACEMENTS MLT/PBT**

In the last semester, all MLT students go on a **work placement** in a hospital or medical lab to be introduced to the world of medicine and to learn how to analyse patient samples efficiently.

Third-year PBT students go on a six-month research work placement in a pharmaceutical company or molecular biology research institute.

The subject of the work placement is a clearly defined scientific assignment. A company project leader and a lecturer supervise your placement activities. The lecturer regularly contacts the placement company to check whether you keep to your planning. A work placement abroad is an option as well.

After your work placement, your external supervisor will fill out a work placement assessment form. His assessment of your social, intellectual and technical skills and flaws largely determine your overall mark. In a **final report**, you describe your work placement project, and you present it to and defend it before an exam commission, consisting of teachers and people from industry.

1st year biomedical laboratory technology

General chemistry (part 1) <i>General chemistry (part 1)</i>	<u>5</u>
Chemistry (part 2) <i>Chemistry (part 2)</i> <i>Practicals Chemistry</i>	<u>6</u>
Bio-Organic Chemistry	<u>4</u>
Chemistry Lab	<u>6</u>
Biology <i>Biology including ecology, anatomy and physiology</i>	<u>4</u>
Microbiology <i>General Microbiology</i> <i>Microbiology lab</i>	<u>5</u>
Physics (part 1) <i>Mechanics and fluid-mechanics</i> <i>Practicals mechanics and fluid dynamics</i>	<u>6</u>
Physics (part 2) <i>Waves, Electricity and Thermodynamics</i> <i>Practicals</i>	<u>6</u>
Mathematics and Statistics <i>Mathematics and Statistics</i> <i>Maths and Statistics Exercises</i>	<u>6</u>
Communication and Information skills <i>Information skills</i> <i>English and communication</i> <i>ICT</i>	<u>6</u>

Introduction to medical and biomedical techniques <i>Integrated project</i> <i>Introduction to medical microbiology</i>	<u>6</u>
Total 60	<u>60</u>

2nd year biomedical laboratory technology
Option medical laboratory technology

Analytical chemistry	7
Biochemistry	7
Biotechnology <i>Molecular biology</i> <i>Gene technology</i> <i>Lab gene technology</i>	6
Histology and lab histology	4
Haematology and immunology Lab haematology and immunology	7
Microbiology and lab microbiology	4
Medical microbiology and lab medical microbiology	4
Lab chemistry <i>Lab analytical chemistry</i> <i>lab biomedical analysis</i>	5
Information and quality management <i>Statistics</i> <i>Quality management</i> <i>English and communication</i>	8
Clinical chemistry and lab clinical chemistry	4
Immune haematology and lab	4
	60

3rd year biomedical laboratory technology
option medical laboratory technology

Religion and meaning of life	7
Biomedical techniques	4
Lab biochemistry lab immune techniques lab biomedical techniques	3
Clinical chemistry and lab	6
Hematology and pathology Lab haematology and pathology	6
Medical microbiology and lab	5
Work placement <i>Placement, seminars, company visits</i>	21
Final project	8
total	60

2nd year biomedical laboratory technology
Option pharmaceutical and biological laboratory technology

Analytical chemistry	7
Biochemistry	7
Biotechnology <i>Molecular biology</i>	6

<i>Gene technology</i> <i>Lab gene technology</i>	
Histology and lab histology	4
Haematology and immunology Lab haematology and immunology	7
Microbiology and lab microbiology	4
Medical microbiology and lab medical microbiology	4
Lab chemistry <i>Lab analytical chemistry</i> <i>lab biomedical analysis</i> <i>lab pharmaceutical analysis</i>	6
Information and quality management <i>Statistics</i> <i>Quality management</i> <i>English and communication</i>	8
Pharmacology and toxicology	7
total	60

3rd year biomedical laboratory technology
option pharmaceutical and biological laboratory technology

Religion and meaning of life	7
Biomedical techniques	4
Lab biochemistry lab immune techniques lab biomedical techniques	3
Galenics and pharmaceutical legislation <i>Galenics</i> <i>lab galenics</i> <i>pharmaceutical legislation and tariffs</i>	8
Gene technology and lab	5
Virology and pathology	4
Work placement <i>Placement, seminars, company visits</i>	21
Final project	8
total	60

■ THE OPTION NUTRITION & DIETETICS (N&D)

Food is a popular subject – logically, as it is essential to all life and its quality. Growing health awareness and the now evident relation between food and diseases require a professional approach.

Food quality and correct information on food and diets is the dieticians' and food experts' aim. That is why we train you to learn to translate a theoretical background into a useful service. We offer a broad training in the field, covering a basic scientific knowledge and practical formation to communication.

In practice

We do not train theoreticians, but rather people who can do practical research, conduct analyses, and apply and develop focussed food plans, based on solid insight. The theory courses are given according to the practice, that is, what you can do with your knowledge. A large part of your time will be spent using and learning practical skills. You should also be able to work alone and in a team, which we believe are two essential qualities for a Bachelor's degree. And during the internships in the third year you can prove yourself, how skilled you are in the field and how quickly you can adapt to new surroundings. We will always have challenging internship assignments for you, even abroad, if you are up to the challenge.

■ Career opportunities

Within the N&D profession, there are two fields. As a paramedic, the dietician is responsible for the food care and information of both healthy and ill people. In the non-paramedic sector, food experts find jobs in industry.

The dietician or food expert is ready to take his/her responsibility, is creative in coming up with solutions, can co-operate with others, and is an organiser and a leader.

Tasks include:

- Individual dietetics
- Education, health promotion
- Information (lectures, campaigns, educational activities)
- Management of collectivities
- Food management
- Special food trade
- Food research

As a dietician, you work for:

- Food services of collectivities such as hospitals, homes for children and the handicapped, homes for the elderly, day-care centres, company and school restaurants, catering companies and home care organisations
- Companies and government institutions
- Pharmaceutical companies and the food industry
- Health centres and education
- Your own food store or health clinic

■ Work placement nutrition and dietetics

In Nutrition and Dietetics a work placement of 600 hours both in collectivities and in clinical dietetics is expected. It is an opportunity to practice your skills. A work placement abroad is possible.

After your work placement, your external supervisors will fill out a work placement assessment form. Their assessment of your social, intellectual and technical skills and flaws largely determine your overall mark.

A company project leader and a lecturer supervise your placement activities. The lecturer regularly contacts the placement company to check whether you keep to your planning. He will frequently contact the placement company and he will help you with the systematic approach of the project.

At the end of the third year you will write a **final report**, which you present to and defend before an exam commission, consisting of lecturers and people from industry.

bachelor of Nutrition and Dietetics

1st year

Psychology and communication General psychology Communication Skills	6
Data processing Calculation techniques ICT Communication Skills	7
General Chemistry part A General and descriptive chemistry	4
General Chemistry part B General chemistry and introduction to analytical chemistry	4
Bio-organic chemistry	4
Lab chemistry	3
Biosciences Biology Anatomy and physiology	7
Microbiology General microbiology Introduction to medical microbiology Lab Microbiology	7
Food science Food science Applied food science Project	8
Food choice Foodstuff knowledge Food and society -epidemiology	6
Food preparation and kitchen technology - practice	4
Total	60

Nutrition and Dietetics 2nd year

Psychology and communication Health psychology Communication skills English	6
Quality care and statistics	5
Applied physics	4
Microbiology and lab	4
Food analysis and lab	8
Biomedical sciences Biochemistry Pathology	9
Applied nutritional science and exercises	4
Dietetics and exercises	10
Applied Nutrition and dietetics for children	4
Workshops nutrition and dietetics Practical preparation of diets Integrated project	3
Community restaurants	3
total	60

Nutrition and Dietetics 3rd year

Society studies Religion and meaning of life Philosophy Deontology	7
Communication Projects Communication skills	5
Applied Nutrition and Dietetics – Theory and case studies	6
Management and hygiene	4
Legislation, toxicology and pharmacology	4
Seminars and food production Food production Scientific research Seminars	4
Work placement	22
Final project	8
Total	60

■ Orthopaedics

■ INTRODUCTION

Orthopaedics: Medicine made by hand

Orthopaedics is where medicine and handiwork meet. Since the beginning of times man has made appliances that could remedy deformities, heal fractures and replace lost limbs. With medicine, orthopaedics has evolved considerably over the last decades: new materials and electronics are used now. And yet: the essence of orthopaedics has remained the same – handiwork. Both aspects – handiwork and technology – are integrated in this training. We educate people who assimilate future developments in a valuable tradition.

Today, the department of orthopaedics offers an orthopaedic technology option and a footwear technology option for sport and revalidation.

We started the Orthopaedics training in 1991 in response to the demand for skilled craftsmen who had a sound knowledge of new materials and medical science, and the qualities to start or support a modern business.

Our graduates must be able to apply the treatment and processing techniques to professionally make bandages, orthoses and prostheses. Hi-tech proficiency is a necessity for them, because of technological developments in microcomputer-controlled prostheses and ultra light alloys and composites. We teach students these aspects both theoretically and practically.

This training is highly medical too. As an orthopaedic technologist, you are not only responsible for manufacturing aids, but also for adjusting them to the individual patient's needs and for assistance when using them.

The footwear technology option for sport and revalidation was created in response to the demand for such a professional field in 2005. Moreover, this professional field needs people who are highly educated and have knowledge of medical, technical and practical subjects.

The first year is a common year. You will have general courses in IT, mechanics and biomechanics as well as medical courses in anatomy and pathology. There will also be technical courses requiring realisation techniques where you will learn the basics of processing different materials needed in both professional fields.

As of the second year a division will be made according to specific courses.

The internship in the second and third year will be completed following your specialisation and will be held at an orthopaedic workplace.

■ ORTHOPAEDICS: CAREER OPPORTUNITIES

As a Bachelor of Orthopaedics you have the skills, and, after receiving your National Health Board recognition, the authority to practise the certified profession of bandager, orthesist and prothesist.

With your diploma you can start working for orthopaedic workshops, both in hospitals and private centres. You can start your own business, too, as we train you to be the manager of a team of skilled technicians.

Your work will typically imply taking the patient's measurements, manufacturing prostheses, bandages or orthoses, and delivering and fitting them on. All this is to happen in close co-operation with doctors and the rehab centre.

You can also find a job in new process and product development, or as a teacher in secondary and higher education.

bachelor of Orthopaedics : orthopaedic technology
1st year Orthopaedics

Information processing Statistics and Research Methodology ICT Information Skills	7
Mechanics Mechanics Mechanics, Practicals	5
Biomechanics 6 Biomechanics Measuring Techniques	6
Anatomy and physiology part 1 Locomotion	6
Anatomy and Physiology Anatomy and Physiology of the Nervous System part 2 Regular anatomy and physiology First Aid	6
General Psychology General Psychology	4
Pathology Orthopaedic Pathology	4
Chemistry and materials science Chemistry Materials	4
Orthopaedic technology Introduction to Orthopaedic Technology Orthoses Lower Limbs	7
Workshop techniques Implementation Techniques Workshop Techniques	11
Total	60

Bachelor of Orthopaedics: orthopaedic technology
2nd year orthopaedic technology

Communication Skills Communication Skills	3
Graphical techniques Graphical techniques	3
Orthotics 3 Orthotics of the upper limbs Practice	3
Orthopaedic technology	9
Workshop techniques	9
Electricity Electricity and lab	3
Materials science	4
Biomechanics 4	4
Pathology Neurology and rehabilitation General pathology	7
Practice period	15
Total	60

*Bachelor of Orthopaedics: orthopaedic technology
3rd year orthopaedic technology*

Religion and meaning of life	4
Communication and information skills	3
Legislation and ethics	4
Business <i>Business organisation</i> <i>Business management</i>	5
Electronics and CAD <i>Electronics</i> <i>CAD-CAM</i> <i>Lab Electronics</i>	5
Orthopaedic technology <i>Wheel Chairs</i> <i>Scoliosis</i> <i>Prostheses lower and upper limbs</i> <i>Seminars</i>	7
Practice period	24
Final Project	8
Total	60

*bachelor of Orthopaedics :Option shoe technology for sports and recreation
2nd year*

Communication and information skills	3
Graphic techniques Drawings, CAD	3
Shoe technology <i>Patterns</i> <i>Shafts</i> <i>Lasts</i> <i>Soles</i> <i>Specific materials</i> <i>Workshop technology</i>	12
Practice techniques <i>Execution techniques shoe technology</i> <i>Seminars</i> <i>Clinical shoe technology</i>	9
Electricity and lab	3
Study of materials	4
Biomechanics	4
Pathology <i>Neurology and rehabilitation</i> <i>General pathology</i>	7
Work placement	15
Total	60

*bachelor of Orthopaedics :Option shoe technology for sports and recreation
3rd year*

<i>Religion and meaning of life</i>	4
<i>Communication and information skills</i>	3
<i>Legislation and ethics</i>	4
<i>Business Business organisation Business management</i>	5
<i>Graphical design and CAD CAD-CAM Graphic design</i>	5
<i>Sports injuries shoe technology pathology seminars</i>	7
<i>Practice period</i>	24
<i>Final Project</i>	8
<i>Total 60</i>	60

 **WORK PLACEMENT AND FINAL WORK**

During the second year students go on an 8-week work placement in an orthopaedic workshop. They learn to know the working atmosphere, they integrate in a group, have contact with patients when measuring, fitting and delivering, they observe manufacturing and practise it themselves. They learn about new materials and techniques.

In the third year there is a 16-week work placement, possibly abroad. The final work subject is always a well-defined project, followed up by a lecturer, who regularly contacts the workshop and keeps the student to the agreed timing.

After finishing the work placement, the external supervisor fills in an evaluation form. His assessment of the student's social, intellectual and technical qualities largely contribute to the overall mark. The work placement eventually leads to a written final work, to be defended for a jury consisting of lecturers and people from the work field.

■ Occupational Therapy

■ OCCUPATIONAL THERAPY, WHAT IS IT?

A person who cannot perform every-day actions, is severely afflicted. His relations with his environment and fellow man are damaged. It is the occupational therapist's task to increase the self-reliance of the temporarily or permanently handicapped person, and to restore their self-esteem. This is an interesting job for versatile and committed candidates.

Occupational therapy is a young discipline in health care. It is a paramedical profession, aimed at the rehabilitation of people with a temporary or permanent physical, mental and/or social handicap.

The therapist will draw up a plan to try and increase the patients' self-reliance while living, working and spending their free time.

As each client has his own specific disabilities and needs, the therapist will always have to organise his approach with the wishes and needs of that one client in mind. The activities chosen may have to be creative, artistic, intellectual, or purely professional. They may contain playful elements, or just consist of daily-life activities such as washing, getting dressed or cooking. The therapist constantly has to consider technical devices that can make the client's life more convenient. He therefore has to be versatile: medically, psycho-socially and didactically trained, communication minded, technically skilled and creative.

Practical experience results from work placements. From the second year onwards students 'go to work' in each of the four fields: geriatrics, physical rehabilitation, development and psychiatry. Over the four years, more than 1,000 work placement hours are scheduled.

Target-oriented work

Our programme is very practically oriented: internships, work field visits, project days and the many labs are meant to come as close to 'hands on' occupational therapy work as possible.

That is why activities such as treatment and working with materials remain the main focus of occupational therapy treatment. We believe it is important that students are able to motivate others (target-oriented) and emphasise the needs of the client and/or patient (client-oriented). We feel that things such as analysing an activity, organising and executing, creative thinking, observing and evaluation are necessary basic skills for students, which makes internships the most important learning environment.

Strict therapeutic work activities can also be part of a project. Using creative thinking students must be able to develop and carry out projects. They get their inspiration from their own work experience, contacts in the field and through regular tutoring.

Communication framework

Good therapy rises or falls with the communication surrounding it. Whether it is when communicating with a client, their family (environment) or the team, students must be aware of what they are doing and the effect it may have. During the labs and communication courses we strive to provide classes in elementary communication skills. This programme uses the system-theoretic model as a starting point.

Communication is done with positive assertiveness, while this assertiveness is presented to students in an inviting way throughout the programme. These skills are an important evaluation criteria during continuous assessment and internships.

The programme's occupational therapy team fulfils an exemplary role and strives for maximum openness in its contacts with students. Thanks to this relaxed and open relationship between student and teacher we can motivate, encourage and correct students in their communication process.

Discovering your own personality

The personality of the occupational therapist has a value that cannot be underestimated in the client-oriented treatment process: being able to listen, sympathise, being real, daring to confront and announcing bad news. Since our students are young people, most of whom still have an entire self-discovery journey ahead of them, we try to follow this growth process and

adjust the course according to their future careers.

Self-reflection is a given when following this study and the internships. We offer students a forum by way of performance interviews with the group mentor, intervisions, and feedback on weekly reports, group interviews and internship evaluations.

Within this creative teamwork students can continue to behave as individuals and will feel supported and encouraged by their fellow students and teachers thanks to a positive social environment and the group learning process. Here, teachers take on a supervisory and coaching role.

Discovering occupational therapeutic individuality

Due to the many overlaps with the various paramedic professions it is necessary for an occupational therapist to profile themselves as a versatile worker who can manage and set out lines of action, or as social worker who is immediately available. We believe that it is important for students to get a clear view of the content of occupational therapy work to be able to give shape to the identity of occupational therapy.

The student must find a place within the medical and paramedical world and justify his specific contribution to the team.

They may be ambitious in developing their occupational therapy treatments and as such render the value of our profession visible through publications or participation in study days.

Since occupational therapy is an important and essential link within the entire social sector, this professional pride is taught to our students from the very first year.

CAREER OPPORTUNITIES

Rehab centres, hospitals, homes for the aged and handicapped, sheltered workshops and day care centres are the places of employment for most occupational therapists. Psychiatric hospitals are in need of them too, although the emphasis here is on different skills and attitudes, which is also true for special education and home care.

Most therapists work in teams, providing individual and group therapy. The paramedical team draws up a treatment plan, specially devised for the patient(s). Treatment includes dealing with patients and their families, and giving advice on aids and services that may increase the quality of life.

Bachelor of Occupational Therapy 1st year occupational therapy

Information processing <i>Information Skills</i> <i>Informatics</i>	<u>4</u>
Biomechanics 5 <i>Biomechanics</i> <i>Biomechanics exercises</i>	<u>5</u>
Anatomy en physiology 1 <i>Anatomy en physiology 1</i>	<u>6</u>
Anatomy en physiology 2 <i>Anatomy en physiology 2</i> <i>General Anatomy and physiology</i> <i>First Aid</i>	<u>6</u>
General Psychology <i>General Psychology</i>	<u>4</u>
Physical Rehabilitation OT	<u>6</u>

<i>Physical Rehabilitation OT</i>	
Geriatrics OT 6 <i>Geriatrics OT</i> <i>Practicals Geriatrics</i>	<u>6</u>
Developmental OT <i>Developmental OT</i> <i>Practicals Development OT</i>	6
Psychiatry OT 6 <i>Psychiatry OT</i> <i>Practicals Psychiatry</i>	<u>6</u>
General Occupational Therapy <i>General Occupational Therapy4</i> <i>General OT: Practical</i> <i>Activity Methodology</i> <i>Communication skills</i>	7
Handicrafts 4 <i>Handicrafts</i>	4
Total	<u>60</u>

Bachelor of Occupational Therapy
2nd year Occupational Therapy

Applied Pathology <i>Applied Pathology</i> <i>Pathology of physical rehabilitation</i>	4
General Pathology <i>Development pathology</i> <i>Psychiatry pathology</i> <i>Neurology pathology</i>	6
Physical rehabilitation OT <i>Physical rehabilitation OT and practice</i> <i>Ortheses upper limbs: theory and practice</i>	8
Geriatrics OT 5 <i>Geriatrics OT and practice</i>	5
Developmental OT <i>Developmental OT and practice</i> <i>Psychology of the motor system</i> <i>Development psychology</i>	9
Psychiatric OT5 <i>Psychiatric OT and practice</i>	5
General OT <i>General OT</i> <i>Activity methods</i> <i>Communication skills</i> <i>Expression techniques</i>	7
Practice periods <i>Practice periods</i>	16
Total	60

*Bachelor of Occupational Therapy
3rd year occupational therapy*

Religion and meaning of life	4
Legislation and ethics	4
Scientific methods <i>Statistics and research methods</i> <i>Case studies</i>	5
Physical rehabilitation OT <i>Physical rehabilitation OT and practice</i> <i>Ergonomics</i>	5
Geriatric OT <i>Geriatric OT and practice</i>	3
Developmental OT <i>Developmental OT and practice</i>	3
Psychiatric OT3 <i>Psychiatric OT and practice</i>	3
General OT 4 <i>General OT and practice</i> <i>Expression project</i> <i>Communication skills</i>	4
Practice periods <i>Practice periods</i>	21
Final project	8
Total	60

■ **WORK PLACEMENT AND FINAL WORK**

In the second year students go on a 9-week work placement in 3 institutions. They learn to know the working atmosphere, they integrate in a group of paramedics, have contact with patients, observe medical treatments and assist wherever possible.

In the third year there is a 22-week work placement, possibly abroad. The final work subject is always a well-defined project, followed up by a lecturer, who regularly contacts the work placement institution and keeps the student to the agreed timing.

After finishing the work placement the external supervisor fills in an evaluation form. His assessment of the student's social, intellectual and technical qualities largely contribute to the overall mark. The work placement eventually leads to a written final work, to be defended for a jury consisting of lecturers and people from the work field.

■ Student guidance and participation

■ The difference

You will notice that being a student at a university college and at a secondary school are two different things. A number of facilities we offer will help you make a smooth transfer.

■ Welcome

The week before the academic year starts, we organise a welcome session for you. You will meet your fellow students, your class teacher and your group mentor for the first time. You will also get to know the different Campus services: Tutoring, Social Service, Job Service, Student Club, Multimedia Library...

■ Guidance

Small groups of students have a group mentor appointed to them. He/she will advise and assist you, discusses your study results with you, gives advice on study planning, helps to improve the group and study atmosphere... In short, the group mentor is a teacher who helps you with your smaller and bigger problems.

■ Introduction to the Multimedia Library

During your studies, you will frequently use the library. In the first year, you will get an introduction with practical exercises.

■ Mathematics

A refresher course of mathematics (focusing on calculation techniques) is partly given as a holiday course, and partly during the first weeks of class. Exercises will help you cope with the matter at your own pace.

■ Chemistry

Chemistry subjects can be studied all year through exercises; these (optional) exercises can be handed in for correction at any time.

■ Lessons, Lab sessions

Lessons and labs are given in small groups, enabling you to signal problems immediately, and us to assist you wherever necessary.

■ Tutorials

If you have any questions on a given part of a subject, and they cannot be answered during normal class hours, you can always make an appointment with your lecturer to discuss these problems.

■ Ombudsperson

During the exams, you can appeal to an ombudsperson if you think you have been treated unfairly or if you want to postpone certain exams for personal or family reasons. This ombudsperson is not one of your lecturers, as he/she has to be a neutral party between you and the college authorities or teachers.

■ Student council

You elect your own representatives for the Student Council of your department. In this Council, students discuss items they consider important for campus life and they give their advice. Of each department, one representative is a member of the college student council.

■ Department council

The college representatives regularly have meetings with management, representatives from industry and lecturers in the Departmental Council as well. In an open atmosphere, they present their questions and their problems. Management and teachers ask the students for their opinions on new developments. Together, they look for answers and solutions. The Academic Council has the same function as the Departmental Council, but on college level. In



this Council, the college authorities, students and teachers talk about subjects that go beyond the department level.

■ **How good are we?**

Making the right choice of study is vital for any student. It is our job to offer you a modern, professional and pleasant education, but eventually the choice is yours. This is how we see education.

■ **PRACTICAL**

We offer training that focuses on the application of science and technology. No theory for theory's sake: the bulk of the study programme is labs and exercises. And there is little distance between students and teachers: informal contact is one of the typical characteristics of life in our department and on our campus.

■ **INNOVATIVE**

Our teachers are in permanent contact with the "real world". We organise courses and workshops for professionals. We carry out studies and assignments for businesses and institutions. We expect our teachers to take courses and visit specialised fairs. We know exactly what the labour market wants because we are part of it.

You will find that out for yourself during the work placements, company visits, presentations and demonstrations we have in store for you.

■ **QUALITY**

Our quality service helps teachers assess courses, work placements and student guidance. The use of multimedia and new teaching techniques keep transfer of knowledge efficient. Course contents are constantly compared to avoid overlap.

We use the EFQM model, a European standard for quality improvement in industry and the services sector, of which we developed a special version for higher education, the TRIS model.

■ **SURVEYS**

We regularly conduct surveys to check our quality standards. A few examples:

- Motivation analysis

We ask all new students why they have chosen our department. We want to know what students find important in their education and in the college, and we want to make these things our strengths.

- Satisfaction survey first-year students

We ask first-year students how they liked our student guidance programme, and how it can be improved.

- Study time measuring

We regularly measure how many hours you spend on lessons, examinations, study, assignments etc. We want to know if your efforts coincide with the credits given to the different subjects. We yearly analyse success rates, compare them to our study time measuring results, and discuss the outcome with first-year students.

- Subject and teacher assessment

Every other year we ask students to evaluate subjects and teachers. Consequently, lecturers are given suggestions on how to further adapt their methods to students' needs.

- Work placement supervisors

Every year work placement supervisors from industry are asked to suggest improvements for our training.

■ **MONITORING**

The Vlaamse Hogeschoolraad (Flemish Council of Higher Education) asks the university college and its departments to write self-assessment reports, in which they define their position and their aims. The Council then sends monitoring commissions to the college and publishes a report on the result.

■ ACCREDITATION

Through accreditation an international authority acknowledges that a university college can offer a particular bachelor's or master's training. Accreditation is a condition for subsidy by the state, and it is awarded after a positive report by a monitoring commission.

■ ASSOCIATION KULEUVEN

The Katholieke Hogeschool Kempen is associated with the Katholieke Universiteit Leuven. Flemish higher education is undergoing fundamental changes. The Bologna Agreements introduced a bachelor and master structure in Europe. After a three-year study programme, candidates will be bachelors; a four- of five-year programme will lead to a master's title.

In order to be internationally recognised, university colleges have to meet high quality requirements. That is why universities and university colleges in Flanders have formed associations, i.e. structures in which they co-operate intensively. The Katholieke Hogeschool Kempen has decided to be associated with KULeuven. This association is the largest in Flanders, with partners in Brussels, Limburg and East&West Flanders.

The association will make it easier for students to compose their own tailor-made study programmes, not only in Flanders, but – through a wide network of international partners – in Europe, too.

■ Information

Several times a year we organise an **information day** for students from secondary education. We also extend a warm welcome to you at our **open day**, which is traditionally held on 1 May. Each time you can take a look at the classrooms and the laboratories, and you will get advice and information concerning the various types of education offered at the campus Geel of the Katholieke Hogeschool Kempen.

For more accurate dates and information you can always contact us at :

Telephone number : +32 14 562310

Fax : +32 14 584859

E-mail : international@khk.be or info@khk.be

Home page : www.khk.be

■ Enrolments

You have to present a secondary school certificate, or a temporary certificate of this, which you have had to have legalized. See also our website for the full text.

■ Where and when?

Please check on our website for enrolment days during the summer holidays

■ How to reach us?

KH Kempen
Kleinhoefstraat 4
B-2440 GEEL

Tel. +32 (0)14 56 23 10

Fax +32 (0)14 58 48 59

