1. **Name of the program** (International program)

   Master of Science Program in Biochemistry (M.Sc. Biochemistry)

2. **Program overview**

   2.1 <u>Objective of the program</u>

   To produce graduate students well-informed in the biochemistry, from molecules to cells, chemical processes and reactions in living cells, have relevant knowledge in cutting-edge technology and information literacy, have analytical thinking, problem solving, and digital skills in biochemical practice and research, have the ability to search and link the new knowledge in biochemistry or related fields for the development of ethically biochemical research, and to communicate, disseminate, or use the biochemical knowledge for the well-being of the society that is appropriate for the modern world

   2.2 <u>Program learning outcome</u>

   - Have an extensive understanding of important principles, theories and practices in biochemistry that are necessary and adequate for implementing new knowledge in biochemistry or related sciences and connecting new ideas to discover and create new things which are acceptable for biochemistry
   - Have learning, inquiry, analytical thinking, problem solving, and digital skills to create practical knowledge in biochemistry or related sciences and capable of communicating in English and demonstrating the implications of biochemical thinking and research
   - Have ethics, honesty, and compliance with the law
   - Have discipline, social responsibility, and technology and information literacy that can be applied or disseminated in biochemistry or related sciences

   2.3 <u>Career path</u>

   Many our student alumni work as teachers, lecturers, product research and development officers, research assistants, scientists, academic staffs, technical specialists, sales representatives of scientific products, do a personal business that applied the biochemistry knowledge to biotechnology in medicine and pharmacy, health and beauty, agriculture and food, industry and biofuels, and bioinformatics.

3. Program structure, study plan, and graduation requirements

3.1 Program structure

	Plan 1 Type A 1	Plan 1 Type A 2
Required courses	2 (non-credit)	15 credits
Elective courses (**)	- credits	5 credits
Thesis	36 credits	16 credits
Total credits	**36 credits**	**36 credits**

3.2 Study plan

First Year, 1st Semester		Number of Credits Plan 1	
Course no.	**Course title**	**Type A 1**	**Type A 2**
SC 857 701	Biochemistry for M.Sc. Study I	-	3(3-0-6)
SC 857 713	Biochemical Techniques for M.Sc. Study I	-	1(1-0-2)
SC 857 714	Laboratory in Biochemical Techniques for M.Sc. Study I	-	2(0-6-3)
SC 857 891	Seminar in Biochemistry for M.Sc. Study I	1 (non-credit)	-
SC 857 898	Thesis	9	-
xx xxx xxx*	Elective courses	-	3
Total credits		**10**	**9**
Cumulative credits		**9**	**9**

First Year, 2nd Semester		Number of Credits Plan 1	
Course no.	**Course title**	**Type A 1**	**Type A 2**
SC 857 702	Biochemistry for M.Sc. Study II	-	3(3-0-6)
SC 857 715	Biochemical Techniques for M.Sc. Study II	-	2(2-0-4)
SC 857 716	Laboratory in Biochemical Techniques for M.Sc. Study II	-	2(0-6-3)
SC 857 891	Seminar in Biochemistry for M.Sc. Study I	-	1(1-0-2)
SC 857 892	Seminar in Biochemistry for M.Sc. Study II	1 (non-credit)	-
SC 857 898	Thesis	9	-
xx xxx xxx*	Elective courses	-	2
Total credits		**10**	**10**
Cumulative credits		**18**	**19**

Second Year, 1st Semester		Number of Credits Plan 1	
Course no.	**Course title**	**Type A 1**	**Type A 2**
SC 857 892	Seminar in Biochemistry for M.Sc. Study II	-	1(1-0-2)
SC 857 898	Thesis	9	-
SC 857 899	Thesis	-	8
Total credits		**9**	**9**
Cumulative credits		**27**	**28**

Second Year, 2nd Semester		Number of Credits Plan A 1	
Course no.	**Course Title**	**Type A 1**	**Type A 2**
SC 857 898	Thesis	9	-
SC 857 899	Thesis	-	8
Total credits		**9**	**8**
Cumulative credits		**36**	**36**

*** Elective courses**

SC 857 722	Integrated Biochemistry for M.Sc. Study	3(3-0-6)
SC 857 724	Advanced Genetic Engineering in Prokaryotic Cells for M.Sc. Study	2(2-0-4)
SC 857 731	PCR Technology for M.Sc. Study	2(2-0-4)
SC 857 733	Protein Structure and Function for M.Sc. Study	2(2-0-4)
SC 857 735	Biochemistry and Biology of Cancer for M.Sc. Study	3(3-0-6)
SC 857 737	Analysis and Presentation of Biological Science Articles for M.Sc. Study	2(2-0-4)
SC 857 738	Computational Biochemistry of Protein for M.Sc. Study	3(3-0-6)
SC 857 894	Research Skill in Biochemistry for M.Sc. Study	2(0-6-3)

Note: Besides the above elective courses, students can enroll in other courses offered by graduate programs of Khon Kaen University with approval of the program director, major advisor, or program administrative committee.

3.3 Graduation requirements

3.3.1 Plan A 1: Students pass 36 credits of thesis and 2 seminars (no credit).

Plan A 2: Students pass at least 20 credits of coursework and 16 credits of thesis with a cumulative GPA at least 3.00.

3.3.2 Students pass the English Proficiency Examination offered by the Graduate School, Khon Kaen University or equivalent.

3.3.3 Students pass the oral thesis proposal and defense examinations according to the rules and regulations of the Graduate School, Khon Kaen University.

3.3.4 Plan A 1: Students obtain at least one publication or a manuscript that has been accepted for publication as a journal article in national/international peer-reviewed journal according to the regulations of the Graduate School, Khon Kaen University.

Plan A 2: Students obtain at least one publication or a manuscript that has been accepted for publication as a journal article or a conference proceeding in national/international peer-reviewed journal according to the regulations of the Graduate School, Khon Kaen University.

4. <u>Admission requirements</u>

4.1 Plan A 1: Applicants must hold a bachelor's degree in biochemistry or related fields with a GPA of at least 3.25 or hold a bachelor's degree in science or related field with a GPA of at least 3.50

Plan A 2: Applicants must hold a bachelor's degree in biochemistry or related fields with a GPA of at least 2.50 or has working experience in biochemistry-related job more than 1 year

4.2 International applicants must have a TOEFL score of at least 470 (Paper based or Institutional testing program) or 150 (Computer based) or 52 (Internet-based) or an IELTS score of at least 5.0 or a TU-GET score at least 500 or a CU-TEP score at least 60 or a KKU-AELT level at least 3 for reading and writing. Application must be submitted online via Graduate School, Khon Kaen University web site (https://gs.kku.ac.th/home/index.php/main-english.html).

4.3 The entrance examinations are arranged by 1) Graduate School consisting of the English Proficiency Test and 2) Entering committee of the Program consisting of Interviewing in English language covering general knowledge in biochemistry, biology, and chemistry. International applicants with qualified English proficiency score as mentioned above will be directed only to the interview process.

4.4 Applicants may receive exception to any of the requirements above if the permission is granted by the Administrative Program Committee in concurrence with Graduate School.

5. Program length

Minimum 2 years, Maximum 5 years

6. Fees

- Application fee per subject area 40 USD
- Tuition fee/semester 840 USD
- Oversea Student Fee 500 USD
- Comprehensive examination 30 USD
- Thesis Defense 45 USD

7. Research groups

- Protein and Enzymology
- Food and Nutritional Biochemistry
- Plant Biochemistry
- Cancer Biology
- Biosensor and Nanotechnology

8. Scholarship

- The department offers 1 partial scholarship for a highly qualified student each year. This scholarship covers tuition fees of two semesters. Additionally, 3-5 research assistant scholarships from research groups in the department are also available each year.

9. Contact

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