แบบรายงานข้อมูลหลักสูตร

MU Degree Profile

Bachelor of Science Program in Computer Science

(International Program)

1. Curriculum Name		
Thai หลักสูตรวิทยาศาสตรบัณฑิต สาขาวิชาวิทยาการคอมพิวเตอร์ (หลักสูตรนานาชาติ)		
English Bachelor of Science Program in Computer Science (International Program)		
2. Degree Title		
Full Title	Thai	วิทยาศาสตรบัณฑิต (วิทยาการคอมพิวเตอร์)
	English	Bachelor of Science (Computer Science)
Abbreviated	Thai	วท.บ. (วิทยาการคอมพิวเตอร์)
	English	B.Sc. (Computer Science)

3. Program Overview	
Type of Program	Bachelor's Degree (International Program)
Number of Credits	No less than 164 credits.
Duration of Program/ Program Cycle	Four-year program
Program Status and Schedule of Program Start Dates	Revised program 2019 Program start: Trimester I Academic Year 2020
Degree Offered	One degree of Computer Science A double major for another MUIC degree

Institution Offering Degree (collaboration with other institutions)	Mahidol University
Organization certifying the Standard of the Program	
4. Specific Data of the Curriculum	
Purpose/Goals	To produce competent computer science graduates who are innovative, ethical, professional, and well-equipped with 21st century and communication skills, ready for the job market in IT/computing globally and for further study.
Program Objectives	• To produce graduates for employment in the IT/computing industry globally and for further study in computer science and related disciplines, who would be contributing and responsible member of the society and the profession. • To produce graduates who appreciate the synergy between theoretical principles and practical considerations, and can integrate them into a viable solution that meets design and performance constraints. • To produce graduates who are able to organize and communicate with clarity concepts and ideas in computing using the appropriate means and platforms. • To produce graduates with strong critical-thinking and problem-solving skills, naturally utilizing ICT

	literacy and quantitative reasoning as an integral part of the thought process.
Distinctive features	• Through breadth and depth requirements in the spirit of liberal arts education, the Computer Science (CS) curriculum brings together academic knowledge from diverse disciplines, cultivating in the students a problem-solving mindset capable of using knowledge from multiple domains. • With the rise of big data, data science, and data-intensive applications, students may opt to specialize in Data Analytics & Software Engineering. This module trains the students to be specialists in working and efficiently handling large and complex data, making them ideal hires for companies looking to build a data platform or extract value from a trove of data. • Because every student is different, each student has the freedom to customize his or her education plan from the beginning, with the expert help of the student's advisor. The curriculum provides compelling options for both research-oriented and employment-oriented students, letting them choose between a year-long research training, culminating in a thesis—or spending up to 6 months with our industry partner, through Work-Integrated Education, with an opportunity to secure a job offer right after. • Our courses prominently feature problem-based learning, aiding the students to reconstruct key

	principles and ideas of the discipline by themselves in context. Eschewing the "silos" in education, lessons are grouped into a course because they share common principles and are likely used together, rather than because they were historically studied in the same area of computer science.
Academic system	Trimester system
Advancement Path of the Graduates	
Career Opportunities	1) Software developers/engineers capable of designing, implementing, and deploying solutions from the ground up 2) Data scientists and data platform engineers 3) Owners of IT companies/startups 4) Researchers in the commercial sector and in academia 5) IT consultants and solution engineers in various fields, such as innovative agriculture and smart medicine. 6) Customer relations such as sales, customer service, and support in the IT sector
Further Study after graduation	Continue their studies for a higher degree in various fields of computing and related disciplines, including robotics and bioinformatics

6. Educational Management System	
Philosophy	We proudly strive to raise each student to the greatest level they are personally capable of achieving. Our success as science educators is proportionate to the degree to which our graduates actualize their ethical, inquisitive, and innovative potentials. Thus, our educational philosophy is implicit in the original Latin *educere*, to lead forth; we guide students to a comprehensive and broad understanding of state-of-the-art interdisciplinary science to enable them to become responsible professionals, able to innovate sustainable, pragmatic solutions for a multicultural world. To this end, we aim to develop students with strong technical competency, providing them with a solid understanding of the fundamentals in the context of present technologies and cultivating in them a passion to innovate and insatiable curiosity to learn well beyond school, in concert with the Thailand 4.0 vision and Mahidol University's constructivist learning philosophy.
Curriculum Strategy and Implementation	The curriculum implements our philosophy via strong liberal arts requirements and supportive student-faculty interaction fostering dual aims: individual achievement, and ultimately a more altruistic and

	harmonious global society. Teaching strategy follows the outcome-based-learning style, in which the objectives of the program are established by feedback from faculty members, students, alumni, parents, and employers. Courses within the program are then designed to fulfill the objectives. The curriculum puts heavy emphasis on • Encouraging inquisitive and curious minds; • Developing independent learners; • Focusing on hand-on experience through real-life problems; and • Fostering teamwork skills
Evaluation	Different methods of formative and summative evaluation are used, for example, written examination, practical test, presentation, class participation and project-based learning. Rubrics based on the objectives of the course are used to score the students' achievement. The program aims to provide both internal and external assessments, training students to assess themselves realistically, and arranging for opportunities to be assessed by instructors, experts, and peers. Students receive grades according to the criteria stated in Mahidol University's regulations on

	undergraduate studies as well as MUIC's regulations and/or announcements.
7. Program Competency	
Generic Competency	• Be a responsible and contributing member of the professional community (Professionality/Ethicality) • Value efficiency (Professionality) • Communicate clearly and work well with others (Professionality) • Expand one's own understanding systematically (Innovativeness)
Subject-Specific Competency	• Create and deliver computing products/solutions based on current best practices, in conjunction with incremental innovation and research (Innovativeness/Professionality) • Recognize legal, ethical, and privacy issues in computing, and provide adequate and effective defense for a decision (Ethicality/Professionality) • Possess sufficient technical background to confidently take on work/tasks related to computing that may require self-learning and relearning of knowledge and skills (Professionality)
8. Program Learning Outcomes	At the end of the program, graduates will be able to

	1. Articulate computing concepts and ideas to members of the computing community with the purpose of informing the audience and soliciting discussion/collaboration. 2. Use ethical standards, professional code of conduct, and body of law in work settings, and in dealing with software, intellectual property, and information. 3. Judge the validity and credibility of scientific information and arguments from such sources as news articles, social media, magazines, and scientific literature. 4. Use a teamwork mindset, in conjunction with a suitable management methodology, to plan, develop, refine, and deliver a computing product such as a software system. 5. Integrate computing techniques and procedures from core areas of computer science into a feasible solution to nontrivial computational problems. 6. Formulate computational solutions to novel situations grounded on the foundation of computer science.