



STUDENT HANDBOOK

Master of Science in
Technology and
Creative Innovation



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CONTENTS

PROGRAM OVERVIEW	1
Mission	1
Vision	1
Degree Offered	1
Using Student Handbook	1
CMKL Statement of Assurance	1
FACULTY INFORMATION	2
Course Instructors	2
ENROLLMENT AND DEGREE CERTIFICATION	5
Enrollment Verifications	5
Leave of Absence (LOA)	5
Returning from Leave of Absence	5
Degree Certification Process and Commencement	5
COURSE REGISTRATION	6
Overview	6
Student Responsibility	6
Full-Time Requirements	6
Course Load	6
Add/Drop/Withdraw Courses	6
Auditing Courses	7
Pass/Fail Courses	7
Courses with Time Conflicts	7
Final Exams	7
ACADEMIC STANDARDS	7
Grading Policy	7
Quality Points Average	8
Incomplete Grade	8
Final Grade Appeal	8
Academic Probation	8
Academic Advising	8
Academic Integrity	8
Instruction and Communication	8
M.S. TCI DEGREE REQUIREMENTS	9

Core Courses	9
Capstone projects	10
Elective Courses	10
Independent Study	10
Field Visit	10
Outside Work	10
Intellectual Property	11
Non-Disclosure Agreement (NDA)	11
Grant of Rights and Licenses Student Form	11
Graduate Assistant Requirements	11
M.S. TCI PROJECT AND GROUP POLICIES	11
M.S.TCI Project Process	11
M.S.TCI Project Course Structure	11
Year-Long Projects	12
Project Purchasing	12
Professional Standards	12
UNIFIED PROGRAM	12
About the Unified Program	12
Degrees Offered	12
Student Responsibility	12
Enrollment	13
Course Registration for Unified Program	13
TUITION AND FEES	13
GRANDFATHER POLICY	13
APPENDIX A: LIST OF PROGRAM COURSES	14
APPENDIX B: LIST OF ELECTIVE COURSES	15

WELCOME TO TECHNOLOGY AND CREATIVE INNOVATION

CMKL University would like to introduce you to the Master of Science in Technology and Creative Innovation (M.S.TCI), which aims to connect the brightest students in the fields of Entrepreneurship and Innovation, Technology and Creativity, and equip them with the right knowledge and tools to innovate, transform, and create a long-lasting positive impact. Our professional master's curriculum provides teamwork, hands-on experience, and professional connections by bringing together not only specialists from various fields, but also instructors and professors who are top-level executives and industrial partners.

Graduate Capstone Projects are one of the M.S.TCI's primary areas of focus. Capstone Projects are conceptualized as students from various disciplines working together in teams to push the boundaries of the industry and innovate. Our core values are communication, collaboration, and creativity. M.S.TCI students with original ideas are encouraged to push themselves, work within constraints, and collaborate in teams in order to conceptualize what may later become their year-long capstone projects.

M.S.TCI places a high value on specialists and believes that these specializations make teams stronger and lead to more creative collaborations. As a result, our program is not designed to encourage students to leave their original fields, but rather to provide them with the necessary tools to expand beyond their current boundaries. Students will learn how to collaborate across specializations and disciplines at the M.S.TCI, and they will be better prepared to positively transform future organizations and communities.

Sincerely,

A handwritten signature in black ink, reading "Akkarit Sangpetch". The signature is fluid and cursive, with the first name "Akkarit" and last name "Sangpetch" clearly distinguishable.

Akkarit Sangpetch, PhD

TCI Program Director

CMKL University

PROGRAM OVERVIEW

Mission

To revolutionize higher education and transform the industry by creating entrepreneurial professionals who will become global leaders through research and knowledge, technology, creativity, and innovation.

Vision

The M.S.TCI program aims to be a technology enabler for corporations by developing the skills and expertise needed to solve long-term industry and business problems. Through an outstanding curriculum that prepares all of our students for the twenty-first century, we provide a rigorous academic foundation as well as a practical education.

Degree Offered

Graduates will be awarded a degree of the *Master of Science in Technology and Creative Innovation* (M.S. in TCI) from CMKL University. Students will be supervised by CMKL University faculty advisors who will advise them in developing and defining capstone projects to complete in pursuit of their degree. Based on the student's background and academic goals, the advisors will also assist with the selection of learning activities and other elements of the M.S. in TCI program.

Using Student Handbook

The student handbook is intended to set guidelines and expectations for new and current students in Technology and Creative Innovation at CMKL University. This handbook is not exhaustive and will be subject to revision from time to time. It is the responsibility of each student to read and understand the contents of this handbook to familiarize themselves with the university policies and guidelines. This handbook, along with any revisions, will be posted and announced annually on the university website.

CMKL Statement of Assurance

CMKL University adheres to nondiscrimination policies set forth in Thai national laws and executive orders. The University does not discriminate against a person on the basis of race, color, religion, national origin, gender, sexual orientation, religion, ancestry and belief in admission, employment, or administration of its programs or activities. Inquiries concerning the application of and compliance with this statement should be directed to the office of Admissions and Academic Affairs, CMKL University, 1 Soi Chalongkrung 1, Ladkrabang, Bangkok 10520, Thailand. Obtain general information about CMKL University by calling +66 65 878 5000.

FACULTY INFORMATION

Students in the TCI program will encounter a variety of faculty and staff members throughout the duration of the program. For more details about faculty background and specializations, please visit the university website.

Course Instructors

Supan Tungjitusolmun

Associate Professor, CMKL University
B.S., Electrical and Electronics Engineering, University of Pennsylvania, USA
M.S., Electrical Engineering, University of Wisconsin, USA
Ph.D., Electrical Engineering, University of Wisconsin, USA

Orathai Sangpetch

Assistant Professor, CMKL University
B.S., Electrical and Computer Engineering, Carnegie Mellon University, USA
M.S., Electrical and Computer Engineering, Carnegie Mellon University, USA
Ph.D., Electrical and Computer Engineering, Carnegie Mellon University, USA

Akkarit Sangpetch

Program Director, CMKL University
Director, AI Engineering Institute
B.S., Computer Science, Carnegie Mellon University, USA
B.S., Electrical and Computer Engineering, Carnegie Mellon University, USA
M.S., Electrical and Computer Engineering, Carnegie Mellon University, USA
Ph.D., Electrical and Computer Engineering, Carnegie Mellon University, USA

Sally Goldin

Assistant Professor, CMKL University
Associate Director of Learning Innovation, CMKL University
B.A., Cognitive Psychology, Brown University, USA
M.A., Cognitive Psychology, Brown University, USA
M.S., Cognitive Psychology, Carnegie Mellon University, USA
Ph.D., Cognitive Psychology, Carnegie Mellon University, USA

Irving Gómez Méndez

Assistant Professor, CMKL University
B.Sc., Mathematical Engineering, Instituto Politecnico Nacional, Mexico
M.Sc., Probability and Statistics, Centro de Investigacion en Matematicas, Mexico
Ph.D., Probability and Statistics, Centro de Investigacion en Matematicas, Mexico

Charnon Pattiyanon

Assistant Director of IT, CMKL University
Instructor, CMKL University

B.S., Computer Engineering (International Program), King Mongkut's University of Technology Thonburi, Thailand
M.S., Software Engineering, Chulalongkorn University, Thailand
Ph.D., Japan Advanced Institute of Science and Technology (JAIST), Japan

Pisut Wisessing

Assistant Professor, CMKL University
B.A., Physics and Mathematics, Cornell University, USA
MFA., Digital Production Arts, Clemson University, USA
Ph.D., Computer Science, Trinity College Dublin, Ireland

Adeel Anjum

Assistant Professor, CMKL University
M.Sc., Computer Science, Quaid-i-Azam University, Pakistan
M.Phil., Information System, University of Paris, France
Ph.D., Information Security, University of Nantes, France

Lorenzo Avi

Assistant Professor, CMKL University
Typography and Graphic Design, Ecole Nationale d'Etudes Supérieure de la Cambre, Belgium
M.A., Interior Architecture, Académie Royale des Beaux-Arts de Bruxelles, Belgium

Justin Paulsen

Assistant Professor, CMKL University
B.S., Marketing, Marist College, USA
B.S., Finance, Marist College, USA
MBA, International Business, Bryant University, USA

Dylan Powell

Instructor, CMKL University
B.A. (Hons)., Product Design, De Montfort University, Leicester. UK
M.Sc., Managing Innovation in Creative Organisations, Loughborough University, UK

Kamin Phakdurong

Adjunct Faculty, CMKL University
B.Eng., Information and Communication Engineering, Chulalongkorn University, Thailand
M.S., Integrated Design and Management, Massachusetts Institute of Technology, USA

Panarat Cherntanomwong

Assistant Professor, Department of Computer Engineering, School of Engineering, King Mongkut's Institute of Technology Ladkrabang
Associate Dean of Global Partnerships, CMKL University
Associate Director of Partnerships, AI Engineering Institute
Adjunct Faculty, CMKL University

B.Eng., Telecommunication Engineering, King Mongkut's Institute of Technology Ladkrabang, Thailand

M. Eng., Electrical Engineering, King Mongkut's Institute of Technology Ladkrabang, Thailand

D.Eng., International Development Engineering, Tokyo Institute of Technology, Japan

Peevara Kitchumnongpan

Managing Director, Selladoor Asia Pacific

Adjunct Faculty, CMKL University

B.A., Acting, Birmingham School of Acting, UK

M.A., Creative Producing, Mountview Academy of Theatre Arts, UK

Phanuphong Songkhong

Adjunct Faculty, CMKL University

BFA., Communication Design, King Mongkut's University of Technology Thonburi, Thailand

Priyakorn Pusawiro

Chair, ESIC LAB

Assistant Professor, Department of Computer Science, King Mongkut's University of Technology Thonburi, Bangkok, Thailand

Adjunct Faculty, CMKL University

B.S., Statistics, Chulalongkorn University, Thailand

M.S., Computer Science, Chulalongkorn University, Thailand

Ph.D., Computer Engineering, University of Bremen, Germany

Sampan Nettayanun

Assistant Professor, Faculty of Business, Economics and Communications, Naresuan University

Adjunct Faculty, CMKL University

B.S., Mathematics, Statistics, and Economics, Carnegie Mellon University, USA

M.Eng., Operations Research and Industrial Engineering, Cornell University, USA

M.S., Industrial Engineering and Management Sciences, Northwestern University, USA

Ph.D., Risk Management and Insurance, Georgia State University, USA

Sorakrit Phruthanontachai

Senior Vice President, Technology Division, Bangkok Bank

Adjunct Faculty, CMKL University

B.Eng., Computer Engineering, Chulalongkorn University, Thailand

M.Sc., E-Commerce Technology, University of Sussex, UK

M.S., Information Technology in E-Business Technology, School of Computer Science, Carnegie Mellon University, USA

MBA, Sloan Fellows, MIT Sloan School of Management, Massachusetts Institute of Technology, USA

Tanapon Kitmuti

Adjunct Faculty, CMKL University

B.Eng., Computer Engineering, Kasetsart University, Thailand

M.Eng., Information and Communication for Embedded Systems, Kasetsart University, Thailand

M.Eng., Information and Communication for Embedded Systems, Tokyo Institute of Technology, Japan

Theerawat Klangjareonchai

Creative Technologist and Researcher, ESIC Lab

Adjunct Faculty, CMKL University

BFA., Communication Design, King Mongkut's University of Technology Thonburi, Bangkok, Thailand

M.A., Media Space, Berliner Technische Kunst Hochschule, Berlin, Germany

ENROLLMENT AND DEGREE CERTIFICATION

Enrollment Verifications

The CUBE (cube@cmkl.ac.th) is the primary contact for students regarding enrollment and their time at CMKL University. Students or alumni who would like to request a transcript, enrollment verification, or other information related to their time in the TCI program should contact CUBE.

Leave of Absence (LOA)

Students may request for a leave of absence for a variety of reasons. Students should first contact their academic advisor to discuss their academic plans. They must also contact CUBE to complete the appropriate Leave of Absence form. Not completing the form will result in the full tuition fees being applied to the student account. Going on Leave of Absence does incur a fee to maintain student's records and technological services.

International students who take a leave of absence will lose their Educational Visa and are required to leave Thailand.

Returning from Leave of Absence

Students who are ready to resume their studies must submit their Return from Leave of Absence form to CUBE at least one month before the start of the intended semester of return. Students may return to the TCI program within two years without having to go through academic performance reviews.

International students should start the process at least two months before semester start date to allow time for the visa application.

Degree Certification Process and Commencement

A student must satisfy all degree requirements and have a minimum QPA of 3.0 in the required 108 units being counted towards the graduate degree requirements. At the start of the intended semester of graduation, students are required to submit a request to graduate form with CUBE to be considered a graduation candidate. Final degree requirements verification will be performed and CUBE will proceed with the commencement process.

CMKL University holds a commencement ceremony once a year. Students who satisfy the degree requirements after the annual commencement ceremony will be invited to attend the next ceremony.

Students should update their contact information, including mailing address, and personal email address with CUBE before graduation.

COURSE REGISTRATION

Overview

TCI students are responsible for their academic journey. Students should actively review their degree requirements, and connect with academic advisors, faculty, or staff with any concerns they may have. Students are to create their academic plan in conjunction with their advisors. It is the students' responsibility to know the course registration timeline and register for all the courses that they intend to take for the semester, whether or not they are taking the course for credits.

Student Responsibility

Students are responsible to know the CMKL academic calendar that can be found on CUBE to recognize any important dates during the semester. Students are responsible for their academic progress, and they should seek out their advisor or program staff if they have questions about their degree progress.

Full-Time Requirements

The M.S. TCI is a full-time program. To be considered a full-time student, students must be enrolled in at least 36 units per semester. All international students are required to be a full-time student to comply with their visa status.

Course Load

We recommend students take no more than 36 units each semester. Students who plan on taking more than 36 units should consult with their academic advisor to review the academic plan.

Add/Drop/Withdraw Courses

Students can add and drop courses starting from their assigned registration time until the add/drop deadline via their student account. Students wishing to add a course after the add deadline have to submit the Course Add Request form to CUBE for the approval process.

Students can withdraw from a course before the drop deadline and the course will not appear on the transcript. If students would like to withdraw from a course after the drop deadline, they must submit a Course Withdrawal Request form to CUBE for the approval process. In this case, 'W' will be assigned to the withdrawn course on the transcript. It will not be factored into the QPA, but the units will count towards the total units taken.

After the add/drop deadline, students wishing to file for any request should first communicate with the course instructor about their intentions to file for the request.

Auditing Courses

An audited course will not be counted towards the degree requirements; however, the units will be counted towards the total units.

Students will not receive letter grades for an audited course. Grade 'O' will be assigned on the transcript, indicating an audited course. However, auditors failing to attend and prepare for the classes regularly will receive a blank grade.

To audit a class, students need to register for the course via their student accounts. They then need to communicate with the course instructor about their intention to audit the course. Students will then have to submit the Course Audit Approval form to CUBE to process before the course audit deadline. Once the form has been approved by all parties, it cannot be reversed.

Pass/Fail Courses

Students wishing to take an enrolled course with a Pass/Fail grade instead of a letter grade ('A'-'R') have to submit the Pass/Fail Request form to CUBE to seek approval from their academic advisor before the deadline listed on the academic calendar. Students will receive 'P' (Pass) or 'S' (Satisfactory) for a passing letter grade C or above. Students will receive 'N' for failing the course with a letter grade C- or below. Once a Pass/Fail request has been approved and processed, it cannot be reversed.

The Pass/Fail courses will not be factored into the QPA and will not be counted towards the degree requirements; however, they will be counted towards the total units taken. Required courses cannot be taken for Pass/Fail grade.

Courses with Time Conflicts

Students who wish to register for two courses with time conflicts must first discuss their intention with the instructors of both courses. Once students receive permission from the instructors, then they must forward a written permission from the instructors to their academic advisor and CUBE for record.

Final Exams

All TCI students must attend the final exams or final evaluation activities as scheduled by their course instructors. If students have a scheduling conflict for their final exams, they must discuss the issue with the course instructors directly. Students should first confirm the important course dates before booking any trip as having a purchased airline ticket is not an acceptable excuse for missing a final exam.

ACADEMIC STANDARDS

Grading Policy

M.S.TCI follows the CMKL University grading policy with letter grades 'A' (highest), 'A-', 'B+', 'B', 'B-', 'C+', 'C', 'C-', 'D+', 'D', and 'R' (lowest). Grades lower than C, meaning C- and below, are considered failing grades and will not be counted toward the degree requirements. Required courses, core courses and capstone projects, must be passed with a letter grade of B- or above. If students fail to achieve the passing grade, they have the option to either retake the same course or take another course in its place.

Quality Points Average

Students should maintain a Quality Point Average (QPA) of 3.0 or above to remain in good academic standing. Required courses, core courses and capstone projects, with a letter grade lower than B-, meaning C or lower, will not count toward the degree requirement, and students will have to retake the course or choose another core course to complete.

Incomplete Grade

If students cannot complete assignments for a class due to extenuating circumstances, they need to discuss with the course instructor and get approval to have an "incomplete" grade. Students must provide the course instructor an expected course completion date. The incomplete grade will be changed to failing grade by the end of the following semester automatically.

Final Grade Appeal

If a student believes a final grade has been incorrectly assigned or there has been a mistake in grading, the student should first discuss it with the course instructor. If an agreement cannot be reached, the student may pursue a formal written appeal with appropriate documentation to the program within 14 days of the semester's final grades having been released. The program will issue a written decision on the appeal within 30 days. If the student is not satisfied with this decision, the student may submit a formal appeal to the Vice President within 7 days after receiving the department's decision. The decision of the Vice President shall be final and not appealable.

Academic Probation

Students will receive a warning letter from the department and be put on academic probation when their cumulative QPA is below 3.0 and they have accumulated more than 36 units. Students must meet with their advisors and comply with their recommendations. Once a student's semester and cumulative QPA increase above 3.0, the academic probation will be automatically removed.

Academic Advising

Academic advisors provide administrative support helping you understand the program requirements and track your progress. While the Program Director is in charge of the approval of all matters dealing with the academic program, students are welcome to seek academic guidance from any member of the TCI faculty. Students are encouraged to consult our faculty and staff on both academic and non-academic questions. We will provide referrals to other resources whenever necessary.

Academic Integrity

CMKL University is designed to provide a supportive and productive learning environment for our students. It provides the university's ethical expectations of our students and their rights and responsibilities. As members of the TCI community, students are expected to make choices that reflect integrity and responsible behavior. Students who violate the code of academic conduct are subject to disciplinary sanctions.

Instruction and Communication

Graduate programs at CMKL are conducted entirely in English. M.S.TCI students are required to use English as the media for their academic work and meetings.

The main channels of communication with instructors and staff are through Canvas and email. CMKL discourage students from exchanging personal Line contact with instructors.

M.S. TCI DEGREE REQUIREMENTS

M.S.TCI is a three-semester professional graduate program with defined curriculum choices without a thesis. Students take at least 4 core courses, electives, and capstone project courses in order to satisfy the degree requirements. It is advised that students follow this learning roadmap, however, the roadmap is subject to change depending on the courses offered each semester. Summer does not count as a full semester.

Total units required for graduation: 108 units

	Standard M.S.TCI Curriculum	Unit
Semester 1	56-603 Improvisational Acting	12 units
	56-604 Building Virtual Realities I or 56-605 AI for Business	12 units
	56-900 Capstone Project I	12 units
	<i>Total</i>	36 units
Semester 2	56-602 Fundamentals of Creative Innovation	12 units
	Elective Courses (1 – 2 courses)	12 units
	56-900 Capstone Project II	12 units
	<i>Total</i>	36 units
Semester 3	56-601 Entrepreneurship and Innovation	12 units
	Elective Courses (1 – 2 courses)	12 units
	56-900 Capstone Project III	12 unit
	<i>Total</i>	36 units
Total Units		108 units

*The courses are subject to change without prior notice.

Core Courses

TCI core courses require students to achieve three domains: business and entrepreneurship, design and creativity, and engineering and technology development. To meet the core course requirements, students must enroll in at least 48 units of the core courses listed in Appendix A. Additionally, all core courses must be passed with a letter grade of B- or better for the units to count towards degree requirement.

Capstone projects

Taking three semesters of capstone projects is a part of the graduation requirements as students spend time developing their capstone project throughout the duration of their degree. Students take one capstone project per semester and they have to pass the course with a letter grade of B- or better. Failure to complete their capstone project would result in students having to take an additional semester to satisfy the requirements.

International students cannot extend their student visa to stay for another semester due to failing courses.

Elective Courses

Students can take elective courses of their choice to fulfill the degree requirements. Students must register for the elective courses and receive a letter grade of C or better for the units to count towards the degree requirements. The list of Elective Courses can be found in Appendix B.

International students cannot extend their student visa to stay for another semester due to failing courses.

Independent Study

- For M.S.TCI students

Students who are in good academic standing can opt for independent study. Students need to develop an idea and write a proposal to a faculty member, either inside or outside M.S.TCI, who agrees to supervise their projects. Then fill out the appropriate paperwork available from the Student Services.

- For non-M.S.TCI students

Non-M.S.TCI students, who are interested in registering for an M.S.TCI project, will have opportunities to join a project through the M.S.TCI "open call" which usually happens at the beginning of each semester. Selected students need to sign an agreement detailing their contributions and grading criteria before starting the audition with the project team members and/or project course instructors. Auditioning includes but is not limited to, sharing/creating code samples, writing samples, and portfolio excerpts.

Field Visit

We value hands-on learning, interacting with industry professionals, and behind-the-scenes tours as important parts of the M.S.TCI educational process. Students will have opportunities to join field trips to get an insider look at the creative innovative industry, attend exhibitions, conferences, trade shows, and etc.

Outside Work

Outside employment is allowed but is not an excuse to skip classes or submit assignments late. International students must apply for a work permit through the CUBE at CMKL University.

Students who receive a financial stipend as graduate assistants cannot work outside the department during the same semester.

Intellectual Property

Any intellectual property created by students during the degree shall be owned by the University, subject to the University's intellectual property policy. However, students may request the university's permission to continue working on the intellectual property or exploit through said intellectual property, subject to the terms and conditions and benefit sharing stated in the University's intellectual property policy.

Non-Disclosure Agreement (NDA)

Students shall be requested to sign a non-disclosure agreement agreeing not to disclose any information received during participation in projects included in the agreement with any non-authorized parties. Signing the NDA shall not cause the signer any issues or lawsuits unless the signer willfully violates the agreement and intentionally disclosing confidential information received during participation to any third parties or made available to the public.

Grant of Rights and Licenses Student Form

When opportunities arise, students might have the opportunity to work in companies learning potential breakthrough technologies that lead to an industrial revolution. Students can use it as their reference and often include a demo of the work for their portfolio review even if a Grant of Rights and Licenses Student Form is not signed.

Graduate Assistant Requirements

Students can apply for Graduate Assistant (GA) positions after their first semester. These positions are mostly related to TCI courses where students need to be approved by the course instructors. M.S.TCI courses only have a GA if there are at least 20 students enrolled in the course. Accepted GAs for the M.S.TCI courses can opt for a financial stipend or course credit.

Other GA positions might be available in the library, labs, or workshops at CMKL University; students will need to be approved by the faculty or staff member in charge of the position. GA openings will be emailed to students as they become available.

M.S. TCI PROJECT AND GROUP POLICIES

M.S.TCI Project Process

Projects are an essential part of the M.S.TCI curriculum. Regular surveys will be used to collect inputs and interests from students. Projects will be offered based on the students' interests and the department's resources. Faculty will work with students to assign roles that resonate with their interests. When projects generate high interest from students for roles, students need to apply with resumes and portfolios to help with the selection.

M.S.TCI Project Course Structure

Student project teams are grouped in a small interdisciplinary team. Artifacts are created for working prototypes and/or proofs of concept that can be demonstrated or eventually lead to the production system. Each project team should design what they plan to create under the supervision of project course instructors.

Students will receive the project course syllabus during their semesters of studies. The project course concept is new to many students. Don't hesitate to ask your project course instructors or M.S.TCI faculty for guidance. Our goal is to help students work effectively and professionally with interdisciplinary team members.

Year-Long Projects

Projects usually take 3 semesters to develop to its completion. Students may choose to spend less time on a project if they have the advisor's permission. The project may end earlier if students and advisors decide to end the project earlier or pivot to a different project.

Students wishing to work on a larger-scale project can spend two semesters on the project. The project instructor and students may decide to end or pivot the project after one semester when the project is not meeting expectations.

Project Purchasing

When a project needs certain types of software, props, or materials that are not available internally, a purchase request should be made through the course instructor with a reasonable lead time. If there is a serious time constraint, a petition can be made directly to the Program Director. Purchases made by students without prior approval will not be reimbursed.

Professional Standards

When representing M.S.TCI or CMKL University for external client meetings, business casual dress is expected. Professional behaviors and punctuality are essential.

UNIFIED PROGRAM

About the Unified Program

The unified program is an alternative pathway for bachelor's degree students who desire to graduate with both bachelor's and master's degrees within 5 years. This unified program enables undergraduate students to start their master's degree journey as soon as the first semester of their bachelor's degree. The student is eligible to enroll and collect one master's degree course per semester at the same time as a student studying for their bachelor's degree, and in the 5th year, students will intensively study master-level courses and do TCI Capstones Project at CMKL University.

Degrees Offered

Students who have completed the degree requirement will be awarded a degree of the Master of Science in Technology and Creative Innovation (M.S. in TCI) from CMKL University and a bachelor's degree from the university partner.

Student Responsibility

Students are responsible for registering for classes during the course registration period as listed on the academic calendar. Students should regularly check their CMKL email for any updates regarding their degree and communication from university. Students should consult with their academic advisor for any assistance regarding their study at CMKL University.

Enrollment

- New students
You may not enroll in more than one graduate program.
- Existing students
You are entitled to continue your studies in each subsequent semester, except for the following conditions.
 - You haven't made a payment of the tuition fee and required fees, or the finance department hasn't received a clear payment from you.
 - You have been put on academic probation.
 - You haven't enrolled in the course prior to the course registration deadline

Course Registration for Unified Program

Students who are completing their bachelor's are subject to the 1 course limit per semester. Their status will be transferred to full-time after the completion of their bachelor's degree, and they will be required to take the full-time course load.

TUITION AND FEES

Once you have accepted the offer to study at CMKL University, you are obligated to follow the payment instruction, and make a timely payment according to the due dates set forth by CMKL University. Tuition fee is subject to an increase each academic year in response to inflation rate.

Students will receive an email notification to their CMKL email account when an invoice is ready for viewing. Any amount not paid by the payment due date are subject to a late fee set forth by the finance department. Required fees are non-refundable.

GRANDFATHER POLICY

New rules will be added to the department policies for improvement when necessary. These changes will be communicated to students before implementation. Students, who matriculated in the program before the new policies, will be governed by the grandfather policies if they are affected by the changes in degree requirements/course offerings.

APPENDIX A: LIST OF PROGRAM COURSES

Entrepreneurship and Innovation (CMKL 56-601) – 12 Units

Students will be able to think strategically about communication and negotiation with shared values in Business and Communication Class. This class will also assist students in sharpening their oral presentation, interpersonal communication, and negotiation skills as leaders. We will look at a variety of case studies as examples of best practices and guidelines based on research and experience.

Fundamentals of Creative Innovation (CMKL 56-602) – 12 Units

Students work on developing a leadership and teamwork mindset. Throughout the semester, workshops and lectures will be given by industry experts and guest lecturers to provide historical context for creative innovation. In this semester-long class, students work in small groups to develop ideas for their Capstone projects. At the annual CMKL Innovation Summit, proposals are developed, and final pitches are delivered to a panel of selected faculty members and industry professionals.

Improvisational Acting (CMKL 56-603) – 12 Units

This class is the M.S.TCI's "special sauce." It's the secret ingredient that adds zing to our program and gives you an edge. Taught concurrently with Building Virtual Worlds, Improvisational Acting fosters team building, exercises spontaneity, sharpens focus, and increases listening skills.

Students learn to solve problems on the fly, build from scratch, stretch their imaginations, and overcome inhibitions when communicating publicly, and working with others.

Building Virtual Realities I (CMKL 56-604) – 12 Units

BVR is an introductory but highly intensive and hands-on class in which students are introduced to the development process of mixed reality, augmented reality, and virtual reality experiences. Small teams of students are challenged to create virtual worlds quickly and creatively together using Unity and other industry-standard tools. While this class is highly technical and intensive, it is beginner friendly, and no previous experience is required.

AI for Business (CMKL 56-605) – 12 Units

This course is a comprehensive master's degree course designed to equip professionals with a practical and profound comprehension of AI and its practical applications in the business realm. It aims to facilitate a clear understanding of the business problems that AI can address, explore AI use cases across diverse industries, and present case studies and best practices.

Capstone Project (CMKL 56-900) – 12 Units

The Capstone project course is a significant part of the M.S.TCI curriculum. In this interdisciplinary project course, small teams of students work together to build prototypes and/or develop interactive projects to help solve existing industry problems. Depending on the nature of the projects, some groups may be assigned Capstone clients to work with, while some may work more closely with faculty advisors.

APPENDIX B: LIST OF ELECTIVE COURSES

List of courses and course descriptions are subject to change.

Business and Innovation

Introduction to Blockchain (CMKL 56-610)

We will address the limitations of the Internet for business and economic activities in this first course of the specialization, as well as how blockchain technology offers the way forward. You will be able to explain what blockchain is, how it works, and why it is revolutionary after completing this course. You'll learn about mining, hashing, proof-of-work, public key cryptography, and the double-spend problem, among other topics. You'll be able to explain seven design principles for blockchain technology, as well as the problems that developers face.

Project Management (CMKL 56-611)

Boost your project management skills as you learn how to best manage people, teams, and budgets, and examine the latest trends in project management.

Business Strategy and Analytics (CMKL 56-612)

The students will be introduced to strategies to develop sustaining a business while continuously finding the new growth strategy. Also, they will learn how to develop sustainable business and growth strategies for the firm portfolio.

Marketing Digital Media (CMKL 56-613)

This course is designed to achieve two goals. It offers social analytics tools as well as training to assist you in becoming a social media influencer. The course provides you with the information and resources you need to create a comprehensive social media marketing strategy, from consumer insights to final justification data. In addition, specific toolkits with timely information will be provided in each course, and when you pay for the Capstone, you will receive a market planning toolkit.

Strategic Communication and Negotiation (CMKL 56-614)

In business today, it is inevitable to get into negotiations and communication. Whether giving the presentation to the team or customer or negotiating the business deals, it is necessary for you as the stakeholder to learn how to engage, communicate and negotiate for better with shared value.

Negotiation requires skill and strategic thinking; we need to learn how to strategically create value for our counterparts and effectively communicate the matter so that we aim for distributive negotiation and value claiming, applying the principles of influence and bargaining practice.

In this course, we will learn the fundamental principles of communicating and negotiating strategically, not only the theory and concept but also putting the theory into practice by immersively engaging in presentation and negotiation case simulations.

Intellectual Property Law in Media, Entertainment, and Technology (CMKLL 56-710)

Become fluent in the rules of the new economy. The objective of this course is to provide students with a practical understanding of the underlying legal principles of intellectual property laws regulating the creation and exhibition of entertainment content. The class covers the basic legal concepts of

intellectual property law, including case studies, but is aimed at non-lawyers and non-law students. In this class, you will learn how to identify the types of intellectual property protection available, analyze and interpret a patent document for a competing product, evaluate your options for protecting your creative innovations with copyright law, and develop strategies for protecting and maximizing your brand with a comprehensive trademark strategy.

Entrepreneurial Financing and Investing (CMKL 56-711)

Entrepreneurial finance is a special topic for startups and project decision-making. The course provides fundamental tools such as payback period, internal rate of return, discounted cash flow, net present value, and risk management for project analysis. The sources of funding will be discussed in the course. Stakeholders such as angel investors, venture capital, private equity, and crowdfunding will play a role in the financing. The course also provides company analysis through various analytical techniques. The entrepreneur will learn about different ratios and measures in analyzing their business operation. Valuation for business will also be discussed. In addition, the entrepreneur will learn about investing strategies in the equity market and personal financial planning.

Influencer Marketing Strategy (CMKL 56-712)

The class provides a comprehensive overview of the influencer marketing landscape and covers the key elements of planning, running, and reporting on a successful campaign. By completing this class, you'll be able to confidently navigate the new digital advertising format, understand the various influencer archetypes and campaign use cases, and comfortably run a campaign for the brand you represent. The class will cover the fundamentals of influencers and their audiences, discuss effective strategies and budgeting, as well as key campaign insights to save you time and money.

Test Your Startup Idea: Lean Entrepreneurship, Design Thinking, and Rapid Prototyping in Action! (CMKL 56-713)

Learn how to validate your million-dollar startup ideas using well-known methodologies such as Lean Startup and Design Thinking. In this class, students will go through a series of hands-on exercises and learn to use various tools for testing their ideas. Form groups (or go solo if you dare), identify market segments, validate customer needs, and test key assumptions to ensure that you build the right product for the right people. This class will also provide some basic training for tools that are essential for early startup entrepreneurs, such as UI/UX design, analytics, user testing, rapid prototyping, and landing page building, which will be essential for your experiments.

Startup from Idea to Impact (CMKL 56-714)

This class will take you along the process of starting a successful startup. From conceptualizing your ideas, to marketing your business, and leading your own company.

Gaming Publishing and Marketing (CMKL 56-810)

Game publishing and marketing involve the strategic promotion and distribution of video games to maximize visibility, reach, and sales. Publishers handle various aspects, including funding development, coordinating production, and managing distribution across platforms. Marketing strategies encompass creating compelling trailers, advertisements, and social media campaigns to build anticipation and attract players. Publishers collaborate with developers to ensure games meet market expectations and leverage existing fanbases. Effective marketing identifies target audiences, optimizes visibility on digital storefronts, and cultivates community engagement through events and

influencer partnerships. Together, publishing and marketing play critical roles in launching successful games and sustaining long-term player interest.

Creative Design and Technology

Introduction to Motion Graphics (CMKL 56-621)

This class will get you started with the basics of creating full Motion Graphics Videos using After Effects, which is widely used in the industry and on modern-day commercials. You'll learn how to apply the most useful visual effects to graphics and video, touch on all After Effects motion graphics properties and methods and master the most useful techniques.

Building Virtual Realities II (CMKL 56-622)

In this course, students will design and develop immersive and interactive experiences with Unity's real-time 3D platform, Oculus Head Mounted Display (HMD), and related technologies. This course will build upon the Building Virtual Worlds (BVW) course, taught by Kamin Phakdurong and modeled after the groundbreaking ETC course by co-founder Randy Pausch. This course seeks to expand upon students' knowledge of the Unity game engine, Unity XR Toolkit, Unity XR Device Simulator, virtual reality (VR) design principles, and Oculus software tools for Quest and Quest 2 (Android) development. By the end of the course, students will have their own unique VR experience prototype to showcase. This course is designed for students to be able to participate online. Lectures, tutorials, and meetings may be conducted using live video, pre-recorded video, Google Meet, Zoom, Mozilla Hubs, Gather, Canvas discussions, Line discussions, and other methods as deemed appropriate by the instructor(s).

Introduction to 3D Modeling and Animation I (CMKL 56-623)

This class introduces the core concepts and tools in 3D modeling and animation using the industry-standard software. Students will learn the fundamentals of 3D modeling, texturing, and basic animation through a series of hands-on exercises. After the class, students will know how to apply their 3D skills in game development and design, animated movies, and 3D printing.

Introduction to 3D Modeling and Animation II (CMKL 56-624)

This class is a continuation of Introduction to 3D Modeling and Animation I, designed to deepen your understanding of 3D tools and production techniques. It delves into the animation industry's business processes, providing comprehensive knowledge and practical insights. By taking this course, you will enhance your professionalism in 3D Modeling and Animation.

Introduction to VR/AR/MR (CMKL 56-625)

This class is designed for students who are new to mixed reality and want to learn about the principles of VR and AR technologies including optics, displays, stereopsis, tracking, and major hardware platforms. By the end of this class, you will understand the physical principles and knowledge to create a comfortable, high-performance VR and AR application using Unity.

Introduction to Game Development (CMKL 56-626)

This is an introductory course on Game Development, the foundational step toward acquiring the crucial skills required for a successful career in the gaming industry. This course will begin by covering the fundamental aspects of Game Design and Game Business before delving into Game Engines like

Unreal Engine, Unity, and Godot. You will need a combination of design and technical engineering skills to enhance your abilities in this field.

Introduction to Virtual Production (CMKL 56-627)

In this course you will learn the fundamentals of cutting-edge technology and gain insights into the future of media production processes. This field is currently receiving significant attention from the global media industry. Virtual Production explores the use of virtual cameras, 3D asset-based environments, and the Unreal Engine, offering valuable techniques and skills for the modern media landscape.

Narrative Design (CMKL 56-729)

Digital storytelling, in both gaming and interactive digital media more broadly, requires a thorough understanding of the architecture of a narrative. Narrative allows players, users, and customers to project themselves into an experience, and this is achieved through a carefully designed user experience (UX). This course will cover narrative conception/ideation, storyboarding, narrative design modeling, production tracking, dialogue writing, variable-driven user choices (i.e. interactive design), and user testing.

3D Art and Audio Pipeline for Game Development (CMKL 56-721)

Take your first step into the 3D art and audio pipeline. This class will guide you through the processes and the best practice involved in bringing 3D assets from Maya or audio assets from DAW into the final game. No matter if you're a 3D artist, a sound designer, a Unity programmer, or a team lead, this class will equip you with knowledge in one of the most challenging aspects of game development. You will learn about asset management, different asset formats and limitations in Unity, different stages in the pipeline, and any technical challenges you would face in the team setting.

User Experience & User Interface Design (CMKL 56-722)

The course focuses on the following topics: use case modeling, user surveys, user diversity, user experience, psychological principles influencing user experience, and user interface design guidelines. The course will provide an overview of designing and developing a user interface and general rules of thumb for designing UIs that provide a positive user experience. Also, students will learn about techniques for designing and analyzing survey tools to acquire information about potential users.

Design Thinking, Innovation, and Creative Confidence (CMKL 56-726)

The fundamental ideas and methods of design thinking will be introduced in this course. Students will practice using several techniques for idea testing through a series of practical exercises in this subject. During the course of the lesson, students will also learn how to identify user groups and customers' needs, translate those needs into product specifications, and create a prototype.

Interaction Design and Experiential Design (CMKL 56-727)

This class covers the fundamental understanding of the experiential design process from ideation to deployment, how the five senses work (smell, hear, sight, taste, touch), spatial design, and technologies necessary to develop the interactive experiences. By the end of the class, the students will get to develop their interactive experiences as the final project.

Game Engine Technology (CMKL 56-820)

This course will equip you with the essential technical knowledge to develop a gameplay prototype, covering key aspects such as environments, player navigation, interactions, and the 3Cs (Character, Camera, and Controls). You will apply these concepts by creating a personal game prototype using Unreal Engine 5 and its core functionalities.

Game Design (CMKL 56-821)

This course will provide you with the fundamental concepts necessary to articulate the overall design of a game or interactive experience. With a blend of creativity and practicality, you will explore and apply the contents of this design toolbox to your own game project. This includes designing gameplay loops, the 3Cs (Character, Camera, and Controls), interactions, NPC archetypes, and other key components. Emphasis will be placed on effectively communicating your designs in a clear, visual, and efficient manner to various audiences and collaborating disciplines.

Engineering and Technology Development

Introduction to Web Programming (CMKL 56-631)

The class will cover the current tools available for developing websites and cover basics for HTML5, CSS, and JavaScript.

Introduction to IoT with Arduino and Raspberry Pi (CMKL 56-632)

Gain an understanding of what the IoT is and the requirements to design your IoT solutions with Raspberry Pi and Arduino.

Startup Engineering (CMKL 56-635)

This course aims to connect academic computer science and real-world software engineering by providing a fast-paced overview of essential tools and techniques. The topics covered include command line, dotfiles, text editor, distributed version control, debugging, testing, documentation, reading code, etc.

Software Development Processes and Methodologies (CMKL 56-732)

Students will get an overview of how software teams work. They will learn the different processes and compare the pros and cons of industry-standard methodologies such as Agile, Kanban, and Scrum. By the end of the course, students will learn enough to have meaningful conversations about software development processes.

Storytelling with Data (CMKL 56-733)

Storytelling with Data will cover the basics of data visualization and exploratory data analysis. You will learn the principle of data visualization and develop a critical mindset when looking at the dataset. You will also be looking at how errors and unexpected problems often lead to a biased conclusion, and how to deal with them. As data visualization is about making sense of information and communicating to an audience, this class will allow you to go through each step and make sure you know how to disseminate keys and actionable information from complex data. No matter which industry you are from, data visualization is an all-time high-demanding skill. This course will equip you with everything you need to leverage data and reveal valuable insights and boost your career.

Visualization (CMKL 56-734)

It is useful to be able to design visual representations of data that most people can gain insights from. The increasing appearance of visualization in online environments has made it important to look at how visualizations are used to communicate information effectively. In this competency, you will learn about some of the key principles of human visual perception, storytelling with visualization, some practical guidelines for effective data visualization, as well as a number of established visualization tools and resources. In the labs, you will learn about the D3.js (a JavaScript library for visualization) helping you bring data to life using HTML and CSS and SVG.

Ethical Principles for AI (Fairness, Accountability, Transparency, Ethics) (CMKL 56-735)

Ethical Principles for AI (Fairness, Accountability, Transparency, Ethics). Gain a comprehensive understanding of how to apply ethical considerations to AI technologies, fostering fairness, accountability, transparency, and ethical practices at the forefront of this innovative field.

Creating Explainable AI (CMKL 56-736)

This course will take you on a journey to enhance the transparency and comprehensibility of artificial intelligence. This program delves into the intricacies of making AI systems transparent and interpretable, fostering ethical and accountable AI solutions.

M.S. in Artificial Intelligence and Computer Engineering

The AICE courses approved by M.S.TCI are listed below;

Image and Video Processing (CMKL 41-793) – 12 Units

This course focuses on signal processing techniques for 2D (images) and 3D (videos) signals. It extends 1D signal processing techniques and specializes in image and video processing. In this class, you will learn core tools and techniques for image and video processing, as well as how to apply them to a variety of practical applications. This course teaches the principles of image and video analysis. We will create picture and video-specific signal models, as well as associated optimization strategies for solving restoration challenges such as denoising and inpainting, as well as research specialized compression algorithms. The emphasis will be on transform-domain, PDE, and sparsity-based models, as well as the accompanying optimization approaches. Applications in mobile devices, medical image processing, and compressive sensing will enhance these formal techniques.

** Additional courses may potentially be included.*



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