

College of Engineering

工學院

Department of Mechanical Engineering

機械工程學系



香港城市大學
City University of Hong Kong

Bachelor of Engineering in Mechanical Engineering (BEngM.E.)

工學士(機械工程)



Student Handbook
2022-2023

**BACHELOR OF ENGINEERING IN
MECHANICAL ENGINEERING (BEngM.E.)
Student Handbook (2022-2023)**

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1. AIMS OF MAJOR

The major aims to prepare students with solid background of the required fundamental knowledge in engineering mechanics, materials engineering, mechanical product design, mechatronics, dynamics and controls, and thermal fluidics, so that they can serve and contribute to a broad range of mechanical engineering industries.

Intended Learning Outcomes of Major (MILOs)

Upon successful completion of this major, students should be able to:

No.	MILOs	Discovery-enriched curriculum related learning outcomes (please tick where appropriate)		
		A1	A2	A3
1.	Conceptualize, analyze, and apply mechanical entities to design discrete products with required performance.	✓	✓	
2.	Develop competency in core areas such as engineering design of materials, dynamics and control, embedded systems, automation engineering, and micro and nano technologies.		✓	✓
3.	Extend beyond core knowledge boundary in one or more synergistic discipline areas to enable them solving a broader range of practical problems in an integrated manner.		✓	
4.	Select and implement appropriate “process engineering” and “design for manufacture” solutions for efficient manufacturing of discrete products.		✓	
5.	Demonstrate critical thinking, independent research, qualitative and quantitative analysis capability, and communication skills required for mechanical engineering.	✓	✓	✓

A1: Attitude

Develop an attitude of discovery/innovation/creativity, as demonstrated by students possessing a strong sense of curiosity, asking questions actively, challenging assumptions or engaging in inquiry together with teachers.

A2: Ability

Develop the ability/skill needed to discover/innovate/create, as demonstrated by students possessing critical thinking skills to assess ideas, acquiring research skills, synthesizing knowledge across disciplines or applying academic knowledge to real-life problems.

A3: Accomplishments

Demonstrate accomplishments of discovery/innovation/creativity through producing/constructing creative works/new artefacts, effective solutions to real-life problems or new processes.

2. DEGREE REQUIREMENTS

2.1 Normal and Maximum Period of Study

	Normative 4-year Degree	Advanced Standing I (Note 1)	Advanced Standing II (Senior-year Entry) (Note 2)
Normal period of study	4 years	3 years	2 years
Maximum period of study	8 years	6 years	5 years

Note 1: For students with recognised Advanced Level Examination or equivalent qualifications.

Note 2: For Associate Degree/Higher Diploma graduates admitted as senior-year intake students.

2.2 Minimum Number of Credit Units Required for the Award and Maximum Number of Credit Units Permitted

Degree Requirements	Normative 4-year Degree	Advanced Standing I	Advanced Standing II (Senior-year Entry)
Gateway Education requirement *	30 credit units	21 credit units	12 credit units
College/School requirement *	6 credit units	waived	waived
Major requirement	81 credit units (Core: 69 Elective: 12)	75 credit units ⁺ (Core: 66 Elective: 9)	66 credit units ⁺ (Core: 60 Elective: 6)
Free electives / Minor (if applicable)	3 credit units	0 credit unit	0 credit unit
Minimum number of credit units required for the award	120 credit units	96 credit units	78 credit units
Maximum number of credit units permitted	144 credit units	114 credit units	84 credit units

* For details, please refer to the Curriculum Information Record for Common Requirements.

⁺ Course exemption granted to individual students should be made up within electives in the Major Requirement.

2.3 Gateway Education Requirement

(The catalogue term of the Gateway Education requirement that students will follow will be the same as their admission term.)

Note 1: For students with recognised Advanced Level Examination or equivalent qualifications.

Note 2: For Associate Degree/Higher Diploma graduates admitted to the senior year.

Curriculum Catalogue Term	Semester A 2021/2022 onwards		
	Normative 4-year Degree	Advanced Standing I (Note 1)	Advanced Standing II (Senior-year Entry) (Note 2)
<u>University requirements</u>			
English			
• GE1401 University English	3 credit units	3 credit units	Not a compulsory requirement
• Discipline-specific English: GE2410 English for Engineering	3 credit units	3 credit units	3 credit units
GE1501 Chinese Civilisation – History and Philosophy	3 credit units	3 credit units	Not a compulsory requirement
<u>Distributional requirements</u> Area 1: Arts and Humanities Area 2: Study of Societies, Social and Business Organisations Area 3: Science and Technology	12 credit units <i>(At least one course from each of the three areas)</i>	6 credit units <i>(From two different areas)</i>	3 credit units
<u>College/School-specified courses</u> ^	9 credit units	6 credit units	6 credit units
Total	30 credit units	21 credit units	12 credit units

^ College/School-specified courses for fulfilling the Gateway Education requirement

Course Code	Course Title	Level	Credit Units	Remarks
Normative 4-year Degree				
MA1200/ MA1300	Calculus and Basic Linear Algebra I/ Enhanced Calculus and Linear Algebra I	B1	3	
MA1201/ MA1301	Calculus and Basic Linear Algebra II/ Enhanced Calculus and Linear Algebra II	B1	3	
MNE2066	Engineers in Society	B2	3	

Advanced Standing I
<ul style="list-style-type: none"> Students who have <u>not</u> passed the MA placement test arranged by the Mathematics Department should take <i>MA1200 Calculus and Basic Linear Algebra I</i> (3 credit units) and <i>MNE2066 Engineers in Society</i> (3 credit units) as College-specified courses. <p>OR</p> <ul style="list-style-type: none"> Students who have passed the MA placement test arranged by the Mathematics Department should take <i>MA1201 Calculus and Basic Linear Algebra II</i> (3 credit units) and <i>MNE2066 Engineers in Society</i> (3 credit units) as College-specified courses.
Advanced Standing II (Senior-year Entry)
Take MNE2066 Engineers in Society (3 credit units) AND any one course (3 credit units) not within the Major requirements (including Core Courses and Electives)

2.4 English Language Requirement

Normative 4-year degree students and Advanced Standing I students who passed the 6 credit units of specified GE English courses, and Advanced Standing II students who passed the 3 credit units of discipline-specific GE English course are recognized as fulfilling the University’s English Language Requirement.

Students scoring below Level 4 in HKDSE English Language or Grade D in HKALE AS-level Use of English or students who do not possess an equivalent qualification are required to complete two 3-credit unit courses, LC0200A English for Academic Purposes 1 and LC0200B English for Academic Purposes 2, prior to taking the GE English courses. Students who demonstrate that they have achieved a grade B or above in their overall course results for LC0200A will achieve 3 credits and also be considered to have satisfied the pre-requisite for entry to the GE English courses without needing to take LC0200B. The credits earned from taking LC0200A (3 credits) and LC0200B (3 credits) will not be counted towards the minimum credit units required for graduation and will not be included in the calculation of the cumulative grade point average (CGPA). However, they will be counted towards the maximum credit units permitted.

2.5 Chinese Language Requirement

Students scoring below Level 4 in HKDSE Chinese Language, or below Grade D in HKALE AS-level Chinese Language and Culture will be required to complete a 3-credit unit course CHIN1001 University Chinese I. The 3 credit units will not be counted towards the minimum credit units required for graduation and will not be included in the calculation of the cumulative grade point average (CGPA). However, they will be counted towards the maximum credit units permitted.

In addition to the above requirement, Colleges/Schools also have the discretion to specify other Chinese language courses for their students, including students who do not possess the above qualifications (Senate/70/MM27-28 refers). Please indicate if there are such requirements.

2.6 College/School Requirement, if any

(The catalogue term of the College/School requirement that students will follow will be the same as their admission term.)

Course Code	Course Title	Level	Credit Units	Remarks
Normative 4-year Degree (6 credit units)				
CS1302	Introduction to Computer Programming	B1	3	
PHY1101	Introductory Classical Mechanics	B1	3	
Advanced Standing I (0 credit unit)				
College Requirement waived.				
Advanced Standing II (Senior-year Entry) (0 credit unit)				
College Requirement waived.				

2.7 Major Requirement

(The catalogue term of the major requirement that students will follow will be the effective term of the declared/allocated major.

For normative 4-year degree students who will join the majors allocation exercise, the catalogue term of major requirement will be one year after admission.

For advanced standing students and 4-year degree students who already have a major at the time of admission, the catalogue term of major requirement will be the same as their admission term.)

2.7.1 Core Courses (69 credit units)

- **Advanced Standing I students: 66 credit units**
- **Advanced Standing II students: 60 credit units**

Course Code	Course Title	Level	Credit Units	Remarks
PHY1202	General Physics II	B1	3	Department-specified Course for top 40% majors allocation
MNE2016	Engineering Graphics	B2	3	❖ Department-specified Course for top 40% majors allocation ❖ <i>Waived</i> for students admitted with <i>Advanced Standing II</i>
MA2172/ MA2177	Applied Statistics for Sciences and Engineering/Engineering Mathematics and Statistics	B2	3	❖ Students under the Normative Four-Year Degree should complete MA2177 to fulfill the major requirement ❖ MA2172 <i>waived</i> for students admitted with <i>Advanced Standing II</i> / MA2177 <i>waived</i> for students admitted with <i>Advanced Standing I</i>
MNE2020	Engineering Workshop Practice	B2	0	<i>Waived</i> for students admitted with <i>Advanced Standing II</i>
MNE2029	Electrical and Electronic Principles I	B2	3	<i>Waived</i> for students admitted with <i>Advanced Standing II</i>
MNE2036	Engineering Computing	B2	3	
MNE2109	Engineering Mechanics	B2	3	
MNE2110	Engineering Materials	B2	3	
MNE2112	Thermodynamics	B2	3	
MNE3007	CAD/CAM	B3	3	
MNE3010	Mechanical Design	B3	3	
MNE3046	Automation Technology	B3	3	
MNE3049	Control Principles	B3	3	
MNE3058	Embedded Control Systems	B3	3	
MNE3115	Microelectromechanical Systems	B3	3	
MNE3118	Mechanics of Materials	B3	3	
MNE3119	Manufacturing Technology	B3	3	
MNE3120	Measurement and Instrumentation	B3	3	
MNE3121	Heat Transfer	B3	3	
MNE3122	Fluid Mechanics	B3	3	
MNE4032	Robotics and Machine Vision	B4	3	
MNE4068/ MNE4119	Project (Individual)/ Project (Group)	B4	9	

2.7.2 Electives (12 credit units)

- Students with Advanced Standing I are required to complete at least 9 credit units of electives, in addition to credit units required to make up for exempted core courses
- Students with Advanced Standing II are required to complete at least 6 credit units of electives, in addition to credit units required to make up for exempted core courses.

Course Code	Course Title	Level	Credit Units	Remarks
CS2311	Computer Programming	B2	3	
EE2109	Electronic Circuits	B2	3	
FS2001	Workshop-based Study in Science and Engineering	B2	3	
MA2001	Multi-variable Calculus and Linear Algebra	B2	3	
MNE2113	Aircraft System Design	B2	3	
MNE2114 [®]	Experimental Sustainable Engineering Techniques	B2	3	
ADSE3102	Quality Engineering	B3	3	
CS3402	Database Systems	B3	3	
EE3210	Signals and Systems	B3	3	
MA3001	Differential Equations	B3	3	
MNE3059	Intelligent Robot Design	B3	3	
MNE3063	Material Analysis for Product Quality	B3	3	
MNE3123	Internship in Engineering	B3	3	
MNE3125	Fluid Mechanics for Energy-Related Applications	B3	3	
MSE3130	Biomaterials	B3	3	
SEE3003	Climate Change and Adaptation Strategies	B3	3	
SEE3104	Sustainable and Renewable Energy	B3	3	
ADSE4024	Project Management	B4	3	
ADSE4064	Reliability Engineering	B4	3	
MNE4005	Finite Element Analysis	B4	3	
MNE4006	Consumer Mechatronics	B4	3	
MNE4010	Dynamics and Control	B4	3	
MNE4046	Green Industrial Systems	B4	3	
MNE4047	Directed Studies	B4	3	
MNE4048	Advanced Manufacturing Technologies	B4	3	
MNE4109	Reliability Engineering and Risk Analysis	B4	3	
MNE4110	Sensors	B4	3	
MNE4117	Product Development: Methodologies, Innovation and Management	B4	3	
MNE4120	Bioinspired Composites: Design, Mechanics and Manufacturing	B4	3	

MNE4121	Machine Learning and Quantum Computation	B4	3	
MNE4122	Introduction to Microfluidics	B4	3	
MNE4123	Renewable and Sustainable Energy Systems	B4	3	
MNE4130	Introduction to Multiphase Flow Modeling	B4	3	
SEE4118	Wind and Marine Energy	B4	3	
SEEM4025	Quality Systems and Management	B4	3	
MNE5112 [^]	Mechanical Design with Advanced Material & Additive Manufacturing	P5	3	
MNE6001 [#]	CAD/CAM Integration	P6	3	
MNE6110 [#]	Mechanical Behaviour of Materials: From Metallic to Biomedical / Biological Materials	P6	3	
MNE6116 [#]	Applied Engineering Mechanics	P6	3	

@ Subject to approval

[^]Remarks: Only for final year undergraduate students (with quota restrictions)

[#]Remarks: For the UG students participating in the “Undergraduate plus Taught Postgraduate Degree Programmes” (The application is subject to the approval of Department).

2.8. Optional Courses

Course Code	Course Title	Credit Units	Remarks
FS2002	Industrial Attachment Scheme (IAS)	3	Internship (minimum 6 weeks)
FS3002	Industrial Attachment Scheme (IAS)	3	Internship (minimum 6 weeks)
FS4001	Co-operative Education Scheme (CES)	8	Internship (8 - 12 months)
FS4002	Industrial Attachment Scheme (IAS)	3	Internship (minimum 6 weeks)
FS4005	Overseas Internship Scheme (OIS)	3	Internship (9 - 13 weeks)

2.9 Classification of Award

For students who are on programmes of (i) Normative 4-Year Degree admitted from 2020/21 and thereafter, (ii) Advanced Standing I admitted from 2021/22 and thereafter, and (iii) Advanced Standing II admitted from 2022/23 and thereafter, award with distinctions will be conferred (based on the CGPA ranking) upon the top 15% students in the respective departments/ schools graduating in the same semester/term as follows:

Award with Distinctions	Awarded to Graduates Ranked in
<i>summa cum laude</i>	top 2%
<i>magna cum laude</i>	next 5%
<i>cum laude</i>	next 8%

3. ACADEMIC REGULATIONS AND GUIDELINES

Students should observe the University's academic regulations and guidelines at all times. More information is available at the website maintained by the Academic Regulations and Records Office (ARRO).

ARRO Homepage: <http://www.cityu.edu.hk/arro>

4. ACADEMIC HONESTY

Academic honesty is central to the conduct of academic work. Students are responsible for knowing and understanding the Rules on Academic Honesty. As part of the University's efforts to educate students about academic honesty, all students are required to complete an online tutorial, take an online quiz and fill out an online declaration by **30 November 2022** in order to access their course grades online.

For details, please refer to the website of Office of the Provost:

http://www.cityu.edu.hk/provost/academic_honesty/university_requirement_on_academic_honesty.htm

5. COMMUNICATIONS

The following communication channels between students and the department are available:

- a) Students who have difficulties with a course of study should seek advice from the course teacher concerned.
- b) Students who wish to discuss the overall organization of the major should consult the Major Leader.
- c) Students who wish to discuss issues on a particular part of the major should approach the relevant Year Tutor.
- d) The major's Joint Staff & Student Consultative Committee helps to facilitate consultation and communication. A student from each entry cohort will be elected to sit in the Committee.

- e) In addition, a student from each entry cohort will be elected to sit in the Major Programme Committee which meets in every semester to discuss major-related matters.
- f) Students should feel free to approach their respective academic advisors for advice regarding their study plan or personal and career development.

6. MAJOR LEADER AND YEAR TUTORS

Position	Staff Name	Tel/Email
Major Leader	Prof. Kaili ZHANG	3442-7845/ kaizhang@cityu.edu.hk
Deputy Major Leaders	Dr. Xinrui NIU	3442-8432/ xinrui.niu@cityu.edu.hk
	Dr. Steven WANG	3442-9527/ steven.wang@cityu.edu.hk
<u>Year Tutors (By Cohort and Programme Code):</u>		
2019 BENGEGU4 & 2020 BENGEGU3/ ASI & 2021 BENGEGU2 ASII	Dr. Wei Yin MA	3442-9548/ mewma@cityu.edu.hk
2020 BENGEGU4 & 2021 BENGEGU3/ ASI & 2022 BENGEGU2 ASII	Dr. Zhengbao YANG	3442-2308/ zb.yang@cityu.edu.hk
2021 BENGEGU4 & 2022 BENGEGU3/ ASI	Dr. Steven WANG	3442-9527/ steven.wang@cityu.edu.hk

7. INFORMATION FOR NEW STUDENTS

7.1 How to access your Personal Class Schedule

- i) Go to CityU home page (www.cityu.edu.hk) from any terminal on campus or off campus.
- ii) Log onto “Portal” under “Quick Links”.
If you have problems in logging in, please follow the instructions in “Having problems logging?”.
- iii) Under the tab “Student”, you can find a quick link “Student Schedule” to view your timetable for current semester. Timetable for Semester A 2022/23 is available from 26 July 2022 onwards.

7.2 How to get Instructors’ handouts through Canvas

- i) Log onto Canvas (<https://canvas.cityu.edu.hk>) from any terminal on campus or off campus
- ii) Click “Courses” to see all the courses that you have registered in current and previous semesters.

7.3 How to check Major Requirement and Course Syllabuses

Log onto the CityU home page and click “Academic Programmes”.

To access DegreeWorks, please go to the “Study Plan” tab in AIMS. For details, please refer to ARRO website: www6.cityu.edu.hk/arro/content.asp?cid=482

7.4 Course Registration for Semester A 2022-2023

For Semester A 2022-2023, students will be pre-registered in required courses in most cases if possible.

- i) The date for release of your class schedule is **26 July 2022**. Please check your curriculum requirements, review your study plan and then make appropriate adjustments to your pre-registered courses.
- ii) Add/Drop of courses can be processed through AIMS for web-enabled courses during the web registration period. For non-web-enabled courses, approval is required from the major department and you can submit your change request by using the electronic Add/Drop Form available in AIMS.

How to do the Add/ Drop:

- Go to <http://www.cityu.edu.hk> from any terminal on campus or off campus and click “Students”.
- Log onto “AIMS” and then click “Course Registration”.
- Click “Main Menu for Web Add/Drop” and then choose “Add or Drop Classes”.

- iii) Web registration begins on **22 August 2022** (please refer to your time ticket via AIMS).
- iv) All add/drops end on **5 September 2022**.

- v) Detailed arrangements on Course Registration for Semester A 2022-2023 will be posted by **26 July 2022**. For details, please refer to ARRO website:
<http://www.cityu.edu.hk/arro/content.asp?cid=163>

7.5 How to access your Student Email Account

- i) Go to <http://www.cityu.edu.hk> from any terminal on campus or off campus, then point to “Quick Links” at the top and click “Email”.
- ii) In the Email Services homepage, click “@my.cityu.edu.hk” under “Student” to go to the CityU “Office 365” sign-in page.
- iii) At the “**Account-ID**” field in the Sign In screen, enter your Office 365 account in the form of “YourEID-c”, where *YourEID* is your CityU Electronic ID.
- iv) At the “**Password**” field, enter your Office 365 Account password, then click “Log On”.

Important note:

*For email communication, please state your **full name**, **student number** and **contact number**.*

7.6 Course Exemption/Credit Transfer

Applications for course exemption or credit transfer must be made before the start of the first semester after student’s admission to the University. Students who have been granted course exemption are required to take other courses to make up the credits required for fulfilling the award requirements. For Semester A 2022-2023, the application period is from **7 July to 26 August 2022**. For details, please refer to ARRO website:

<http://www6.cityu.edu.hk/arro/content.asp?cid=10>

7.7 Laboratory Safety Orientation

All students are REQUIRED to complete the on-line Laboratory Safety Orientation through “MNE Lab for New Students” under “Courses” menu of Canvas. A Lab Tour session will be held by the Laboratory Office in week 1 of Semester A 2022-23 for interested students. Details of the session will be sent to you by e-mail.

7.8 Administrative Support from General Office

Office Hours

Mon to Fri 8:30 am to 5:30 pm
Lunch Break 12:30 pm to 1:45 pm

Inquiry: 3442-2067
Fax: 3442-0235
Email: mnego@cityu.edu.hk

Suggested Study Path

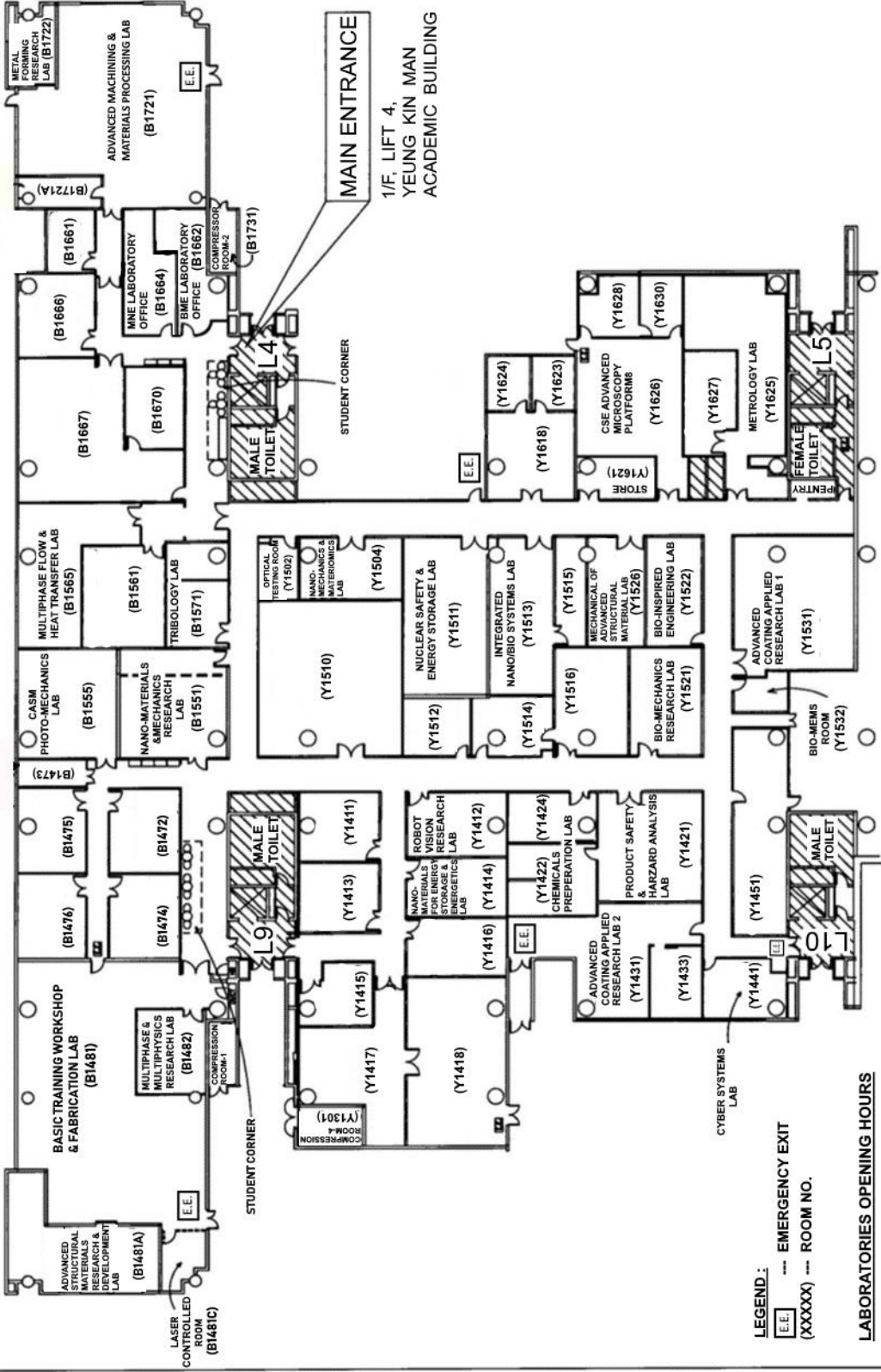
Suggested Study Path for BENGEGU4 M.E. 2021/22 Cohort

Yr	Sem	College Requirements (6 CU)	Gateway Education (GE): College-specified Courses (9 CU) & Chinese (3 CU)	GE; English® (6 CU)	Department-specified Courses (6CU)	Gateway Education & Others	CU	
1	A	PHY1101 Introductory Classical Mechanics (3)	MA1200 Calculus and Basic Linear Algebra I / MA1300 Enhanced Calculus and Linear Algebra I (3)	GE1401 University English (3)	MNE2016 Engineering Graphics (3)		15	
	B	CSI302 Introduction to Computer Programming (3)	MA1201 Calculus and Basic Linear Algebra II / MA1301 Enhanced Calculus and Linear Algebra II (3)	GE2410 English for Engineering (3)	PHY1202 General Physics II (3)	GE 1 (3)	18	
	S							
2	A	MNE2109 Engineering Mechanics (3)	MNE2112 Thermodynamics (3)	GE 2 (3)		GE 3 (3)	15	
	B	MNE2110 Engineering Materials (3)	MNE3122 Fluid Mechanics (3)	MNE2029 Electrical and Electronic Principles I (3)	MNE2020 Engineering Workshop Practice (0)	GE 4 (3)	15	
	S							
3	A	MNE3118 Mechanics of Materials (3)	MNE3120 Measurement and Instrumentation (3)	MNE3115 Microelectromechanical Systems (3)	Major Elective 1 (3)		15	
	B	MNE3010 Mechanical Design (3)	MNE3058 Embedded Control Systems (3)	MNE3049 Control Principles (3)	Major Elective 2 (3)		15	
	S		Reserved for IAS (3)					
4	A	MNE4068 Project (Individual) (3)/ MNE4119 Project (Group) (3)		MNE3046 Automation Technology (3)	Major Elective 3 (3)	Free Elective (3)	12	
	B	MNE4068 Project (Individual) (6)/ MNE4119 Project (Group) (6)	MNE3119 Manufacturing Technology (3)	MNE4032 Robotics and Machine Vision (3)			15	
	S							
() indicates number of credits							Total credits (minimum):	120

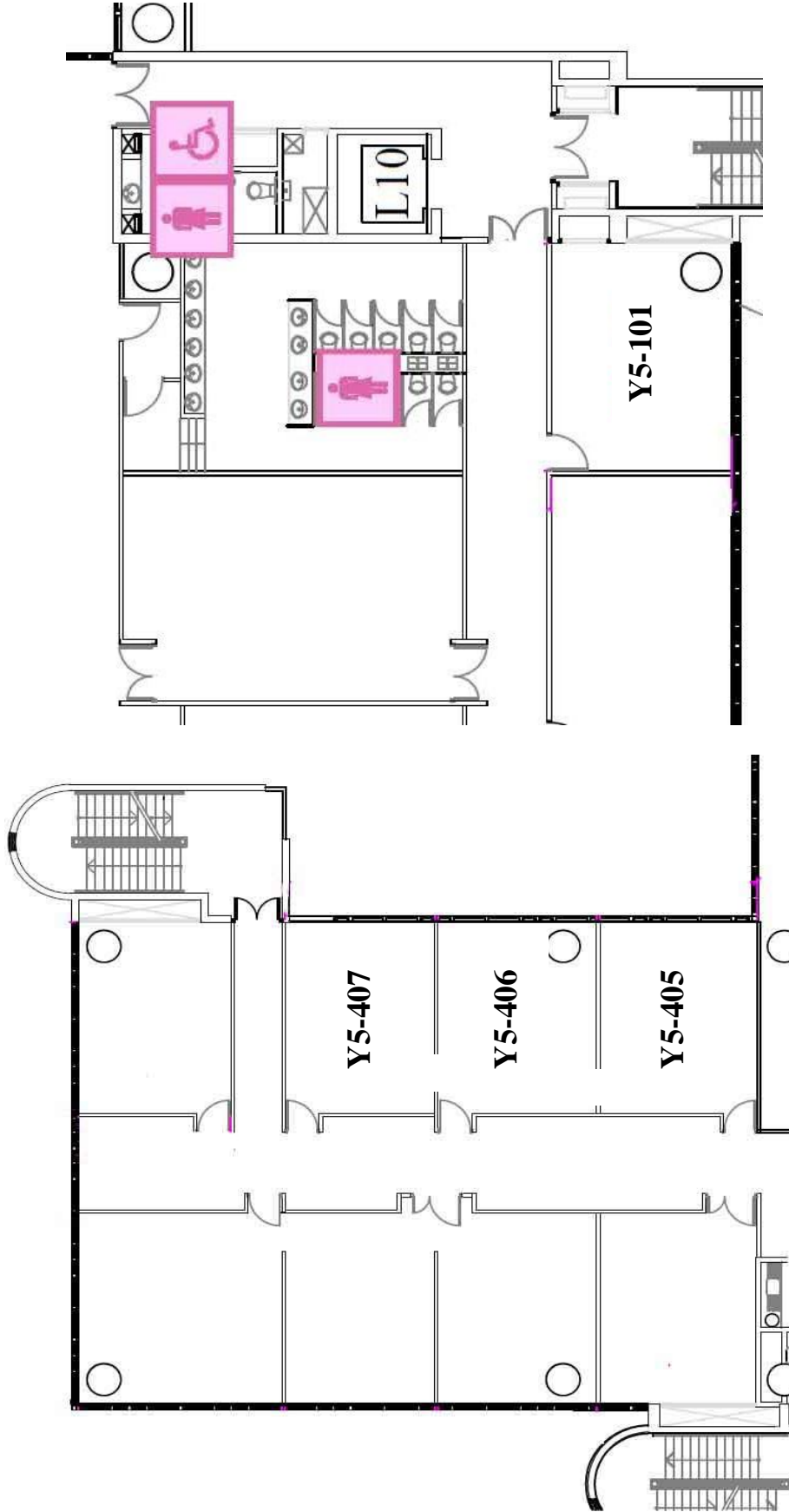
® Students whose entry qualifications in HKDSE English Language is below Level 4 are required to take LC0200A and LC0200B, and should take the GE English courses in the following semesters/terms. Furthermore, Students who demonstrate an overall grade B or above in the LC0200A course will be granted an exemption from taking LC0200B, and will be considered to have fulfilled the pre-requisite requirement for the GE1401 (University English) course. These students will be permitted to proceed to directly to the GE University English course.

Students are advised to consult their Academic Advisor in planning their own study paths. Please note that study path planning is both the privilege and responsibility of each student, so do it with care and diligence. Please refer to Student Handbook and revision/ update announcements by the Department for further details.

Mechanical Engineering (MNE) Laboratories on 1/F YEUNG



Mechanical Engineering (MNE) Laboratories on 5/F YEUNG

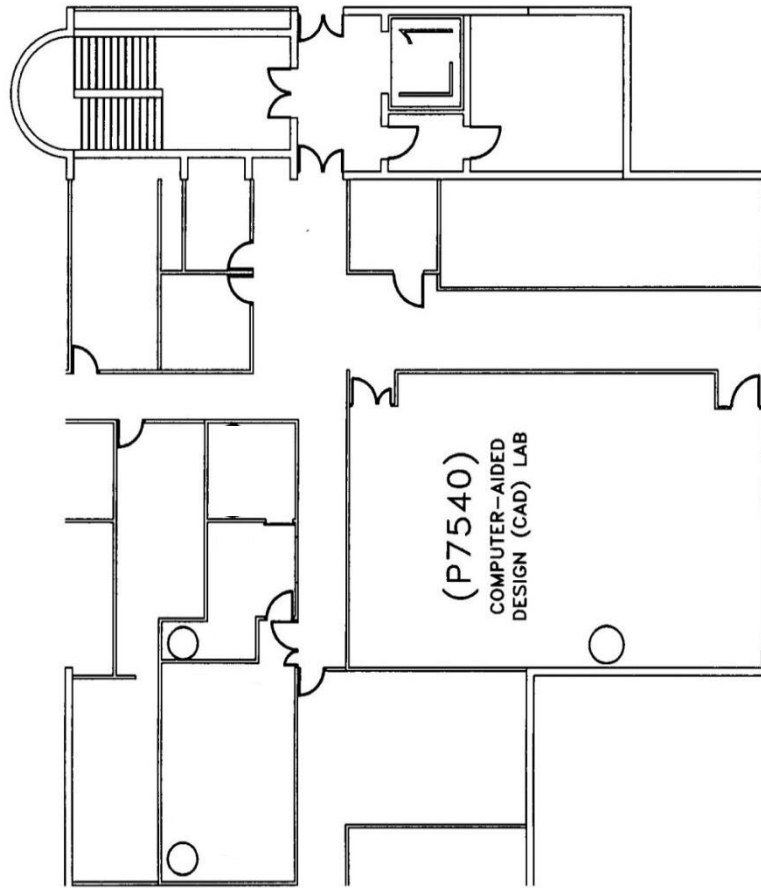


Rm. Y5405/Y5406/Y5407
Mechanics and Tribology Laboratory

Rm. Y5101
Thermal-fluids Laboratory

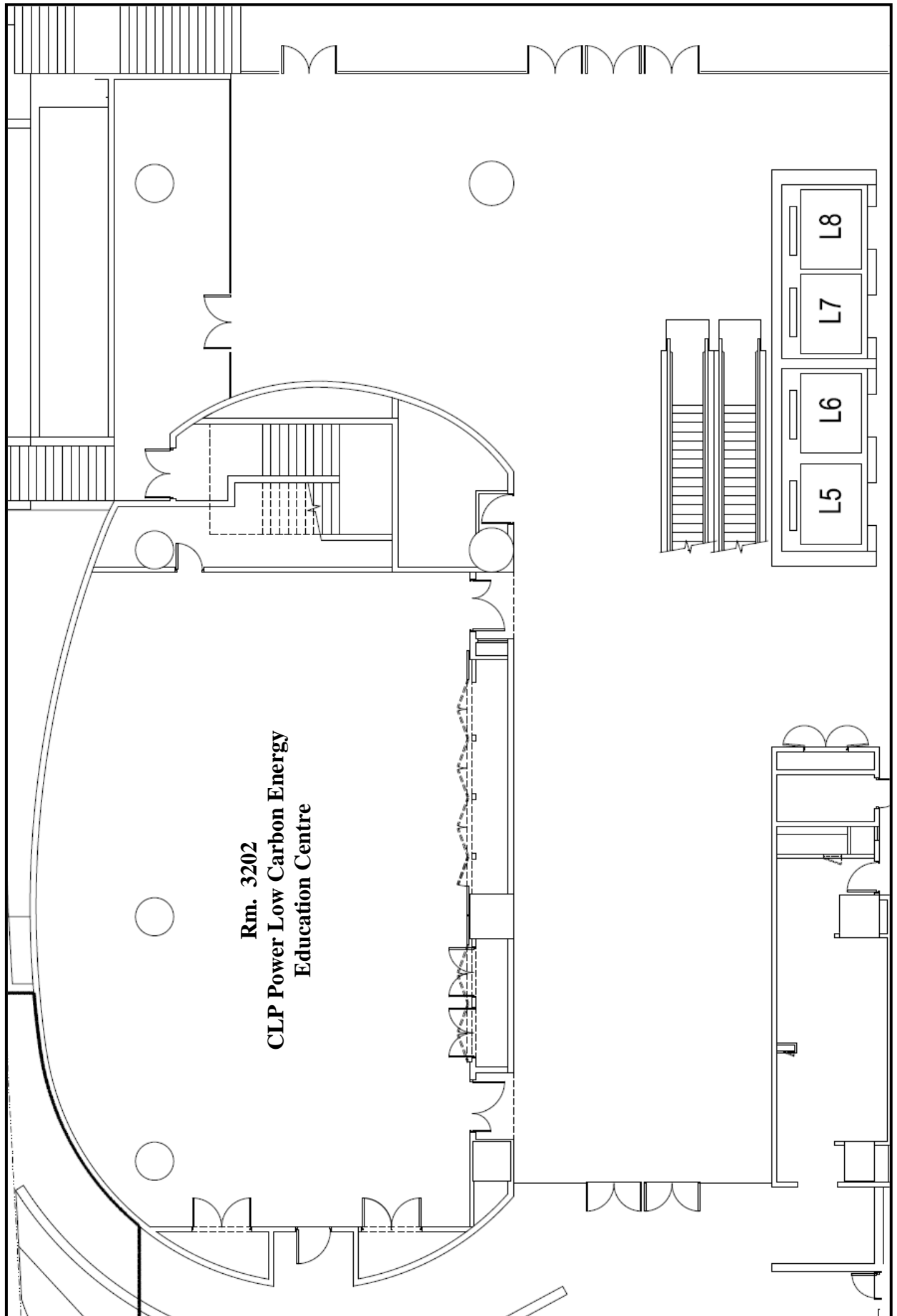
Mechanical Engineering (MNE) Laboratories on 7/F YEUNG

7/F, LIFT 1, PURPLE ZONE,
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ACADEMIC BUILDING

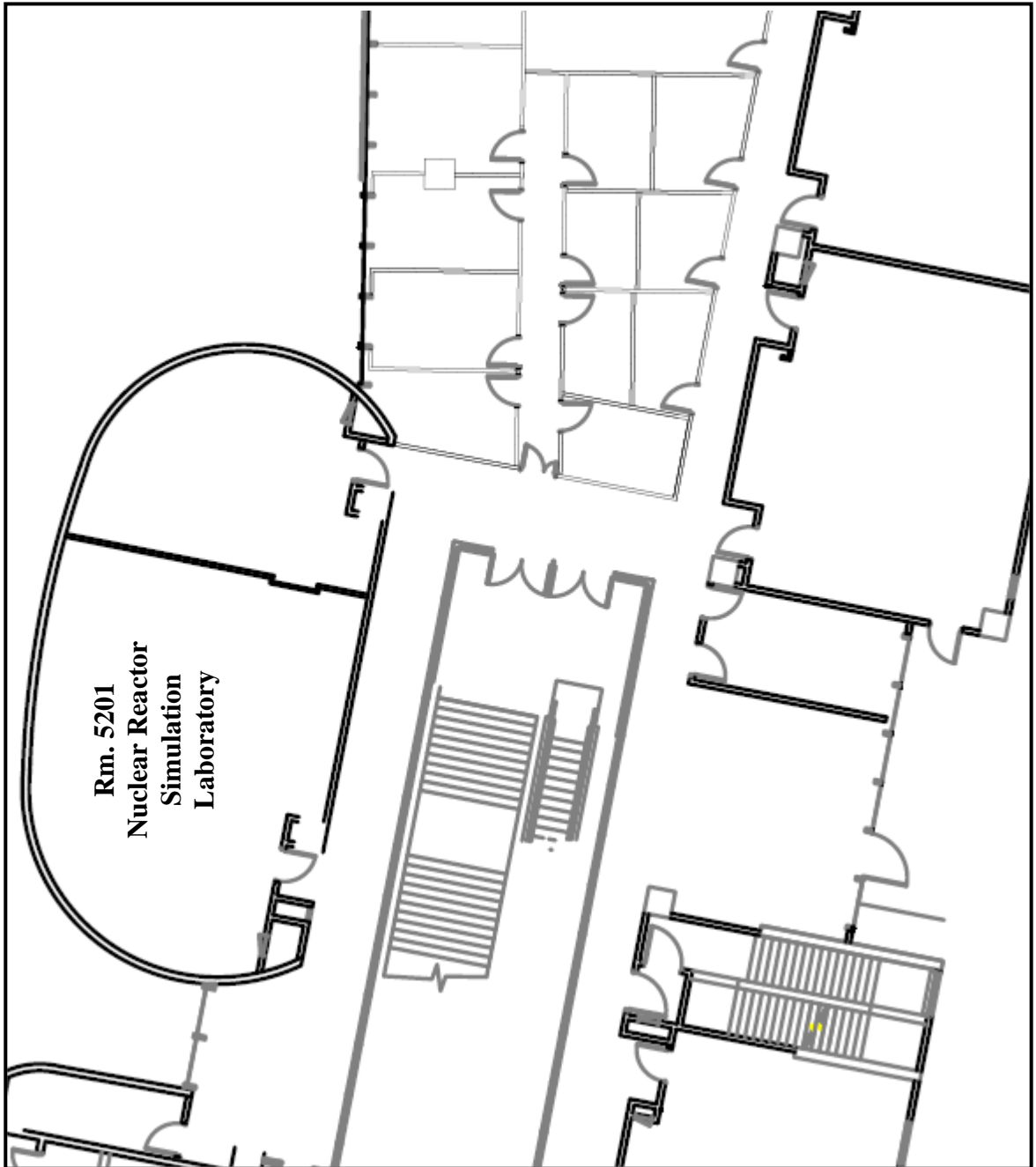


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DATE	03-JUL-2018		
REVISION			A

Mechanical Engineering (MNE) Laboratories on 3/F LAU



Mechanical Engineering (MNE) Laboratories on 5/F LAU



Mechanical Engineering (MNE) Laboratories on 6/F LJ

