## **Course Guideline**

## AUTOMOTIVE DESIGN AND MANUFACTURING ENGINEERING (ADME) Program

## (Apply for student ID 66 - 69)

#### FIRST SEMESTER

		<u>Year 1/2</u>
<u>Year 1/1</u>		□ 2140111 EXPL ENG WORLD 3 CREDITS
□2190101 COMP PROG <b>(co-4a)</b>	3 CREDITS	□2302105 CHEM ENG 3 CREDITS
□2190151 COMP PROG LAB (4a)	1 CREDIT	□ 2302103 GEN CHEM LAB 3 CREDITS
□2301107 CALCULAS   <b>(1a)</b>	3 CREDITS	□ 2301108 CALCULAS II (1b) 3 CREDITS
□2189101 ENG MAT	3 CREDITS	□ 2304154 PHYS ELEC ENGS 3 CREDITS
□2183103 FUND ENG GRAPHICS	3 CREDITS	□ 2304194 PHYS ELEC LAB ENGS 1 CREDIT
□2304153 PHYS ENGS	3 CREDITS	□ 5501123 COM ENG II (PRE 5501112) 3 CREDITS
□2304193 PHYS LAB ENGS	1 CREDIT	
□5501112 COM ENG I	3 CREDITS	Total 18 CREDITS
Total	20 CREDITS	
Year 2/1		Year 2/2
2142413* MFG AUTO ENG	2 CREDITS	$2147104^*$ ENG DSGN THINKING 3 CREDITS
□2183212 STATICS (2a)	3 CREDITS	□2182214* FUND ELEC CIRCUITS 2 CREDITS
$\Box$ 2183221 THERMODYNAMICS	3 CREDITS	$\Box 2183213  \text{MECH MAT} (2b) \qquad 3 \text{ CREDITS}$
2183282* INTRO AUTO ENG	3 CREDITS	$\square 2183231 \text{ DYNAMICS (3a)} \qquad 3 \text{ CREDITS}$
□2184201 PROB STAT AUTO ENG	3 CREDITS	$\Box 2301216^* \text{ LIN ALG} \qquad 3 \text{ CREDITS}$
□2301312 DIFF EQUATIONS (1c)	3 CREDITS	5501214 COM PRES SKILLS (PRE 5501123)3 CREDITS
Total	17 CREDITS	Total 17 CREDITS
Year 3/1		Year 3/2
$\square 2183325^*$ SYS MODEL VIBRA	2 CREDITS	$\Box 2142424  \text{VEH DYNAMICS (3b)} \qquad 3 \text{ CREDITS}$
$\square 2182215^*$ FUND ELEC MACHINES	2 CREDITS	□2183351 MECH ENG DSGN 3 CREDITS
$\Box$ 2182215 FUND ELEC MACHINES $\Box$ 2182216* ELEC ENG LAB	1 CREDITS	$\Box 2184344^* \text{ XEV PROP SYS} \qquad 3 \text{ CREDITS}$
$\square 2182210$ ELEC ENGLAD	3 CREDITS	$\Box$ 2142344 MANAGE AUTO IND 3 CREDITS
$\Box$ 2183261 MECH ENG LAB	2 CREDITS	□2301215* MULTIVAR CALCULUS (1c) 3 CREDITS
$\square 2183332$ CAD/CAM/CAE	3 CREDITS	□XXXXXX GENERAL EDUCATION 3 CREDITS
□5501225 TECH WRITING (PRE 5501123)	3 CREDITS	Total 18 CREDITS
Total	16 CREDITS	
Year 3/3 (SUMMER)		
	2 CREDITS	
LI2140301 INDUSTRAINING	2 CREDITS	
Year 4/1		<u>Year 4/2</u>
$\square 2183427^* \text{ MOD VEH SYS DESIGN}$	3 CREDITS	□2142499 AUTO ENG PROJECT 3 CREDITS
$\square 2183427$ MOD VEH STS DESIGN	2 CREDITS	□ 2182570* DIGI SYS IOT AUTO TECH 3 CREDITS
XXXXXXX COM ELEC I	3 CREDITS	□ 2100201* INTRO TO ART INTEL 3 CREDITS
XXXXXX GENERAL EDUCATION	3 CREDITS	XXXXXX GENERAL EDUCATION 3 CREDITS
XXXXXX GENERAL EDUCATION	3 CREDITS	XXXXXX FREE ELECTIVE 3 CREDITS
XXXXXX FREE ELECTIVE	3 CREDITS	Total 15 CREDITS
Total	17 CREDITS	
	I, CALDITS	
		TOTAL CREDITS FOR GRADUATION 138
<u>Note</u>		

- Xa is a prerequisite subject for Xb and Xb is also a prerequisite

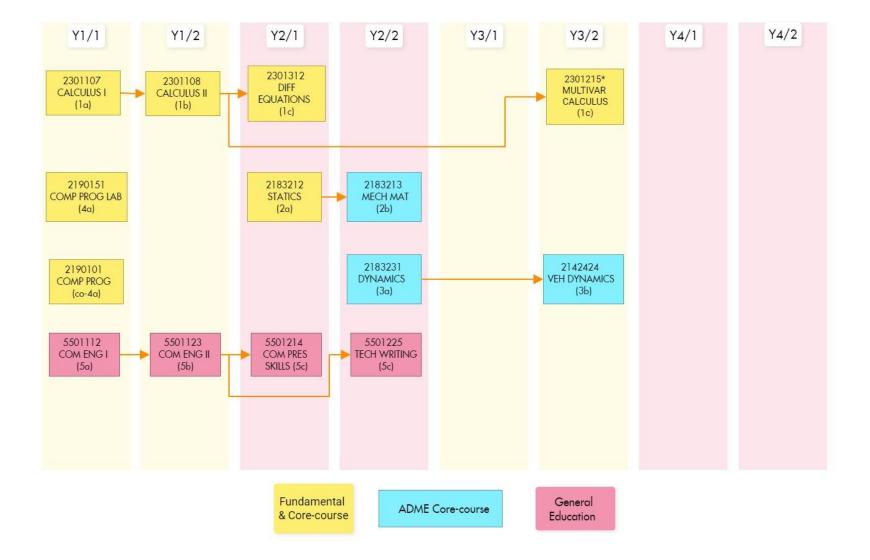
subject for Xc. (Example: Have to pass 2a before register 2b)

- co-Xa is a co-requisite subject for Xa. If you take/drop/withdraw Xa

subject, you have to take/drop/withdraw co-Xa

#### SECOND SEMESTER

## ADME Program (Apply for student ID 66-69)



## **Course Guideline**

## Information and Communication Engineering (ICE) Program

## (Apply for student ID 66 - 69)

#### FIRST SEMESTER

## SECOND SEMESTER

Year 1/1         2140111       EXPL ENG WORLD         2190101       COMP PROG (1a)         2301107       CALCULUS I (3a)         2304153       PHYSICS ENGS         2304193       PHYSICS LAB ENGS         5501112       COM ENG I         XXXXXX       GEN EDUCATION         Total       Total	3 CREDITS 3 CREDITS 3 CREDITS 3 CREDITS 1 CREDITS 3 CREDITS 3 CREDITS 19 CREDITS	Year 1/2         2143101       INTRO ICE         2182205*       PROB STAT DATA (2a)         2190103*       ADV COMP PROG (1b)         2301108       CALCULUS II (3b)         2304154       PHYS ELEC ENGS         2304194       PHYS ELEC LAB ENGS         5501123       COM ENG II (Pre 5501112)         Total       Total	3 CREDITS 3 CREDITS 3 CREDITS 3 CREDITS 3 CREDITS 1 CREDITS 3 CREDITS 19 CREDITS
Year 2/1 2182202 ADV MATH METH (3c) 2182214* ELEC CIR ICE (4a) 2182212 CIR DIG ELEC LAB (co-4a) 2190200 DISCRETE STRUC 2190222* FUND DS ALG (1b) 2190513* DATA SCI (1b)/(2b) Total	3 CREDITS 3 CREDITS 1 CREDITS 3 CREDITS 4 CREDITS 3 CREDITS 17 CREDITS	Year 2/2 □ 2182204 SIG LIN SYS □ 2190512* APP DEV □ 2190514* AI □ 5501214 COM PRE SKILL (Pre 5501123) □ XXXXXX GEN EDUCATION □ XXXXXX FREE ELECTIVE Total	3 CREDITS 3 CREDITS 3 CREDITS 3 CREDITS 3 CREDITS 3 CREDITS 18 CREDITS
Year 3/1         2190250       COMP ARCH ORG         2190443       USER INT DSGN         2182372** PRIN TELECOMM         2184301       ENG ECON APP         2190472       NETCENT ARCH (1b)         XXXXXX       ELECTIVE         Total	3 CREDITS 3 CREDITS 3 CREDITS 3 CREDITS 3 CREDITS 3 CREDITS 18 CREDITS	Year 3/2         2143399       ICE CAPSTONE         2182371       PRIN DATA COMM         2190426*       DATABASE SYS         2190423       SOFTWARE ENG         2190413       SYS SECURITY         5501225       TECH WRIT (Pre 5501123)         Total       Total	3 CREDITS 3 CREDITS 3 CREDITS 3 CREDITS 3 CREDITS 3 CREDITS 15 CREDITS
<u>Year 3/3 (SUMMER)</u> □2140301 INDUS TRAINING	2 CREDITS		
Year 4/1 2143491 ICE PREPROJ (5a) XXXXXX ELECTIVE XXXXXX FREE ELECTIVE Total	1 CREDITS 6 CREDITS 3 CREDITS <b>10 CREDITS</b>	Year 4/2 □ 2143499 ICE PROJECT (5b) □ 2190516* TECH MGT □ XXXXXX GEN EDUCATION Total	3 CREDITS 3 CREDITS 6 CREDITS 12 CREDITS

TOTAL CREDITS FOR GRADUATION 133

#### <u>Note</u>

-  $\boldsymbol{Xa}$  is a prerequisite subject for Xb and Xb is also a prerequisite

subject for Xc. (Example: Have to pass 2a before register 2b)

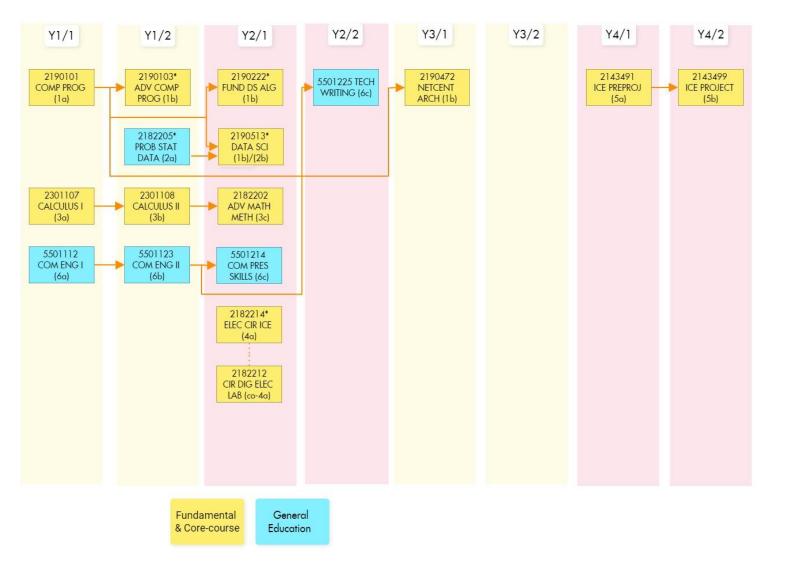
- co-Xa is a co-requisite subject for Xa. If you take/drop/withdraw

Xa subject, you have to take/drop/withdraw co-Xa

# ICE Program (Apply for student ID 66 - 69)

----- Co-requisite

→ Pre-requisite



## **Course Guideline**

## Aerospace Engineering (AERO) Program

## (Apply for student ID 66 - 69)

#### FIRST SEMESTER

#### SECOND SEMESTER

Year 1/1 2183102* COM AID DES ENG 2145211** INTRO AERO ENG 2301107 CALCULUS I (1a) 2304153 PHYSICS ENGS. 2304193 PHYSICS LAB ENGS 5501112 COM ENG I Total	3 CREDITS 3 CREDITS 3 CREDITS 3 CREDITS 1 CREDITS 3 CREDITS 16 CREDITS	Year 1/2 2145221 INTRO AIR DSGN 2140111** EXPL ENG WORLD 2301108 CALCULUS II (1b) 2302103 GEN CHEM LAB 2302105 CHEM ENGS 2304154 PHYS ELEC ENGS 2304154 PHYS ELEC LAB ENGS 5501123 COM ENG II (Pre 5501112) Total	1 CREDITS 3 CREDITS 3 CREDITS 1 CREDITS 3 CREDITS 3 CREDITS 1 CREDITS 3 CREDITS <b>18 CREDITS</b>
<u>Year 2/1</u>		Year 2/2	
2145218* SCI PROG	2 CREDITS	$\square 2182203$ PROB STAT ENG (1c)	3 CREDITS
□2183211 ENG MECH	4 CREDITS	$\square 2183222$ FLUID MECH (3a)	3 CREDITS
□2183221 THERMODYNAMICS (2a)	3 CREDITS	$\square 2183231$ DYNAMICS	3 CREDITS
□2301215 MULTIVAR CALCULUS (1c)	3 CREDITS	□ 2183381** NUM METH ENG	3 CREDITS
□2301216 LIN ALG DIFF EQ (1c)	3 CREDITS	XXXXXX INTERDISCIPLINARY	3 CREDITS
□ 5501214 COM PRES SKILLS (Pre 55011	•	& 21ST CENTURY SKILLS	
Total	18 CREDITS	□5501225 TECH WRITING (Pre 5501113)	3 CREDITS
		Total	18 CREDITS
<u>Year 3/1</u>		<u>Year 3/2</u>	
2145311 AERODYNAMICS I (3b)	3 CREDITS	□2145312 AERODYNAMICS II	3 CREDITS
□2145326 AIR STRUC	3 CREDITS	(2b)/(3c)/(4a)	
2145427* ELEC FOR AERO ENG	2 CREDITS	□2145328 AIR STAB CONT	3 CREDITS
□2145327 AIR PERFORM	3 CREDITS	2145365* EXP AERO ENG	2 CREDITS
□2145453 MAT AERO ENG	3 CREDITS	□2145329 AIR PROPULSION	3 CREDITS
□XXXXXX GEN EDUCATION	3 CREDITS	(2b)/(3b)/(co-4a)	
Total	17 CREDITS	XXXXXX FREE ELECTIVE	3 CREDITS
		□XXXXXX GEN EDUCATION	3 CREDITS
		Total	17 CREDITS
<u>Year 3/3 (SUMMER)</u> 2140301 INDUS TRAINING	2 CREDITS		
12140301 INDUS IRAINING	2 CREDITS		
Year 4/1		<u>Year 4/2</u>	
<u></u> □2145475* AERO ENG PROJ I (5a)	2 CREDITS	□2145473 ROCKET PROPULSION	2 CREDITS
$\square 2145461$ AIR DSGN	3 CREDITS	(2b)/(3b)/(co-4a)	
XXXXXX APPROVED ELECTIVE	3 CREDITS	2145476* AERO ENG PROJ II (5b)	3 CREDITS
	3 CREDITS	□2145493 SP ENV	2 CREDITS
XXXXXX GEN EDUCATION	3 CREDITS	□XXXXXX FREE ELECTIVE	3 CREDITS
$\Box$ XXXXXX AI & BIG DATA	3 CREDITS	□XXXXXX GEN EDUCATION	3 CREDITS
Total	17 CREDITS	Total	13 CREDITS

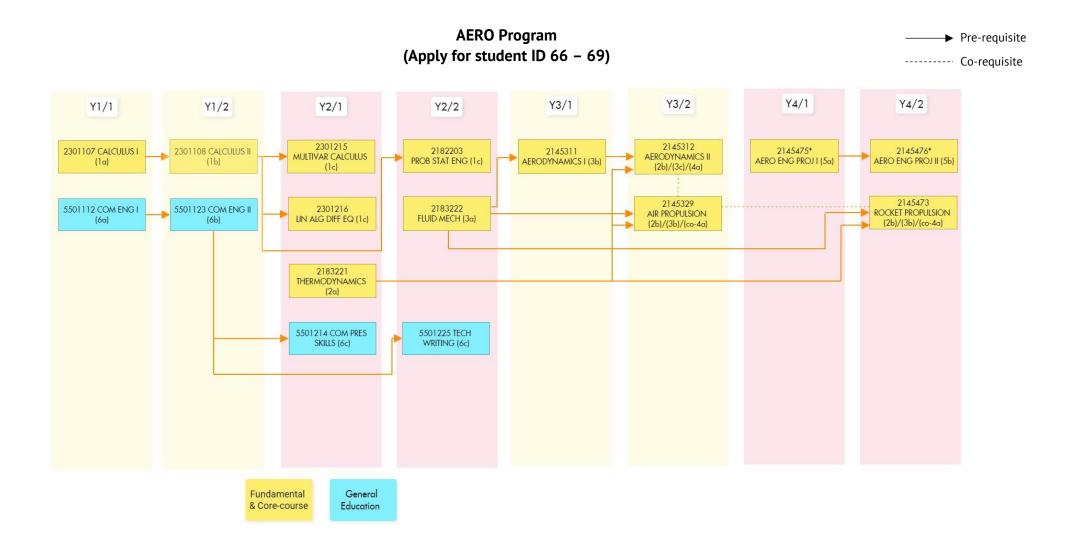
#### <u>Note</u>

- Xa is a prerequisite subject for Xb and Xb is also a prerequisite subject for Xc. (Example: Have to pass 2a before register 2b)

-  $\ensuremath{\text{co-Xa}}$  is a co-requisite subject for Xa. If you take/drop/withdraw

Xa subject, you have to take/drop/withdraw co-Xa

#### TOTAL CREDITS FOR GRADUATION 136



## Course Guideline Robotics and Artificial Intelligence Program (Apply for student ID 66 – 69)

#### FIRST SEMESTER

<u>Year 1/1</u>		
□2147103	DISCRETE MATH	3 CREDITS
□2190101	COM PROG <b>(3a)</b>	3 CREDITS
□2301107	CALCULUS I (1a)	3 CREDITS
□2304153	PHYSICS ENGS (2a)	3 CREDITS
□2304193	PHYS LAB ENGS (co-2a)	1 CREDIT
□2147111	EXPL ROBOTICS ENG	3 CREDITS
□5501112	COM ENG I	3 CREDITS
Total		19 CREDITS
<u>Year 2/1</u>		
□2147207*	LIN ALG (1c)	3 CREDITS
□2147208*	MULIT CAL <b>(1c)</b>	3 CREDITS
□5501214	COM PRE SKIL (Pre 5501123)	3 CREDITS
□2183212	STATICS (4a)	3 CREDITS
□2147210*	FUND DIG CIR	3 CREDITS
□2147214*	3D CAD MOD M-DSGN	3 CREDITS
Total		18 CREDITS
<u>Year 3/1</u>		

□2147320	FEED CON SYS (5b)	3 CREDITS
□2147313*	DSGN MACH ELEM	3 CREDITS
□2147105	DATA STRUC ALG (3b)	3 CREDITS
□2147104*	ENGR DSGN THNK	3 CREDITS
□2147301*	ROBOTICS LAB (6a)	1 CREDIT
□2147311*	DIG LOG DSGN	3 CREDITS
□2147332	AI	3 CREDITS
Total		19 CREDITS

#### Year 3/3 (SUMMER)

□2140301	INDUS TRAINING	2 CREDITS

#### <u>Year 4/1</u>

□2147498*	CAPSTONE DSGN I (7a)	3 CREDITS
	CONCENTRATION COURSE	3 CREDITS
	CONCENTRATION COURSE	3 CREDITS
	GENERAL EDUCATION	3 CREDITS
	FREE ELECTIVE	3 CREDITS
Total		15 CREDITS

## SECOND SEMESTER

# <u>Year 1/2</u>

1001 1/1		
□2301108	CALCULUS II (1b)	3 CREDITS
□2304154	PHYS ELEC ENGS (2b)	3 CREDITS
□2304194	PHYS ELEC LAB ENGS (co-2b)	1 CREDIT
□2182203	PROB STAT ENG	3 CREDITS
□5501123	COM ENG II (Pre 5501112)	3 CREDITS
	GENERAL EDUCATION	3 CREDIT
Total		6 CREDITS
Year 2/2		
□5501225	TECH WRIT (Pre 5501112)	3 CREDITS
□2183213	MECH MAT <b>(4b)</b>	3 CREDITS
□2147209*	DIFF-EQ MO-SIM-NUM	4 CREDITS
	(5a)/(co-4b)	
□2147215*	DSCI DVISU ANAL	3 CREDITS
□2147216*	SE-SI-ACT ROB PROJ	3 CREDITS
□2183231	DYNAMICS (4b)/(co-4a)	3 CREDITS
Total		19 CREDITS
<u>Year 3/2</u>		
□2147312*	ROBOTICS (4c)	3 CREDITS
□2147302*	AUTO-ROB-INTEL PROJ (6b)	3 CREDITS
	MARKET MANAGE ENG	3 CREDITS

Total		18 CREDITS
	GENERAL EDUCATION	3 CREDITS
	CONCENTRATION COURSE	3 CREDITS
	CONCENTRATION COURSE	3 CREDITS
	MARKET MANAGE ENG	3 CREDITS
2147302*	AUTO-ROB-INTEL PROJ (6b	) 3 CREDITS

#### Year 4/2

□2147499*	CAPSTONE DSGN II (7b)	3 CREDITS
	CONCENTRATION COURSE	3 CREDITS
	GENERAL EDUCATION	3 CREDITS
	FREE ELECTIVE	3 CREDITS
Total		12 CREDITS

<u>138</u>

#### TOTAL CREDITS FOR GRADUATION

#### <u>Note</u>

-  $\boldsymbol{X}\boldsymbol{a}$  is a prerequisite subject for Xb and Xb is also a prerequisite

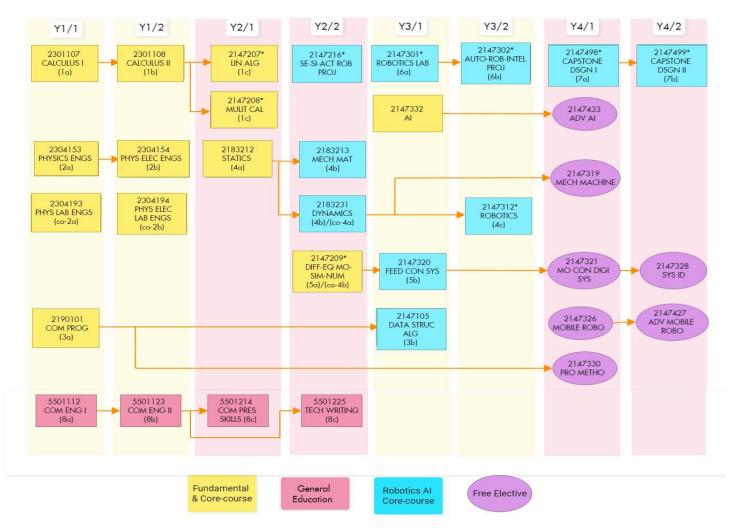
subject for Xc. (Example: Have to pass 2a before register 2b)

- co-Xa is a co-requisite subject for Xa. If you take/drop/withdraw Xa

subject, you have to take/drop/withdraw co-Xa

## **ROBOTICS AI Program**

## (Apply for student ID 66-69)



# Course Guideline Nano Engineering (NANO) Program (Apply for student ID 64 - Onwards)

## A. BIOENGINEERING

## FIRST SEMESTER

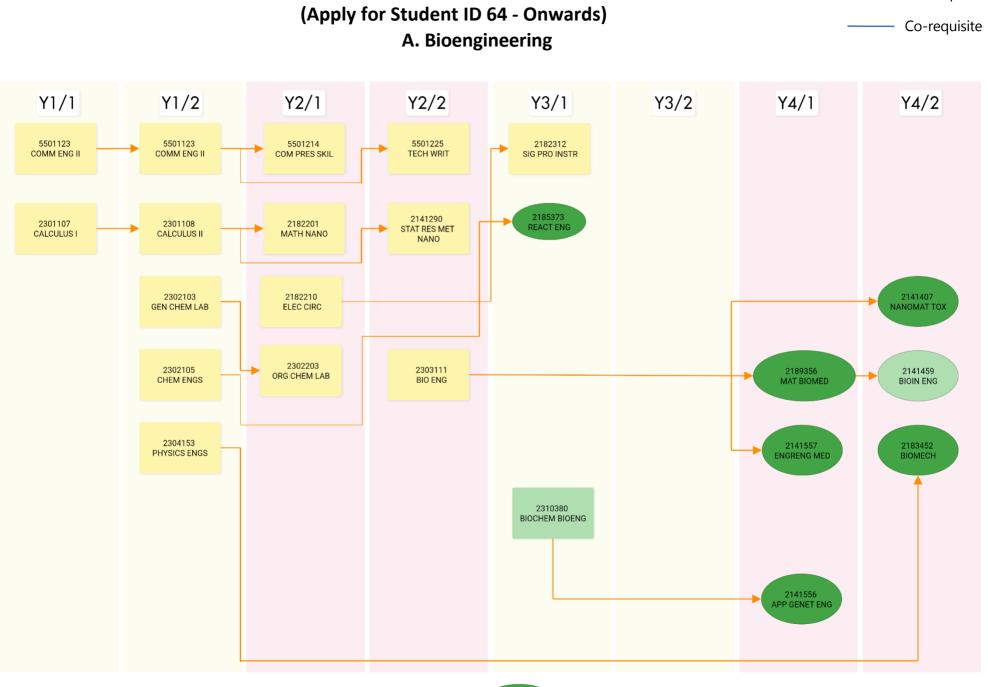
## SECOND SEMESTER

<u>Year 1/1</u>		Year 1/2	
2183101 ENG GRAPHICS	3 CREDITS	2140111 EXPL ENG WORLD	3 CREDITS
2301107 CALCULUS I	3 CREDITS	2183101 ENG GRAPHICS	3 CREDITS
2141100 INTRO NANO	3 CREDITS	2302105 CHEM ENGS	3 CREDITS
2304153 PHYSICS ENGS	3 CREDITS	2302103 GEN CHEM LAB	1 CREDIT
2304193 PHYSICS LAB ENGS	1 CREDIT	2301108 CALCULUS II	3 CREDITS
5501112 COMM ENG I	3 CREDITS	2304154 PHYS ELEC ENGS	3 CREDITS
Total	16 CREDITS	2304194 PHYS ELEC LAB ENGS	1 CREDIT
		5501123 COMM ENG II	3 CREDITS
		Total	20 CREDITS
<u>Year 2/1</u>		<u>Year 2/2</u>	
	3 CREDITS	2141290 STAT RES MET NANO	3 CREDITS
2182210 ELEC CIRC	3 CREDITS	$\square$ 2182213 ELEC CIRC LAB	1 CREDITS
□ 2183211 ENG MECH	4 CREDITS	□ 2303111 BIO ENG	3 CREDITS
□ 2189202 FUND MAT SCI ENG	3 CREDITS	□ 2303111 BIOLOGY LAB ENGNR	1 CREDITS
□ 2302106 BSC ORG CHEM	3 CREDITS	$\Box$ 2185222 PHYS CHEM NANO	3 CREDITS
□ 2302203 ORG CHEM LAB	1 CREDIT	$\Box$ 2302207 BASIC INOR CHEM	2 CREDITS
□ 5501214 COM PRES SKIL	3 CREDITS	5501225 TECH2 WRITING	3 CREDITS
Total	20 CREDITS		3 CREDITS
		Total	19 CREDITS
Veex 2/1		No. 20	
<u>Year 3/1</u>		<u>Year 3/2</u>	
□ 2189341 MAT CHARN	3 CREDITS	□ 2184303 ENG MGT	3 CREDITS
2182312 SIG PRO INSTR	3 CREDITS	2141302 NANO FAB TECH	3 CREDITS
□ 2141355 INTRO BIOEN	3 CREDITS	2185333 TRANS PHENOM	3 CREDITS
2185373 REACT ENG	3 CREDITS	□ 2141357 CELL BIO HUM BO	3 CREDITS
	3 CREDITS	2189356 MAT BIOMED	3 CREDITS
	1 CREDIT	GENERAL EDUCATION	
□GENERAL EDUCATION Total	3 CREDITS 19 CREDITS	Total	18 CREDITS
Year 3/3 (SUMMER)			
2140301 INDUS TRAINING (1C)	2 CREDITS		
<u>Year 4/1</u>		Year 4/2	
2141498 NANO PREPROJ	1 CREDIT	□ 2141490 NANO SEM	1 CREDITS
	3 CREDITS	□ 2141499 NANO ENG PROJ	3 CREDITS
	3 CREDITS	□ 2141485 NANO CAPSTONE	3 CREDITS
	3 CREDITS		3 CREDITS
GENERAL EDUCATION	3 CREDITS		3 CREDITS
	3 CREDITS		3 CREDITS
Total	16 CREDITS	Total	16 CREDITS

<u>Note</u>

- Xa is a prerequisite subject for Xb and Xb is also a prerequisite subject for Xc. (Ex: Have to pass 2a before register 2b)

Total Credits for graduation 147



**NANO** Program

Pre-requisite

Fundamental & Core-course



Bio Engineering

Core Course

# Course Guideline Nano Engineering (NANO) Program (Apply for student ID 64 - Onwards)

## **B. ADVANCED MATERIAL ENGINEERING**

## FIRST SEMESTER

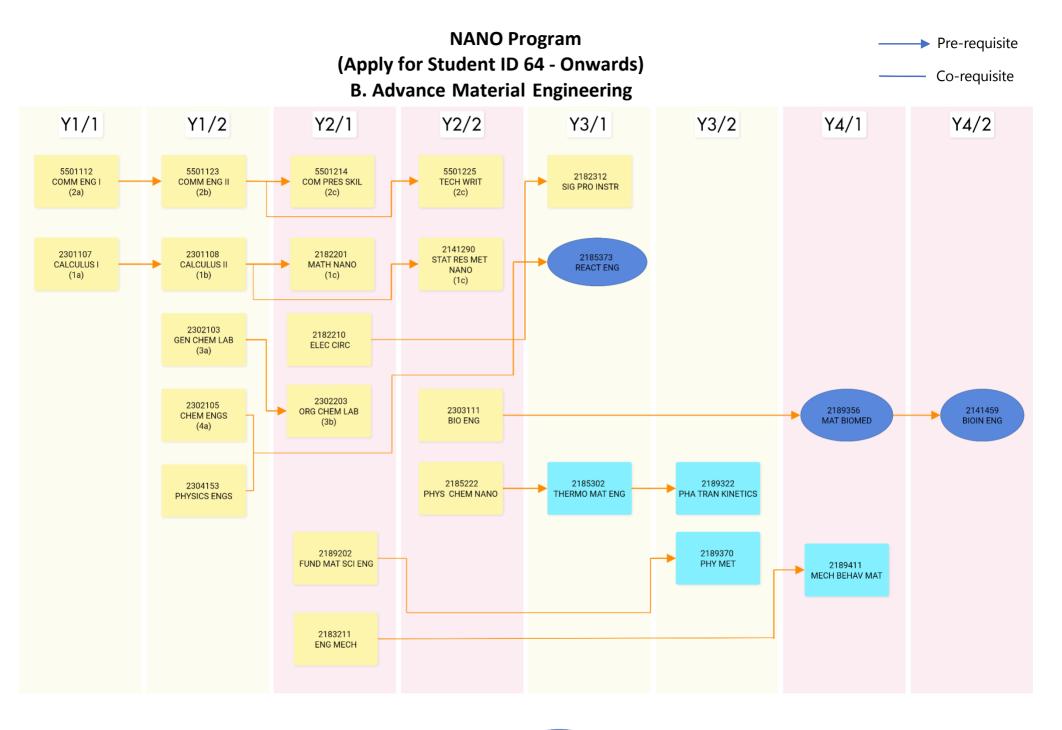
### SECOND SEMESTER

Year 1/1 2183101 ENG GRAPHICS 2301107 CALCULUS I 2141100 INTRO NANO 2304153 PHYSICS ENGS 2304193 PHYSICS LAB ENGS 5501112 COMM ENG I Total	3 CREDITS 3 CREDITS 3 CREDITS 3 CREDITS 1 CREDIT 3 CREDITS 16 CREDITS	Year 1/2 2140111 EXPL ENG WORLD 2183101 ENG GRAPHICS 2302105 CHEM ENGS 2302103 GEN CHEM LAB 2301108 CALCULUS II 2304154 PHYS ELEC ENGS 2304194 PHYS ELEC LAB ENGS 5501123 COMM ENG II Total	3 CREDITS 3 CREDITS 3 CREDITS 1 CREDIT 3 CREDITS 3 CREDITS 1 CREDIT 3 CREDITS 20 CREDITS
Year 2/1 2182201 MATH NANO 2182210 ELEC CIRC 2183211 ENG MECH 2189202 FUND MAT SCI ENG 2302106 BSC ORG CHEM 2302203 ORG CHEM LAB 5501214 COM PRES SKIL Total	3 CREDITS 3 CREDITS 4 CREDITS 3 CREDITS 3 CREDITS 1 CREDIT 3 CREDITS 20 CREDITS	Year 2/2 2141290 STAT RES MET NANO 2182213 ELEC CIRC LAB 2303111 BIO ENG 2303112 BIOLOGY LAB ENGNR 2185222 PHYS CHEM NANO 5501225 TECH2 WRITING GENERAL EDUCATION Total	3 CREDITS 1 CREDITS 3 CREDITS 1 CREDIT 3 CREDITS 3 CREDITS 3 CREDITS <b>17 CREDITS</b>
Year 3/1         2189341 MAT CHARN         2182312 SIG PRO INSTR         2141305 NANOSTR CRYS DEFEC         2185302 THERMO MAT ENG         2185379 POLYMER ENG        GENERAL EDUCATION         Total         Year 1/3 (SUMMER)         2140301 INDUS TRAINING (1C)	3 CREDITS 3 CREDITS 3 CREDITS 3 CREDITS 3 CREDITS 3 CREDITS 18 CREDITS 2 CREDITS	Year 3/2 2184303 ENG MGT 2141302 NANO FAB TECH 2185333 TRANS PHENOM 2189322 PHA TRAN KINETICS 2189370 PHY MET G GENERAL EDUCATION Total	3 CREDITS 3 CREDITS 3 CREDITS 3 CREDITS 3 CREDITS 3 CREDITS <b>18 CREDITS</b>
Year 4/1  2141498 NANO PREPROJ  2189411 MECH BEHAV MAT  APPROVED ELECTIVE  APPROVED ELECTIVE  APPROVED ELECTIVE  General Education  FREE ELECTIVE  Total	1 CREDIT 3 CREDITS 3 CREDITS 3 CREDITS 3 CREDITS 3 CREDITS 3 CREDITS <b>19 CREDITS</b>	Year 4/2         2141490 NANO SEM         2141499 NANO ENG PROJ         2189450 MAT DSGN SEL         2141485 NANO CAPSTONE         APPROVED ELECTIVE         FREE ELECTIVE         Total	1 CREDITS 3 CREDITS 3 CREDITS 3 CREDITS 3 CREDITS 3 CREDITS 16 CREDITS

<u>Note</u>

- **Xa** is a prerequisite subject for Xb and Xb is also a prerequisite subject for Xc. (Ex: Have to pass 2a before register 2b)

Total Credits for graduation 147





Engineering

Core Course

