

Comp Eng BE(Hons) stream review

- Based on the CE2016 ACM/IEEE Computer Engineering Curricula report
- Identified gaps in our core coverage of Discrete Maths, Algorithms, Networks and Security
- Drafted a proposal for a stream revision based on consultations with a few staff, alumni and industry partners
- Consulting with stakeholders, preparing stream revision documentation, submit to committees in mid-April for T1, 2024 start

Current COMPBH structure

Level 1 core 54 UoC

COMP1511, COMP1521,
COMP1531, ELEC1111, DESN1000,
MATH1131/1141, MATH1231/1241,
PHYS1121/1131, PHYS1221/1231

Level 2 core 42 UoC

COMP2511, COMP2521,
DESN2000, ELEC2133, ELEC2134,
MATH2069, MATH2099

Level 3 core 24 UoC

COMP3211, COMP3222,
COMP3231, COMP3601

Level 4 core 24 UoC

COMP4601, COMP4920,
COMP4951, COMP4952, COMP4953

Discipline Electives 24 UoC

ENGG2600, ENGG3600,
ENGG4600, ENGG3060, any
level 3, 4, 6 or 9 CSE course

Level 4 UoC Minimum

Minimum of 36 UoC level 4 courses,
including the level 4 core and
any level 4 CSE course

Core COMPBH coverage of Computer Engineering BoK

Body of Knowledge Area	Circuits and Electronics	Computing Algorithms	Computer Architecture and Organization	Digital Design	Embedded Systems	Computer Networks	Preparation for Professional Practice	Information Security	Signal Processing	Systems and Project Engineering	Systems Resource Management	Software Design	Analysis of Continuous Functions	Discrete Structures	Linear Algebra	Probability and Statistics
Minimum Core BoK Hours	50	30	60	50	40	20	20	20	30	35	20	45	30	30	20	30
Core range	1-10	1-8	1-11	1-10	1-12	1-8	1-10	1-11	1-8	1-12	1-6	1-11	1-8	1-9	1-10	1-10
Course																
COMP1511		5										1-4,8				
COMP1521			1-8	3							3					
COMP1531										2-3,7-9,11-12		2-4,8-9				
COMP2511												1-4,7-9,11-12				
COMP2521		3-5										5-6				
COMP3211			1-4,6-7,10													
COMP3222	6-7		5	1-9												
COMP3231											1-8					
COMP3601					1-3,6-8,13					3,6-11						
COMP4601				10	9,13		3			6,9-11	7					
COMP4920							1,3,5-7,9,11									
DESN1000							1-6									
DESN2000			3,6,8		6,8		3,4,6,11									
ELEC1111	1-4,9,12															
ELEC2133	5-6,8-10,12															
ELEC2134									1-9							
MATH1131													1-4		1-5	
MATH1231													3-5		3-7	1-4
MATH2069													7			
MATH2099															3-7,9-10	4-10
PHYS1121																
PHYS1221	3-5															
Coverage	1-12	3-5	1-8,10	1-10	1-3,6-9,13		1-7,9,11		1-9	2-3,6-12	1-8	1-9,11-12	1-5,7		1-7,9-10	1-10



Proposed revisions:

1. Substitute MATH1081 Discrete Mathematics for MATH2069 Mathematics 2A in the level 2 core
2. Add 2 courses to the level 3 core:
COMP3121 Algorithms and Programming Techniques
Computer Networks and Applications Engineering and Cyber Security
COMP3331
COMP6441 Security
3. Add selected level 3 & 4 EET courses to the list of Discipline Electives
4. Include selected level 4 EET courses in the level 4 UoC minimum

Selected level 3/4 EET electives

Level 3 EET electives:

ELEC3104 Digital Signal Processing
ELEC3106 Electronics
ELEC3114 Control Systems
ELEC3145 Real-Time Instrumentation
ELEC3705 Fundamentals of Quantum Engineering
TELE3113 Analog & Digital Communications
TELE3119 Trusted Networks

Level 4 EET electives:

ELEC4602 Microelectronic Design and Technology
ELEC4603 Solid State Electronics
ELEC4605 Quantum Devices and Computers
ELEC4621 Advanced Digital Signal Processing
ELEC4622 Multimedia Signal Processing
ELEC4623 Biomedical Instrumentation, Measurement and Design
ELEC4631 Continuous-Time Control System Design
ELEC4632 Computer Control Systems
ELEC4633 Real-Time Engineering
TELE4642 Network Performance
TELE4651 Wireless Communications Technologies
TELE4652 Mobile and Satellite Communications Systems
TELE4653 Digital Modulation and Coding

Minor tweaks:

1. COMP3601 prerequisite to be strengthened from DESN2000 to DESN2000 & COMP3222
2. Schedule adjustments:
 - Move ELEC2134 to T1 of Year 2 since it is a prereq of ELEC2133, which is only offered in T2
 - Move COMP3222 to T1 of Year 2 to provide elementary background earlier and align program with Electrical Engineering
 - Move COMP1531 to T3 of Year 2 to swap its scheduling with COMP3222
 - Move COMP4601 to T1 of Year 4 to complete custom and embedded hardware design experience earlier in Y4 and support thesis projects

Proposed COMPBH schedule

Current schedule				Proposed Schedule	
Year 1		Avail	Prereqs	Coreqs	No change to Y1 of current COMPBH
Term 1	DESN1000 ELEC1111 COMP1511	T1, T3 T1, T3 T1, T2, T3			DESN1000 ELEC1111 COMP1511
Term 2	MATH1131 PHYS1121 COMP1521	T1, T2, T3 T1, T2, T3 T1, T2, T3	COMP1511		MATH1131 PHYS1121 COMP1521
Term 3	MATH1231 PHYS1221 Gen Ed	T1, T2, T3 T1, T3	MATH1131 PHYS1121	MATH1231	MATH1231 PHYS1221 Gen Ed
Year 2					First two terms replicate Elec plan for Year 2 & Discrete Maths added to core
Term 1	COMP1531 COMP2521	T1, T2, T3 T1, T2, T3	COMP1511 COMP1511		COMP3222 moved forward from T3 to provide earlier coverage (before DESN2000) COMP2521 ELEC2134 moved forward from T3 to satisfy ELEC2133 prereq
Term 2	DESN2000 MATH2099 ELEC2133	T2 T2 T2	DESN1000, COMP1521 MATH1231 ELEC2134		DESN2000 MATH2099 ELEC2133
Term 3	MATH2069 COMP3222 ELEC2134	T3 T3 T1, T3	MATH1231 COMP1521 ELEC1111		MATH1081 Discrete Maths replaces Maths 2A as core COMP1531 moved back from T1 to accommodate COMP3222
Year 3					Plan is as it was for COMPBH in Y3, but with addition of 2 out of 3 cores
Term 1	COMP3231 COMP3211 Elective	T1 T1	COMP1521, COMP2521 COMP3222 ELEC2141		COMP3231 COMP3211 Elective
Term 2	COMP2511 Elective Gen Ed	T2, T3	COMP1531, COMP2521		COMP2511 COMP3121 or COMP3331 Algorithms or Networks selected GenEd
Term 3	COMP3601 Elective	T3	DESN2000		COMP3601 strengthen prereq to DESN2000 & COMP3222 COMP3121, COMP3331 or COMP6441 Algorithms, Networks or Security selected
Year 4					Plan is as it was for COMPBH in Y4 with small schedule change
Term 1	COMP4951 Elective Elective	T1, T2, T3	3rd Yr core & 126 UoC		COMP4951 COMP4601 moved forward from T2 to immediately follow 3601 and better prepare students for Thesis; Elective
Term 2	COMP4952 COMP4601 Elective	T1, T2, T3 T2	COMP3211, COMP3601		COMP4952 Elective
Term 3	COMP4953 COMP4920	T1, T2, T3 T1, T3	COMP2511 & 96 UoC CS		COMP4953 COMP4920