Computer Science Student Learning Outcomes and Performance Indicators

Note: When there is a relation between the Computer Science performance indicators and the Electrical and Computer Engineering performance indicators, the ECE area is noted in parentheses after the main CS student outcome.

1. An ability to analyze a complex computing problem and to apply principles of computing and other relevant disciplines to identify solutions. *[ECE Outcome 1 is similar, but has more requirements]*
   1a) Apply appropriate mathematical foundations and perform correct mathematical analysis.
   1b) Apply appropriate principles to analyze a complex computing problem.

2. An ability to design, implement, and evaluate a computing-based solution to meet a given set of computing requirements in the context of the program's discipline. *[ECE Outcome 2 is similar, but has more requirements]*
   2a) Define specifications to meet project requirements.
   2b) Follow systematic and logical design procedures to design a solution that meets requirements.
   2c) Evaluate alternative designs and choose the desirable solution.
   2d) Implement desirable solution and evaluate the results.

3. An ability to communicate effectively in a variety of professional contexts. *[ECE Outcome 3]*
   3a) Write technical reports at an appropriate level for the target audience.
   3b) Prepare and deliver oral presentations at an appropriate level for the target audience.

4. An ability to recognize professional responsibilities and make informed judgments in computing practice based on legal and ethical principles. *[ECE Outcome 4 is similar, but has more requirements]*
   4a) Recognize and describe professional responsibilities in computing practice.
   4a) Recognize and describe ethical issues involved in a professional setting.
   4b) Recognize and describe legal issues in computing.
   4c) Make informed judgements based on legal and ethical principles and on professional responsibilities.

5. An ability to function effectively as a member or leader of a team engaged in activities appropriate to the program's discipline. [*ECE Outcome 5]*
   5a) Fulfill team duties and share in the work of the team.
   5b) Listen and communicate with other team members.
   5c) Meet deadlines to achieve project goals.

6 [CS]. An ability to apply computer science theory and software development fundamentals to produce computing-based solutions.
   6a) Apply appropriate software development fundamentals to produce solutions.
   6b) Apply appropriate computer science theory to design choices when producing a solution.
   6c) Understand the software/system lifecycle.

Computer Science – Proposed Matrix

E = Even Years (2016/17, 2018/19, etc)   O = Odd Years (2017/18, 2019/20, etc)   A = All Years

(Note: Only core upper-division CMPS courses required by at least two concentrations are included in this matrix)

		3120	3140	3350	3420	3500	3560	3600	3620	3640	4910	4928	Summary
Concentrations		All	CS,IS	All	All	All	CS,CIS	All	All	All	All	All	
1. Analyze problem													**1**
1a	Apply math		O				E						2 courses
1b	Apply principles	O				E							2 courses
2. Comp. solutions													**2**
2a	Specifications				O						A		2 courses
2b	Logical design			E							A		2 courses
2c	Compare Design	E						O					2 courses
2d	Implement/Eval.	E										A	2 courses
3. Communication													**3**
3a	Written Comm.				E							A	2 courses
3b	Oral Comm.									E		A	2 courses
4. Prof/Eth. Respons.													**4**
4a	Professional			O							A		2 courses
4b	Ethical Issues						O		E				2 courses
4c	Legal Issues								E				1 course
4d	Judgements						O		E				2 courses
5. Teamwork													**5**
5a	Team Duties									O		A	2 courses
5b	Communicate									O		A	2 courses
5c	Deadlines									O		A	2 courses
6. Theory/Soft. Eng.													**6**
6a	Devel. Principles											A	1 course
6b	Apply theory		E			O							2 courses
6c	Lifecycle			O									1 course
Assessment Count		3	2	3	2	2	3	1 CS 1 CE	3	4	3	7	