	A	B	C	D	E
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2	**Frequency**	**Original Competency Groups (in Q2, from Q1 responses)**	**Revised Competencies (from Q2 responses)**	**Revised Sub-Competencies (from Q2 responses)**	**Suggested Changes to Competency Groups**
3	**16**	**Professional Ability- Workplace related compentencies; Interpersonal Skills; Soft Skills; Political awareness; Situation awareness; Demonstration of negotiation/mediation skills; High performance under pressure; Embrace diversity; Sharing of information; Dealing with Uncertainty; Resourcefulness; Take responsibility; Information Literacy; Business Skills; Making good engineering decisions; courage; Individual characteristics;**	**Professional Competencies (Interpersonal, Intrapersonal, and Engineering)**	**INTERPERSONAL COMPETENCIES:** Teamwork and team behavior; group behavior/thiniking; Leadership; coordinate efforts: cooperative decision making; create vision and accomplish shared goals, Political awareness, Mediation Skills, Society and cultural understanding to embrace diverse viewpoints; work effectively in the global engineering profession; Awareness of international cultures; Networking skills; Communication Skills; Leadership; adherence to company policies and procedures; treating co-workers with respect; Project management. **INTRAPERSONAL COMPETENCIES:** Critical Thinking; Take responsibilty; courage; high performance under pressure; Informational literacy; Professional appearance; integrity and character loyalty, punctual; work ethic; commitment; motivation; resourcefulness; initiative; attitude demeanor; Self-directed learning; Lifelong learning; Personal internalization of knowledge; Professional ethics; Ethics and Professional Responsibility; Civic Responsibility and Ethics; Character. **ENGINEERING COMPETENCIES:** Making good engineering decisions; Good decision-making skills; Resourcefulness, Performance under pressure and Dealing with Uncertainty; good engineering decisions; resourcefulness; Engineering Project Management.	**1. Combine Interpersonal Skills, Soft Skills, Political awareness, Mediation Skills,Take responsibilty, an courage** **2. Combine Making good engineering decisions, Resourcefulness, Performance under pressure and Dealing with Uncentainty**
4	**12**	**Communication; Effective Communication (written and oral communication); Communications; Effective Communication; Communication skills appropriate to the audience; Communicate Effectively**	**Communication Competencies**	Communication (written and oral); Technical and non-technical communicatioin; Communicate Effectively (appropriate to the audience); Sharing of information; Presentation skills	**No Changes**
5	**7**	**Critical Thinking; Critical Thinker**			
6	**7**	**Engineering Problem Recognition, Definition, and Solving; Solve problems; Open ended problem solving; Problem solving; Creative problem Solving; Ability to solve ill-constrained engineering problems**	**Analytical Competencies**	Critical Thinking; Design;Creativity and Innovation; Techcnical Ability	**No Changes**
7	**7**	**Design; Design of new products, processes, equipment, …; Design Solutions; Engineering Design;**	To Analytical Competencies		
8	**6**	**Teamwork; Teamwork and team behavior; Group thinking;**	To Professional Interpersonal Competencies		**This could be combined with No.1 above, Professional Skills**
9	**6**	**Technical Ability; Technical Knowledge; Technical Excellence; Analyze data; Basic Science; Mathematics;**	To Professional Engineering Competencies		**No Changes**
10	**5**	**Leadership; coordinate efforts: create vision and accomplish shared goals**	To Professional Interpersonal Competencies		**Combine with No.1, Professional skills**
11	**5**	**Professional ethics; Ethics and Professional Responsibility; Civic Responsibility and Ethics; Character**	To Professional Interpersonal Competencies		**Combine with No.1, Professional skills**
12	**4**	**Self-directed learning; Lifelong learning; Personal internalization of knowledge;**	To Professional Intrapersonal Competencies		**Combine with Engineering Problem Solving**
13	**3**	**Engineering Project Management; Project Management**	To Professional Engineering Competencies		**Combine with No.1, Professional skills**
14	**3**	**Creativity and Innovation; Innovation; Innovative thinking**	To Analytical Competencies		**Combine with Engineering Problem Solving**
15	**3**	**Apply theory to practice; Apply Knowledge; Application of education-- Able to apply theoretical tenets**	To Analytical Competencies		**Combine with Engineering Problem Solving**
16	**3**	**Society and cultural understanding to embrace diverse viewpoints; work effectively in the global engineering profession; Awareness of international cultures**	To Professional Interpersonal Competencies		**Combine with No.1, Professional skills**
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2	**Suggested Changes to Competency Groups**	**Suggested Changes to Competency Groups**	**Suggested Changes to Competency Groups**
3	**Professional Ability- Workplace related compentencies; Interpersonal Skills; Soft Skills; Political awareness; Situation awareness; Demonstration of negotiation/mediation skills; High performance under pressure; Embrace diversity; Sharing of information; Dealing with Uncertainty; Resourcefulness; Take responsibility; Information Literacy; Making good engineering decisions; courage; Individual characteristics; Teamwork and team behavior; group behavior/thiniking; Leadership; coordinate efforts: create vision and accomplish shared goals; Society and cultural understanding to embrace diverse viewpoints; work effectively in the global engineering profession; Awareness of international cultures; NETWORKING SKILLS**	**Separate this section into Professional Ability-Working with People, Professional Ability-Personal Skills, and Professional Ability as an Engineer. Consider moving "sharing of information" to Communication. Move "good engineering decisions" and " resourcefulness" to Prof. Ability as an Engineer section. Move "high performance under pressure" to either Engineer or Personal Atributes sections.**	
4	**Communication; Effective Communication (written and oral communication); Communications; Effective Communication; Communication skills appropriate to the audience; Communicate Effectively**		
5	**Add to DESIGN, INNOVATION AND CRITICAL THINKING**	**Move into new Professional Ability - Personal Attributes group**	
6	**Add to DESIGN, INNOVATION AND CRITICAL THINKING**	**Recommend keeping this as a separate group due to importance; could merge into a new group, Professional Ability as an Engineer**	**Combine this with Technical Ability. At least initially students will be solving technical problems.**
7	**Design; Design of new products, processes, equipment, ...; Design Solutions; Engineering Design; Engineering Problem Recognition, Definition, and Solving; Solve problems; Open ended problem solving; Problem solving; Creative problem Solving; Ability to solve ill-constrained engineering problems; Critical Thinking; Critical Thinker; Creativity and Innovation; Innovation; Innovative thinking; Apply theory to practice; Apply Knowledge; Application of education-- Able to apply theoretical tenets;**	**Either keep as a separate group due to importance or move in into a new group, Professional Ability as an Engineer**	**Combine this with Creativity and Innovation**
8	**ADD TO LEADERSHIP AND TEAMWORK**	**Move into Professional Ability - Working with People**	
9	**Fundamental engineering principles and skills; Technical Ability; Technical Knowledge; Technical Excellence; Analyze data; Basic Science; Mathematics;**	**Move into new group: Professional Ability as an Engineer**	**Combine with problem solving. At least initially graduates will need to be able to solve technical problems.**
10	**ADD TO LEADERSHIP AND TEAMWORK**	**Move into new group - Professional Ability - Working with People - formed from the current Professional Ability group**	
11	**Professional ethics; Ethics and Professional Responsibility; Civic Responsibility and Ethics; Character; courage**	**Move into new Professional Ability - Personal Attributes group**	
12	**Self-directed learning; Lifelong learning; Personal internalization of knowledge; initiative;**	**Move into new Professional Ability - Personal Attributes group**	
13	**Engineering Project Management; Project Manaagement; Business Skills;**	**Move into new group: Professional Ability as an Engineer**	
14	**Add to DESIGN, INNOVATION AND CRITICAL THINKING**	**Move into new group: Professional Ability as an Engineer**	**Combine this with Design**
15	**Add to DESIGN, INNOVATION AND CRITICAL THINKING**	**Move into new group: Professional Ability as an Engineer**	
16	**ADD TO LEADERSHIP AND TEAMWORK**	**Move into new group - Professional Ability - Working with People - formed from the current Professional Ability group**	
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2	Suggested Changes to Competency Groups	Suggested Changes to Competency Groups	Suggested Changes to Competency Groups
3	Professional Ability- Workplace related compentencies; Interpersonal Skills; Soft Skills; Political awareness; Situation awareness; Demonstration of negotiation/mediation skills; High performance under pressure; Sharing of information; Dealing with Uncertainty; Resourcefulness; Take responsibility; Information Literacy; Business Skills; courage; Individual characteristics;	Professional appearance; adherence to company policies and procedures; integrity and character; treating co-workers with respect; loyalty, punctual; work ethic; taking responsibility; commitment; motivation; resourcefulness; courage; initiative; attitude demeanor	Interpersonal Skills; Situational Awareness; Cultural Awareness; Performance Under Pressure; Respect for Others; Professional Responsibility; Information Literacy; Cooperative Decision Making Skills
4	Communication; Effective Communication (written and oral communication); Communications; Effective Communication; Communication skills appropriate to the audience; Communicate Effectively	Written communication (expressing ideas in written form); oral communication; presentation skills (small and large groups); listening; graphic communication; phone & email etiquette; persuasion skills; reporting skills; interpersonal	Effective Communication (written, oral, and graphical); Technical and Non-Technical Communications;
5	Teamwork; Teamwork and team behavior; Group thinking;	Overall technical knowledge and abilities; ability to apply knowledge; creativity; innovation; engineering problem recognition, critical thinker; identifying and analyzing problems; open ended problem solving; analytical ability; logical reasoning; understanding the design process; developing design solutions; persistence; patience; ability to master engineering tools; staying up-to-date; continuous learning	Analyze and Apply Logical Reasoning
6	Professional ethics; Ethics and Professional Responsibility; Civic Responsibility and Ethics; Character	Negotiating; decision making; setting priorities; organizational skills; risk-taking; business; project management; time management	Engineering Problem Recognition, Definition, and Solving; Well-Defined and Open-Ended Problem; Problem Solving Individual and as a Member of a Team; Ability to Solve Ill-Defined Problems
7	Self-directed learning; Lifelong learning; Personal internalization of knowledge;	Define and share vision; planning; motivating; leading by example; conflict resolution; influencing and persuading others; decision making; accountability;	Engineering Design; Prescriptive and Performance-Based Design; Evaluate Multiple Design Options; Define Limitations of a Design
8	FOLDED INTO OTHER COMPETENCIES	Working with a diverse team; knowing when to lead and when to follow; understanding cultural differences; responsibility and accountability; working in a global environment	Teamwork; Team Structure; Individual and Group Responsiblilities; Team Dynamics and Behavior; Conflict Resolution;
9	Critical Thinking; Critical Thinker; Creativity and Innovation; Innovation; Innovative thinking	Adhering to a code of ethics and accepted codes of conduct; understanding legal responsibilities; social responsibility; awareness of societal impacts;	Technical Ability; Technical Knowledge; Analysis of Data; Application of Natural Sciences and Mathematics
10	Society and cultural understanding to embrace diverse viewpoints; work effectively in the global engineering profession; Awareness of international cultures; Embrace diversity;		Prinicples of Leadership; Setting Goals; Shared Vision
11	Leadership; coordinate efforts: create vision and accomplish shared goals		Professional ethics; Ethics and Professional Responsibility; Ethics and Character
12			Self-directed learning; Lifelong learning; Personal Plan for Continuing Education; Currency of Knowledge.
13	Engineering Problem Recognition, Definition, and Solving; Solve problems; Open ended problem solving; Problem solving; Creative problem Solving; Ability to solve ill-constrained engineering problems		Engineering Project Management; Project Deliverables; Project Schedule
14	Design Solutions; Engineering Design;		Creativity and Innovation; Entrepreneurial Thinking; Understanding of Intellectual Property Rights.
15	Technical Ability; Technical Knowledge; Technical Excellence; Analyze data; Basic Science; Mathematics; Apply theory to practice; Apply Knowledge; Application of education-- Able to apply theoretical tenets		Apply Theory to Practice; Able to Apply Theoretical Tenets to Solve Engineering Problems
16	FOLDED INTO OTHER COMPETENCIES		Human Culture and Society; Cultural Awareness; Respect for Diverse Viewpoints and Backgrounds;
17	Engineering Project Management; Project Management		
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2	**Suggested Changes to Competency Groups**	**Suggested Changes to Competency Groups**	**Suggested Changes to Competency Groups**	**Suggested Changes to Competency Groups**
3	**Include societal, historic, and cultural awareness.**	**None.**	**combine "Professional Ability" box with "Professional Ethics" box and "self-directed learning" box**	
4		**None.**	**Move "Making good engineering decisions" from "Professioal Ability" to "Engineering Problem Recognition, Definition, and Solving"**	
5		**None.**	**Combine "Design" box, "Apply Theory to practice" box, "Critial Thinking" box, and "Creativity and Innovation" box with "Engineering Problem Recognition, Definition, and Solving" box.**	**combine into another category shouldn't be it's own: engineering problem solving**
6		**See comment**	**Combine "Society and cultural understanding" box with "Communication" box**	
7		**None.**		
8		**See comment.**		**group with professional ability**
9		**See comment**		
10		**See comment**		***should be an optional part of class work (not all engineers want to be leaders/managers)**
11		**None.**		
12		**None.**		
13		**None.**		
14		**None.**		***should be an optional part of class work for those looking to expand horizons**
15		**None.**		
16	**Include economic, historical, political understanding to list.**	**None.**		**combine with engineering & society ethics**
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2	Suggested Changes to Competency Groups	Suggested Changes to Competency Groups	Suggested Changes to Competency Groups	Suggested Changes to Competency Groups
3	Professional Literacy	I would move all of the communication focus into the Effective Communication group. I would add the self directed and lifelong learning from the later group to this group.	Many items covered in Professional Ability - is this Professionalism or Technical Know-How I am presuming this is Professionalism in the Workplace	
4	Effective Communication	I would pull all forms of communication into this group.		
5	Can combine with Engineering Problem Indentification	I would combine this with the following competency group as well as some of the overlapping concepts from the technical ability group.	Components of critical thnking needed within other competencies - do not think it stands alone	Decision making,
6	Engineering Problem Identification, Synthesis, and Recognition of Viable Solutions	I would combine this with the previous competency group.	Combine Engineering Problem Recognition and solving with Design Solutions	
7	good as-is	I would add some of the more complex technical ability pieces to this group.	Combine Design of New Products with Engineering Problem Recognition	
8	good as-is	I would definitely combine with leadership as I see teamwork and leadership heavily related. I also think project management could be integrated with these topics, although not as closely aligned.		making effective community
9	Combine with Engr Problem Identification	I would split this group into the critical problem solving or design groups depending on the level of complexity for the presented competencies.	Combine with Engineering Design and Technical Ability	
10	good as-is	Combine with teamwork		
11	I like this as stand alone but it could be added to Professional Literacy	I would integrate the societal, global, and cultural understanding into this group.	Fold into Professionalism in the Workplace	
12	Could be added to Professional Literacy and/or Engineering Problem Recognition	I would add this to the professional skills group from above.		
13	could be combined with Leadership	Combine with teamwork	Engineering Design and Technical Ability	
14	could be combined with engineering problem Identification and/or design	Consider adding entrepreneurship to this group.		
15	Can Combine with Engineering Problem Indentification	Many of these overlap with the Technical Knowledge and Design competencies	Problem Solving	
16	Implicit Bias Awareness	Combine with ethics.	Would fold into Professionalism in the Workforce - diveristy awareness, understanding and empathetic to cultural norms	
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2	**Suggested Changes to Competency Groups**	**Suggested Changes to Competency Groups**	**Suggested Changes to Competency Groups**	**Suggested Changes to Competency Groups**
3	**Interpersonal and Communication Collaboration: (General Group) Subgroup: (Negotiation/mediation skills) (Participatory skills/sharing informtion)**		**Decision making should be a separate skill.**	**streamline by moving some components to other areas: diversity to "inclusion" literacy to communication biz skills to leadership engineering decisions to engineering design add ethics into this group**
4	**New**		**Communicate to stakeholders and senior decision makers.**	**Incorporate some of the business skills here**
5	**New**	**could be captured in Technical Knowledge & Problem Solving**		
6	**Merge**	**could be combined with technical ability/knowledge**	**Stakeholder analysis and systems thinking**	**Incorporate design and rename to Engineering design and problem solving**
7			**Should include problem solving. Testing? Evaluation of potential solutions? Decision making? Cost analysis?**	**move into engineering skills and problem solving**
8		**could be combined with project management**	**Add: Stages of team development. Group processes.**	**move into leadership below**
9		**could be combined with engineering problem recognition/solving**	**Statistics, models and simulations.**	**More emphasis on analytical skills**
10				**Incorporate Teamwork and project management. Rename as "Leadersip, teamwork and project management"**
11				**move into professional skills**
12	**Leadership in the organization**			
13	**Merge**	**Include elements from leadership that relate to teams here (e.g. knowledge of teamwork, emotional intelligence; skills of motivation, delegation)**		**move into leadership**
14	**Merge**		**Merge with problem solving.**	
15	**Merge**		**Merge with problem solving.**	**move into engineering skills and problem solving**
16	**Merge**		**Merge with problem definition**	**incorporate diversity aspects from "professional ability" here. Rename to "(cultural, social, political, economic, global) awareness, understanding and inclusion."**
17	**Merge**			
18	**New**			

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2	**Suggested Changes to Competency Groups**	**Suggested Changes to Competency Groups**	**Suggested Changes to Competency Groups**	**Suggested Changes to Competency Groups**
3	**none**	**soft skills' can be perceived as diminishing their importance relative to 'hard' technical skills. I recommend "professional skills" as an umbrella term for the interpersonal capabilities that are required for success in any time of organization.**	**The group "Professional Ability" is too broad and it covers every other compency group. Break it up into Engineering Fundamentals, Commication, Teamwork, Negotiation, Leadership, Ethics, Self Learn**	**Technically compentent**
4	**none**		**keep as is**	**constrained design**
5	**none**		**delete: now part of engineering fundaments**	**Creativity**
6	**none**		**delete: now part of engineering fundaments**	**strong work ethic**
7	**none**		**delete: now part of engineering fundaments**	**Group Skills**
8	**none**		**keep as is**	**Ethics**
9	**include row 16 (Apply theory to practice; Apply Knowledge) in this competency group**	**This could be re-framed under the term 'growth mindset.'**	**delete: now part of engineering fundaments**	
10	**none**		**keep as is**	
11	**none**		**keep as is**	
12	**none**		**keep as is**	
13	**none**		**keep as is**	
14	**none**	**Add "entrepreneurial mindset to the description." While "entrepreneurship" connotes starting a discrete enterprise, "entrepreneurial mindset" reflects more broadly the application of a start-up mentality and skills to projects and programs within an existing business or organization.**	**keep as is**	
15	**Combine this category with Technical Ability.**		**delete: now part of engineering fundaments**	
16	**none**		**keep as is**	
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2	**Suggested Changes to Competency Groups**	**Suggested Changes to Competency Groups**	**Suggested Changes to Competency Groups**
3	**Replace "soft skills" with "professional skills". The term soft skills give the impression that they are unimportant. Lso, for many engineers, they're the skills that are harder to develop well. My full suggestion for wording is: professional skills (interpersonal skills, teamwork, written and oral communication) - then remove all resuting redundancy from this section**		**Political awareness, embracing of diversity, and taking responsibilty are separate and should be included in the professional ethics competency. I suggest replacing "making good engineering decisions" with good decionmaking skills and placing in the critical thinking competency. Remove communication from the Skills column**
4	**Remove redundancy and include in "professional ability"**		**Able to communicate clearly in written, oral, and electronic venues. Able to communicate with diverse audiences. Asks questions and seeks clarification as needed**
5	**Remove and include in "problem solving"**	**Combine Critical Thinking with Engineering Problem Recognition (next cell)**	**Understands the importance nd relevance of ideas. Not afraid to challenge.**
6	**Remove redundancy and add critical thinking (ability to analyze information, make judgments, draw inferences, predict outcomes, and transform knowledge)**		**This sounds like "engineering thinking". I would combine this with Engineering/technical ability**
7	**Incorporate realistic constraints in design (e.g., accessibility; societal, environmental, and economic impacts, etc.)**		
8	**Remove and include in "professional ability". I would remove group thinking. I believe individual thought consensus building - not group thinking - are preferable.**		**Combine with professional soft skills**
9	**Remove and include in "problem solving"**		**Combine with engineering /technical ability**
10	**Combine project management with this section. Add things like resourcefulness, dealing with uncertainty, and taking responsibility here instead of in "professional ability" section.**		
11	**Adhere to codes of ethics (engineering societies, workplace, and personal)**		**Add diversity and able to work with people from diverse locations.**
12	**Engage inongoing professional development; apply knowledge to practice**		**Combine with Learning and Innovation**
13	**Remove and includein "Leadership"**		**Combine with engineering /technical ability**
14	**Remove and include in "problem solving" and/or "design".**		
15			**Combine with Learning and Innovation**
16	**Abillity to work on diverse, inclusive teams. (Here, diverse includes race/ethnicity, culture, disability, socio-economic, and gender).**		**Combine with professional ethics**
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