



*Body of Knowledge and Curriculum to Advance Systems Engineering*

**10th Workshop on  
Way Ahead to SEBoK v. 1.0  
and  
GRCSE v. 1.0**



April 24-26, 2012

Naval Postgraduate School

Monterey, CA, USA

**WORKSHOP REPORT**

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## 1. BKCASE Project

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BKCASE is the acronym for the Body of Knowledge and Curriculum to Advance Systems Engineering project. The BKCASE project is led by a university partnership between the Stevens Institute of Technology and the Naval Postgraduate School with sponsorship from the U.S. Department of Defense and support from INCOSE, the IEEE Computer Society and Systems Council, the ACM, and the NDIA Systems Engineering Division. The project scope is to define a Systems Engineering Body of Knowledge (SEBoK) and use the SEBoK in the development of a Graduate Reference Curriculum for Systems Engineering (GRCSE).

The ideal outcome is that the SEBoK will be supported worldwide by the Systems Engineering (SE) community as the authoritative body of knowledge for the SE discipline and that GRCSE will receive the same global recognition, serving as the authoritative guidance for graduate degree programs in SE. Systems engineers from across the world have volunteered as authors and reviewers on the project to collaborate over a three year period and to deliver the SEBoK and GRCSE to the public in 2012.

In December 2009, the BKCASE team held an inaugural workshop in Monterey, CA, at the Naval Postgraduate School (NPS) to determine the basic rules for the project and develop a common set of objectives. The first year of the project focused on the development of prototype versions of the deliverables (versions “0.25”) for limited community review. SEBoK 0.25 was released on September 16, 2010, and GRCSE 0.25 on December 17, 2010. Both were available for three months of review.

The second year of the project focused on developing more mature drafts of each deliverable (versions “0.5”) for worldwide community review. SEBoK 0.5 was released on September 19, 2011. Unlike other bodies of knowledge, SEBoK 0.5 was developed and released for review in a wiki environment. GRCSE 0.5 was released for review on December 15, 2011 as a document. Again, both releases included a 3-month review period.

In March 2012, SEBoK 0.75 was released for worldwide review for an abbreviated (30 day period). This version is still available for referencing at [www.sebokwiki.org](http://www.sebokwiki.org). The public is permitted to continue commenting on this version using the DISQUS feature in the wiki; however, all comments received after the April 15, 2012 review deadline are not guaranteed to be adjudicated as SEBoK 1.0 is finalized by the BKCASE author team.

The final year of the project (the current year) focuses on developing the final deliverables (versions “1.0”) and transitioning these deliverables to INCOSE and the IEEE Computer Society for sponsorship. To support the project, the author team meets quarterly. This report provides details from Workshop X. To view a list of other workshops, please see Appendix A.

## 2. BKCASE Workshop X

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The tenth workshop was hosted by the Naval Postgraduate School in Monterey, CA, USA on April 24-26, 2012. A list of the workshop attendees is available in Appendix B and the complete meeting agenda in

Appendix C of this report. The workshop's slide set is available online for download at the BKCASE website located at [www.bkcase.org/workshops/](http://www.bkcase.org/workshops/).

The first two days of the workshop were plenary sessions. The third day opened with plenary sessions, then moved to breakout sessions for the part teams and GRCSE team to work issues independently, and concluded with final outbriefs in plenary.

The objectives of the workshop were:

1. Review and discuss GRCSE 0.5 and SEBoK 0.75 review comments;
2. Set expectations for both GRCSE 0.5 and SEBoK 0.75 adjudication;
3. Define the strategies and final release criteria for GRCSE 1.0 and SEBoK 1.0.
4. Identify and agree to items for resolution post versions 1.0 (items not to be resolved in 1.0 release);
5. Finalize the Integration strategy for versions 1.0;
6. Reach consensus of final GRCSE and SEBoK publication requirements (Wiki, Pub. Coordination Process, IP, Glossary and References);
7. Discuss governance and stewardship plans.

The authors believe that they fulfilled these objectives.

During Art Pyster's introductory comments, he congratulated the group on the successful release of SEBoK 0.75. He also discussed the review of GRCSE 0.5, which concluded on March 7, 2012.

The author team was joined by two new members: Deva Henry, from the Stevens Institute of Technology and Sara Murawski, from the Naval Postgraduate School. Deva is a new member of the Core team and Sara is supporting the Core team going forward.

## **2.1 Stewardship**

Art Pyster and Dave Olwell provided an update on the stewardship discussions between themselves (the BKCASE co-PIs), the two IEEE CS representatives (Ken Nidiffer and Dick Fairley), and the two INCOSE representatives (Bill Miller and Kevin Forsberg). A draft stewardship agreement has been discussed among the "Gang of 6", who met in a closed session during the workshop. Art Pyster and Dave Olwell are in the process of drafting the formal agreement.

## **3. Workshop Proceedings**

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The workshop was generally divided into two segments: discussion of the SEBoK (including review of SEBoK 0.75 and way ahead to SEBoK 1.0) and discussion of GRCSE (including review of GRCSE 0.5 and

way ahead to GRCSE 1.0). The remainder of this report focuses on the major topics of discussion and does not follow the agenda directly.

### **3.1 SEBoK v. 0.75 Review**

SEBoK 0.75 was released for public review on March 15, 2012. A little less than 500 comments were received. Of the comments received, most provided constructive feedback on specific articles, highlighting additional perspectives, references, or glossary terms that could be included or improved in the SEBoK. These have been extracted from the wiki and the materials submitted via email for adjudication. In general, the review feedback was positive with some constructive recommendations.

#### **3.1.3. Adjudication**

The adjudication of reviews is critical for updating the SEBoK and providing feedback to the reviewers about how their comments influenced the work. Going forward, Deva Henry will be the Core Team's lead for adjudication; specific instructions for SEBoK adjudication will be provided after the workshop. In general, each Part Team Lead will have the responsibility to ensure that all comments for his/her part are adjudicated. Periodic updates into a shared file repository is desired; Deva will investigate the most appropriate method and include the process and specifics in follow-up communications.

#### **SEBoK Review Adjudication Action Items:**

1. Develop a final adjudication for 0.75 and deferred 0.5 comments by end June 2012. *Part Team Leads*
2. Develop a formal response to INCOSE Working Group inputs. *Deva Henry*
3. Develop the final adjudication report wiki article for reporting adjudication results to the public. *Deva Henry*

### **3.2 SEBoK v. 1.0 – Concept and Way Ahead**

The general way ahead is to focus on integration and, once integration issues are addressed, focus on updates to technical content. Style for SEBoK 1.0 and wiki updates will also need to be finalized as quickly as possible after the workshop. Specifics are provided below.

#### **3.2.1 Integration**

##### **3.2.1.1 Key Terminology Exercise**

At Workshop IX in Daytona Beach, FL, USA, each Part Team Lead submitted a list of “key terms” – terms that were critical to their respective parts for which there was some concern for integration. Using this list as a starting point, the authors present at Workshop X voted on the 30 terms they believed to be most critical for integration across the SEBoK. After the voting, 31 terms were selected and the authors present performed the following exercise:

1. Examined the definition for the term in the glossary;

2. Examined the definition for related terms (synonyms) in the glossary;
3. Used the “What Links Here” and search functions of the wiki, and examined the usage of the term to determine whether the usage matched the glossary definition.

The author team noted any finding using the DISQUS forum on each page and then reported major findings to the group. The details regarding all terms can be found in Appendix D. For most of the terms, the authors believed that usage was already fairly consistent across the SEBoK and that only minor changes were required for integration. However, for eight terms, the authors determined more work was required:

- For the terms **process**, **architecture** and **architecture/architectural framework**, and **requirement** – the current version of the SEBoK does not include any discussion of these as general concepts. A new article will be added in Part 3 to introduce these types of general concepts. This will be led by *Ray Madachy*; on Day 3 of the workshop, the Part 3 team met to begin drafting this article. Additional authors who volunteered to assist Ray with this particular task include: *Kevin Forsberg, Alain Faisandier, and Jim Anthony*.
- For the terms **enterprise**, **enterprise system**, and **architecture/architectural framework**, the authors agreed that there are different views on the term in the community and that more time needed to be spent exploring both community usage and usage within the SEBoK. A team was formed at the workshop, led by *Heidi Davidz*; the team met on Day 3 to begin work and laid out a plan to continue after the workshop, including developing related concept maps. The group will also examine the usage of “**system/systems management**” at the enterprise level. Additional authors who volunteered to assist Heidi with this particular task include: *Rick Adcock, Bud Lawson and Ricardo Pineda (update glossary entries), Steve Mitchell (support concept map development for team), Kevin Forsberg and Garry Roedler as identified in the next bullet*.
- For the term **system/systems management**, the authors agreed that the term was important, but it does not exist in the current SEBoK. The authors believe it is important to distinguish between systems management, project/program management, general engineering management, etc. A group led by *Kevin Forsberg* will develop an overview of the concept, disambiguation approach, and a glossary entry for this. An additional author who volunteered to assist Kevin with this particular task includes *Garry Roedler (clean up SEM glossary entry)*.
- For the term **system boundary**, there is currently no discussion of the concept within the SEBoK. *Barry Boehm* and *Rick Adcock* will work to update Parts 1 and 2 to include discussion of the concept of system boundary and to update the glossary accordingly. An additional author who volunteered to assist Rick is *Bill Miller*.
- For the term **concept of operations**, the authors determined that there is confusion within the SEBoK, and the larger community, about the use of “concept of operations (CONOPS)” as a term of art within the defense community and the idea of “operational concept”. The Part 3 team,

led by *Garry Roedler*, will explore this issue, updating articles as appropriate, including a discussion of the issue, and updating the glossary.

### **3.2.1.2 Concept Mapping**

Steven Mitchell presented the concept maps which were updated and refined since Workshop IX.

### **3.2.1.3 SEBoK v. 1.0 Integration Action Items:**

1. Update articles based on integration comments (found in DISQUS or in the adjudication matrix) of each article by **May 25, 2012**. *All authors*.
2. Update glossary entries based on integration comments (found in DISQUS or in the adjudication matrix) of each article by **May 25, 2012**. *All authors*.

### **3.2.2 General Updates to Content**

After the primary integration efforts have been completed, the authors should then focus on updating the content. The final version of the SEBoK 1.0 should be as clean and professional as possible using formatting guidance provided in the Style Guide, with no gaps or “to be added” notations.

This involves:

1. Updating articles based on review comments on SEBoK versions 0.5 and 0.75. These can be found in the Excel-based adjudication matrix, which will be supplied by *Deva Henry*.
2. Updating articles based on internal review by BKCASE authors. These comments can be found in the DISQUS section for each article in the *SEBoK 1.0* wiki.
3. Updating and providing feedback on the relevant glossary entries (except the key terms discussed in 3.2.1).
4. Ensuring primary references are identified for all topic and knowledge area articles (this is optional at the part level). Ensuring that primary references are annotated if at all possible.
5. Ensuring all sources used are properly cited and references are complete.
6. Ensuring all figures/tables for which permission must be obtained are submitted **NLT May 25, 2012** and all BKCASE original or Public Domain images are submitted by **NLT July 13, 2012**.

### **3.2.3 Style Guidance**

The final style guide for SEBoK 1.0 was completed after Workshop X. It was distributed on May 9, 2012 and is available on the SEBoK 1.0 wiki under the “Help” pages. If you have any questions, please contact [bkcase@stevens.edu](mailto:bkcase@stevens.edu).

### 3.2.4 Wiki

A separate wiki has been created for the development of SEBoK v. 1.0 ([www.sebokwiki.org/1.0](http://www.sebokwiki.org/1.0)). Going forward updates, documentation of integration issues, recommendations for glossary, etc. should be conducted only in the SEBoK 1.0 wiki.

- The 1.0 wiki will continue to use DISQUS to provide a forum capability.
- Based on review comments on the wiki for SEBoK versions 0.5 and 0.75, additional navigational features were added. They will be updated for the SEBoK 1.0 wiki:
  - Expanding/collapsible menus on the left-hand side to show location in the wiki;
  - Breadcrumbs which will show the specific navigational path taken by a user; and
  - Visual navigation maps that will show linkages between content.
  - Improved introductory paragraphs. To further aid navigation (and to address issues with the PDF version of the SEBoK), introductions to 0.75 articles should include context of the SEBoK. Nicole Hutchison is to provide an example of this.

Some additional improvements in the wiki are planned and some decisions with regard to issues such as formatting will be determined and shared with the author team after Workshop X.

### 3.2.5 SEBoK 1.0 Way Ahead/Timeline

The general approach for SEBoK 1.0 is outlined below.

- **May 25, 2012** – All articles should be updated to address integration issues identified at the workshop.
- **June 25, 2012** – All articles should be updated to address content issues identified during the 0.5 and 0.75 reviews. This includes addressing any additional glossary issues as well as identifying primary references for each article.
- **SEBoK 1.0 draft will be reviewed at Workshop XI where final way ahead and release criteria for SEBoK 1.0 will be determined.**

## 3.3 GRCSE v. 0.5 Review

Tim Ferris, the lead GRCSE author, provided an overview of the comment received on the released version of GRCSE 0.5.

### 3.3.1 Key Issues from Review

In late March 2012, the GRCSE team received the spreadsheet containing all comments from the 0.5 review. The team received 450 comments from over 20 reviewers. The tech-editors also presented notes regarding duplication, redundancy, and conflicts within GRCSE 0.5 for consideration. They reviewed the recommendations and intend to make other changes based on these observations. Prior to Workshop X, the GRCSE team had already completed a first pass of adjudication and organized a request to re-allocate comments reviewed.

A few notable issues include the refinement of figures throughout the document, completing CorBoK, and a major revision and balancing of Chapter 8/Appendix E.

### 3.3.2 CorBoK Discussion

The Core Body of Knowledge (CorBoK) of GRCSE is based primarily on the SEBoK, with the understanding that it is possible for knowledge from other disciplines to be included. GRCSE 0.5 included a preliminary CorBoK, but this does not align with SEBoK 0.75. The GRCSE team will examine how changes in SEBoK versions 0.75 and 1.0 impact the CorBoK. In addition, the review form for GRCSE 0.5 included a request for reviewers to select CorBoK knowledge areas or topics that should be covered in the Core Foundation or the Core Concentrations to the Analysis level. Though few responses were received to this specific question, the authors will consider the community views in their response.

For Part 6 of the GRCSE on CorBoK (related disciplines), the authors agreed that it may be too difficult to have coverage of all related disciplines. The authors developed a new approach, in which a specified number of related disciplines must be covered by all students and students within a concentration; however, it will be up to the individual universities to determine which of the specialties will be offered and required.

### 3.3.3 GRCSE Staffing

The GRCSE team staffing is essentially the same as it was since Workshop VIII with one leadership change to Chapter 4. The GRCSE outline has changed (see below).

BKCASE Authors	GRCSE (Chapters / Appendices)
<b>Brackett, John</b>	Lead Chapter 5
<b>Ekstrom, Joseph J.</b>	Lead Appendix D; Author Chapter 6
<b>Ferris, Tim</b>	GRCSE lead; Lead Preface, Chapter 1 & Appendix C; Author Chapters 6,9
<b>Hilburn, Tom</b>	Lead Chapter 6; Author Appendices B, F
<b>Hutchison, Nicole</b>	Lead Appendix A; Author Chapter 1
<b>Madachy, Ray</b>	Lead Chapter 4 ( <i>since May 14, 2012</i> )
<b>Mitchell, Steve</b>	Lead Executive Summary
<b>Olwell, Dave</b>	Lead Chapters 2, 7
<b>Prun, Daniel</b>	Lead Chapter 8 & Appendix E
<b>Squires, Alice</b>	Lead Appendix F; Author Chapter 6
<b>Towhidnejad, Massood</b>	Lead Chapter 3 & App G; Author Chapter 2 & Appendix D
<b>VanLeer, Mary</b>	Lead Appendix B; Author Chapter 6 & Appendix F

### 3.3.4 GRCSE Way Ahead/Timeline

The main objective of the GRCSE team is to have all content within the GRCSE completed by the final Workshop XII, in Hoboken, New Jersey, October 10-11, 2012. On June 8, 2012 the team will release an interim version for internal review by BKCASE authors until June 22, 2012. The hope is that the team will receive and review the comments in preparation for discussion at Workshop XI in Rome.

The general timeline in preparation for Workshop XI is listed below. Additional details can be found in Appendix G.

- **June 8, 2012**
  - Release Draft GRCSE 1.0 to author team
- **June 22, 2012**
  - Author Feedback Due Back to GRCSE Team

## 4. Way Ahead

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### 4.1 Future Workshops

It should be noted that the author team agreed that Workshop XI will be for 3 days, with 2 days for traditional workshop and 1 day for break-out work sessions. Workshop XII, the final workshop, will be for 2 days only.

- **Workshop XI: July 3-5, 2012** at Rome, Italy, in coordination with the INCOSE International Symposium and the European Conference on Systems Engineering (EUSEC). (Details TBD)
- **Workshop XII: October 10-11, 2012** at Hoboken, NJ, USA, hosted by the Stevens Institute of Technology. This will be the final workshop of the BKCASE project and will take place on the Stevens Campus.

### 4.2 BKCASE Publications and Outreach

Deva Henry provided an overview of the BKCASE outreach activities (including journal and conference papers, conference presentations, etc.) conducted since the last workshop and upcoming deadlines for events in 2012.

There is one major BKCASE outreach effort currently planned in 2012: INCOSE International Symposium (IS) – 8-12 July 2012, Rome, Italy. On July 8 there will be two half-day BKCASE workshops (one on SEBoK and a second on GRCSE). Note that these workshops (formerly labeled as tutorials) will be at no charge to the attendee. In addition, two panels on BKCASE have been accepted (one on SEBoK and a second on GRCSE). Finally, there will be three papers related to BKCASE submitted by BKCASE authors and two which did not include BKCASE authors but which reference BKCASE products.

There are other potential activities for 2012, but the INCOSE IS is currently the most concentrated effort.

All authors who submit papers or presentations on BKCASE should notify the Core Team at [bkcase@stevens.edu](mailto:bkcase@stevens.edu) and provide a copy of the final paper and/or presentation. For areas where the author team would simply like to provide a briefing on BKCASE to a specific audience, or would like to take ownership of an outreach activity, the author team is encouraged to:

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1. Notify the core team ([bkcase@stevens.edu](mailto:bkcase@stevens.edu)) of any outreach opportunity that you choose to pursue (presentation, conference proceeding, journal article) in support of BKCASE. Please provide the conference or publication medium and the title of the presentation or article.
2. Once the event is complete, the lead author should please provide a copy of your briefing or publication to the Core Team ([bkcase@stevens.edu](mailto:bkcase@stevens.edu)) that can be posted on Sakai or possibly used in future updates of the generic slide deck.
3. Utilize the generic slide deck, which is found on Sakai and being periodically updated by the Core Team.

## Appendix A: BKCASE Workshops

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### **Workshop I – Naval Postgraduate School, Monterey, CA, USA – December 8-9, 2009**

The BKCASE team held an inaugural workshop to determine the basic rules for the project and develop a common set of objectives. In addition, the team developed an initial strategy to begin work on SEBoK version 0.25, which included using ISO 15288 as the initial structure for the SEBoK.

### **Workshop II – Embry Riddle Aeronautical University, Daytona Beach, FL, USA – March 30-31, 2010**

The team expanded the SEBoK contents to include many other areas of systems engineering knowledge in addition to life cycle processes, and identified the initial GRCSE team. The author team broke into subteams to begin drafting materials for review at the third workshop.

### **Workshop III – In conjunction with INCOSE IS, Chicago, IL, USA – July 7-8, 2010**

The author team agreed to publication and review plans for SEBoK 0.25 and discussed the way ahead for the development of a draft of GRCSE 0.25.

### **Workshop IV – Hosted by EADS and Map Systeme, Toulouse, France – October 13-14, 2010**

The fourth workshop was the first opportunity for authors to discuss the final release version of SEBoK 0.25 and to focus on preparing the release of GRCSE 0.25, which was released for review on December 17, 2010.

### **Workshop V – In conjunction with INCOSE IW, Phoenix, AZ, USA – January 26-28, 2011**

The fifth workshop focused on the review comments received on SEBoK 0.25 and the publication version of GRCSE 0.25.

### **Workshop VI – University of Southern California, Los Angeles, CA, USA – April 12-14, 2011**

The sixth workshop focused on determining a way ahead for wiki implementation of SEBoK 0.5 and examined the reviews of GRCSE 0.25.

### **Workshop VII – In conjunction with INCOSE IS, Denver, CO, USA – June 14-16, 2011**

The seventh workshop focused on determining the publication plan for SEBoK 0.5 and developing the way ahead for GRCSE 0.5.

### **Workshop VIII – Hosted by Cranfield University at University College London, London, UK – October 11-13, 2011**

The eighth workshop focused on the release of GRCSE 0.5 and the way ahead for publishing SEBoK 0.75 in March 2012.

### **Workshop IX – Hosted by Embry Riddle Aeronautical University at the Florida NextGen Testbed (FTB), Daytona Beach, FL, USA – January 17-19, 2012**

The ninth workshop focused on the preparation for publication of SEBoK v. 0.75 and review of comments received to date on GRCSE 0.5.

## Appendix B: Meeting Participants

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### In Attendance

Rick Adcock, *Cranfield University/INCOSE* (UK)  
James Anthony, *OSD, AT&L Contract Support* (USA)  
Barry Boehm, *University of Southern California* (USA)  
Cihan Dagli, *Missouri University of Science and Technology* (USA)  
Heidi Davidz, *Pratt & Whitney Rocketdyne* (USA)  
David Dorgan, *Raytheon* (USA)  
J.J. Ekstrom, *Brigham Young University* (USA)  
Stephanie Enck, *Naval Postgraduate School* (USA)  
Dick Fairley, *Colorado Technical University, IEEE CS Representative* (USA)  
Alain Faisandier, *Association Francaise d'Ingenlerie Systeme, MAP Systeme/French INCOSE Chapter* (France)  
Tim Ferris, *INCOSE/University of South Australia* (Australia)  
Kevin Forsberg, *OGR Systems* (USA)  
Deva Henry, *Stevens Institute of Technology* (USA)  
Tom Hilburn, *Embry Riddle Aeronautical University* (USA)  
Nicole Hutchison, *Stevens Institute of Technology* (USA)  
Ray Madachy, *Naval Postgraduate School* (USA)  
Bill Miller, *INCOSE Representative* (USA)  
Steve Mitchell, *Lockheed Martin* (USA)  
Sara Murawski, *Naval Postgraduate School* (USA)  
David Olwell, *Naval Postgraduate School* (USA)  
Ricardo Pineda, *University of Texas at El Paso* (USA)  
Daniel Prun, *Ecole Nationale de l'Aviation Civile (ENAC) -French Civil Aviation University* (France)  
Art Pyster, *Stevens Institute of Technology* (USA)  
Jean-Claude Roussel, *European Aeronautical Defence and Space Company* (France)  
Garry Roedler, *Lockheed Martin* (USA)  
Massood Towhidnejad, *Embry-Riddle Aeronautical University* (USA)

## Appendix C: Meeting Agenda

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### **Tuesday, April 24, 2012: NPS Dudley Knox Library (263A/B)**

- 8:30 am – Opening Remarks/Agenda Review – *Art Pyster*
- 9:00 am – BKCASE Adjudication Expectations for 1.0 – *Art Pyster*
- 9:15 am – SEBoK 0.75 Review Comments – *Deva Henry*
- 9:45 am – SEBoK 1.0 Development and Release Plan – *Art Pyster*
- 10:30 am – *Break*
- 10:45 am – SEBoK 1.0 Development and Release Plan (cont.) – *Art Pyster*
- 11:30 am – Identify Items that will not be addressed until after SEBoK 1.0 – *Art Pyster*
- 12:00 pm – *Working Lunch (provided)*
- 12:30 pm – SEBoK 1.0 Integration Strategy – *Dave Olwell*
- 1:30pm – Consensus on Final Publication Requirements for SEBoK 1.0 – *Art Pyster*
  - 1:30 pm – Style Guidance – *Nicole Hutchison*
  - 1:45 pm – Wiki – *Nicole Hutchison*
  - 2:00 pm – Images/Intellectual Property Process – *Stephanie Enck*
  - 2:15 pm – Glossary & References – *Nicole Hutchison*
- 3:00 pm – *Break*
- 3:15 pm – Final Release Criteria for SEBoK 1.0 – *Art Pyster*
- 3:45 pm – SEBoK 1.0 Actions for Rome Workshop XI – *Art Pyster*
- 4:00 pm – The Wiki: IP & Other Items from a Librarian Perspective – *Guest Eleanor Uhlinger, NPS University Librarian*
- 4:45 pm – GRCSE Status – *Tim Ferris*
- 5:00 pm – *Adjourn*

### **Wednesday, April 25, 2012: NPS Dudley Knox Library (263 A/B)**

- 8:00 am – Review of Day 1 – *Dave Olwell*
- 8:20 am – Resolution of Outstanding Day 1 Issues – *Art Pyster*
- 8:30 am – GRCSE 0.5 Reviews – *Tim Ferris*
- 9:00 am – SEBoK & GRCSE Adjudication Process for 1.0 – *Deva Henry*
- 9:30 am – GRCSE 1.0 Development and Release Plan – *Tim Ferris*
- 10:00 am – *Break*

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10:15 am –GRCSE 1.0 Development and Release Plan – *Tim Ferris*  
10:45 am - Identify Items that will not be addressed until after GRCSE 1.0 –*Art Pyster*  
11:15 am - Consensus on Final Publication Requirements GRCSE 1.0– *Tim Ferris*  
    11:15 am –Glossary and References –*Nicole Hutchison*  
    11:45 am –Graphics –*Tim Ferris*  
    12:00 pm –CorBoK –*Tim Ferris*  
12:30 pm – *Lunch in El Prado Dining Hall (Hermann Hall–C3 on Campus Map)*  
1:05 pm –Group Photo  
1:15 pm – GRCSE 1.0 Actions for Rome Workshop XI –*Art Pyster*  
1:30 pm –Governance and Stewardship –*Art Pyster*  
2:30 pm – Publication Coordination Process –*Dave Olwell*  
3:00 pm – *Break*  
3:15 pm –BKCASE Outreach: Papers, Panels, Conferences –*Deva Henry*  
    3:30 pm –INCOSE –*Nicole Hutchison*  
    3:45 pm –Tutorials –*Dave Olwell & Tim Ferris*  
4:00 pm – BKCASE Workshops 2012 –*Stephanie Enck*  
4:15 pm –Final Plan for SEBoK & GRCSE 1.0 Combined –*Art Pyster*  
5:00 pm – *Adjourn*

### **Thursday, April 26, 2012: NPS Dudley Knox Library (263 A/B)**

*Day 3 is dedicated to working sessions focused on SEBoK Part 3, Integration, and GRCSE 1.0.*

#### *Plenary*

7:30 am – *Light Continental Breakfast (provided)*  
8:00 am – Review of Day 2 – *Dave Olwell*  
8:20 am –Resolution of Outstanding Day 2 Issues –*Art Pyster*

9:00 am – Break for Working Sessions  
12:30 pm – *Lunch in El Prado Dining Hall (Hermann Hall-C3 on Campus Map)*  
2:30 pm – *Break*

#### *Plenary*

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2:45 pm – Review of Working Session Progress

3:30 pm – Closing Remarks – *Art Pyster*

3:45 pm – Adjourn

4:00 pm – Panel Session with SE Students (Panelists: Dave Olwell, Art Pyster, Tim Ferris, TBD) in Spanagel 321

## Appendix D: Key Terminology Exercise

The following is a summary of the findings from the Key Terminology Exercise. Terms noted in blue require special attention.

Approach	Term	# Votes		Reviewer	Author/Owners
Include in Part 3 concepts article (Ray and Rick), more specifics in Part 4 ; add glossary term (Ricardo P., bud) with synonyms linked	Architectural Framework	16	52 %		
	Architecture	27	87 %	Rick	Ricardo P., James
article on concepts in part 3 with process, architecture, architecture framework, requirements overview by Ray, Alain, Jim; part one teaser	Behavior	13	42 %	Steve	Alain, James, Cihan
	Capability	13	42 %	Daniel	Sandy, Scott
edit glossary, clean article, clarify operational concept vs CONOPS	Competency	13	42 %	Dave O.	James M., Hillary
	Complexity	20	65 %	Barry	Heidi, jim
	Concept of Operations (CONOPS)	24	77 %	Tom	Scott J
	Emergence	17	55 %	Jim A	
	Engineered System	18	58 %	Alain	Henshaw, Jackson
				Jean Claude	Adcock, Wells

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	Enterprise	<b>14</b>	45 %		
Part four intro to discuss multiple views of SoS and Enterprise (Bud); crosswalk use of 'capability'; team to reconcile different points of view (Heidi, James, Hillary, Mike, Judith, Joanne, and SEM team, and Steve for modeling)				Heidi, James M	Hillary, Scott, James
	Enterprise System	<b>17</b>	55 %		Hillary and Scott, James M
see enterprise				Heidi	
	Interoperability	<b>21</b>	68 %	Cihan	?
	Life Cycle	<b>19</b>	61 %	Dave D.	Kevin and Barry
	Model	<b>16</b>	52 %	Ray	Sandy
	Modeling	<b>14</b>	45 %	Ray	Sandy
new article on process by Ray with help	Process	<b>15</b>	48 %		
	Product Realization System	<b>12</b>	39%	Nicole	Ray Dave O.
	Product System	<b>13</b>	42 %	Deva	Ricardo P., James M.
	Project Management	<b>15</b>	48 %	Kevin	Dick
	Reliability	<b>12</b>	39 %	Ricardo P.	Dave O.
	Risk	<b>13</b>	42 %	Massood	Ed C.
	Service System	<b>16</b>	52 %	Dave D.	Ricardo P.
	Stakeholder	<b>22</b>	71 %	Kevin	Garry
	System	<b>18</b>	58 %	Garry	Rick

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	System Boundary	<b>12</b>	39 %		
Weave into part 1 (Barry) and part 2 (Rick) articles; update glossary to 'system boundary' entry (Rick) ; address 'system element,' as well				Bill M. Garry	Rick Alain
	System element	<b>W</b>			
	System Integration	<b>17</b>	55 %	JJ	John S
	System of Interest	<b>12</b>	39 %	Garry	Rick, alain
	System of Systems	<b>23</b>	74 %	Ricardo P.	Mike and Judith
	System(s) Management	<b>12</b>	39 %		
					Barry: part 1 essay; glossary: Bud and Ricardo P.; Steve: concept map; Kevin: disambiguation; Garry: clean up SEM glossary entry; Heidi: look at terminology at enterprise level with appropriate group
concept map, essay on terms, glossary entry including disambiguation				Kevin	
	Systems Engineering	<b>21</b>	68 %	Art	Barry, Garry
	Systems Thinking	<b>21</b>	68 %	Dick	Rick

## **Appendix E: Action Items (Sent via email to team May 3, 2012)**

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SEBoK 1.0 Development Site is up and will be open for editing by May 2, 2012. URL is [www.sebokwiki.org/1.0/](http://www.sebokwiki.org/1.0/). Please note that you **MUST include the /1.0/** and you **MUST log in order to view/edit 1.0**. Credentials are the same as 0.75 (please email Nicole Hutchison if you have questions).

**All articles need to be done by August 1 for inclusion in 1.0**

### **April 26 – May 25 - Integration Activities – All Authors**

1. Integration of key terms (including glossary updates and checks for consistent usage within articles) – **please see attached Excel file for list of key terms**. NOTE: Though there is an assigned reviewer/owner for each term, it is the responsibility of *all* authors using the term to check the glossary and ensure that there is consistent use. Reviewers will also be adding comments in DISQUS wrt key terms.

**May 11** – Glossary Pages for Key Terms to be Updated

**May 25** – Articles using Key Terms to be updated to align with glossary

2. Special Teams. For some terms (**please see attached Excel file**), additional integration efforts are required. For these terms, special teams will be reviewing the usages and definitions.

**Enterprise/Enterprise System/Architectural Framework** – Heidi Davidz (lead), Rick Adcock, Bud Lawson and Ricardo Pineda (update glossary entries), Steve Mitchell (support concept map development for team) Kevin Forsberg (work disambiguation), Garry Roedler (clean up SEM glossary entry)

**System Boundary/Context** – Rick Adcock (lead), Bill Miller.

**Part 1 essay** – Barry Boehm. introduction to key terms and general approach on glossary/terminology for the SEBoK

**Part 3 essay** – Ray Madachy (lead), Kevin Forsberg, Alain Faisandier, Jim Anthony. General discussion of key terms for part 3 (architecture, architecture framework, process, requirement).

3. Review 0.5 and 0.75 adjudication comments. Part teams should review the full comments from both 0.5 and 0.75 and **identify and address any remaining integration issues raised through the review**.

### **April 26 – May 25 - Identify Articles for Early Tech Edit – Part Team Leads**

Because of the lead time required for final publication, the Core Team has requested that articles which can go through technical edit early be identified **as soon as possible**. The goal is to have at least 40 articles through the initial tech edit process prior to Workshop XI in Rome.

### **April 26 – May 25 – IP/Copyright – All Authors**

May 25 is the final deadline to submit copyrighted images or tables for inclusion in SEBoK version 1.0. All copyright image information (IP form AND image file) must be submitted to Stephanie Enck NLT May 25. (Authors will have until 15 July for BKCASE Original or Public Domain figures/tables.)

#### April 26-June 25 – Glossary Update (non integration)

The Glossary team will focus on the glossary terms that were not identified as critical to integration. Activities will include an initial assessment of the 0.5 glossary, clean up/removal of “orphaned” terms (terms no longer used), and update of blank or incomplete glossary terms, and addition of synonyms or disambiguation as appropriate. Glossary team: Nicole Hutchison (lead), JJ Ekstrom, Kevin Forsberg, Jim Anthony, Dick Fairley, and Sara Murawski.

#### May 26 – June 25 – Content Update – All Authors

1. Update articles. On 26 May, authors should begin focusing on the 0.5 and 0.75 review comments to identify any content-specific issues that should be addressed for version 1.0. Update of articles should include considerations for:

**Glossary terms used** - Does usage align with glossary? If not, either: (a) update article to reflect glossary usage or (b) recommend an additional definition/rationale *in the DISQUS comments* for that glossary term.

**Primary References** – ALL topics and KAs should have identified a minimum of one primary reference. The Parts will identify primary references if appropriate. Authors should begin adding annotations wrt the primary references in the associated primary reference pages.

2. Adjudication. Authors MUST track their adjudication of and responses to comments *as they work on articles*. Deva Henry will be sending out specifics wrt the location of adjudication files and process for adjudication in early May. Part team leads will be responsible for updating the adjudication matrices for their parts.

3. Identification of Post-1.0 Issues. If there are any items from the adjudication/content update that can not be addressed in SEBoK 1.0, authors should flag them. This list will be provided to the professional societies in the stewardship transfer. Part Team Leads are responsible for raising these issues to Core team awareness.

#### May 26-June 25 - Primary References – ALL AUTHORS

ALL topics and KAs should have identified a minimum of one primary reference. The Parts will identify primary references if appropriate. Nicole Hutchison will continue to create/update primary reference pages as appropriate. In the event of discrepancies (e.g. different versions of a resource used), Nicole will coordinate with the author(s) to ensure consistency.

## Appendix G: Schedule and Milestones

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The following is a list of major movements/milestones for BKCASE.

Blue = SEBoK

Green = GRCSE

Black = Workshop

Purple = Outreach

### April 2012

- **24-26 April (complete)**
  - Workshop X – Monterey, CA

### May 2012

- **25 May**
  - **Complete integration activities with respect to key terminology and integration issues identified in review comments.**

### June 2012

- **25 June**
  - **Complete content update to articles based on review comments.**
- **8 June**
  - **Draft GRCSE 1.0 to Author Team**
- **22 June**
  - **GRCSE Feedback from Author Team Due to GRCSE Team**

### July 2012

- **3-5 July**
  - Workshop XI – Rome, Italy
- **8 July**
  - **BKCASE tutorials (SEBoK in morning, GRCSE in afternoon)**
- **9-12 July**
  - **INCOSE International Symposium – Rome, Italy**
  - **Schedule for BKCASE Activities TBA (SEBoK Panel, GRCSE Panel, Various Papers)**

### August 2012

- **1 Aug**
  - **All SEBoK Articles Complete**
  - **Final Copyright Permission Acceptance from Owners**

### September 2012

- **14 Sept**
  - **SEBoK 1.0 Release**

### October 2012

- **10-11 Oct**
  - Workshop XII – Hoboken, NJ

### November 2012

- **1 Nov**
  - **GRCSE 1.0 Closed (no additional author edits)**
- **1 Nov – 30 Nov**

## BKCASE Workshop X Report

- **GRCSE 1.0 Publication Prep**

### **December 2012**

- **1 Dec – 13 Dec**
  - **GRCSE 1.0 Publication Prep**
- **14 Dec**
  - **GRCSE 1.0 Release**