

ECE463/SysEngr491 - Capstone Design Course - Fall 2016
System Requirements Review - Expectations

1. Purpose: The System Requirements Review (SRR) is a formal briefing by your project team to convince your mentor, senior reviewing officer, faculty representative, and, as appropriate, your customer, that you fully understand the problem you are trying to solve. Recall that the purpose of the SRR is to insure that you, as the design team, your mentor, and your customer, have the same understanding of the requirements. As noted in DAU's *System Engineering Fundamentals*, (p. 104) "The SRR is intended to confirm that the user's requirements have been translated into system specific technical requirements and that risks are well understood and mitigation plans are in place." There should be **NO** discussion of design solutions in this review.

2. Presentation Format: Plan to brief for up to 55 minutes followed by 30 minutes of Q&A, not to include grading feedback. **Uniform is service dress.** Your team is responsible for notifying the faculty members and your customer regarding the time and location of the PDR.

3. SRR Deliverables: Post the final version of all deliverables listed below on your team website 24 hours prior to the start of your briefing – The Technical Report may be turned in 2 lessons after the SRR presentation.

- Requirements: 30%
 - o Requirements Traceability Matrix (MS Excel)
- Functional Description: 30%
 - o Functional Flow Block Diagram (FFBD) of the top level system functions (MS Visio)
 - o OV-1
 - o User Interface (UI) Mockup
- Project Plan: 20%
 - o Schedule with progress to date, details to PDR and an overview of the entire year. (MS Project, with critical path analysis in slides)
 - o Risk Analysis (MS PowerPoint Slides)
 - o Configuration Management (MS PowerPoint Slides)
- Presentation: 20% (MS PowerPoint)
 - o Communicate:
 - Summary of your project requirements
 - Current status, along with any issues and your plan to resolve them
 - Your detailed plans for the next phase of the project
 - o Present a dry run of your briefing to your mentor one lesson prior to the SRR
 - o The team's presentation should run for **55 minutes or less** to allow for questions afterward
- Technical Report: (MS Word)
 - o This Report is not graded with the SRR. It is a standalone document graded IAW syllabus.
 - o The following sections should be completed: Section 1 (Executive Summary), Section 2 (Requirements) , Section 3 (Implementation Considerations)
 - o Post the draft with revisions tracked to your team website

4. The attached rubrics show the grading weights for each portion of each deliverable. **NOTE:** If any of the deliverables submitted for this design review earn Unsatisfactory (<67%) marks, they must be resubmitted within one lesson period of receiving feedback. If the presentation receives an Unsatisfactory mark, it must be redone.

5. Each individual will also receive a grade for their individual performance and contributions to the team. The individual grade is combined with the team grades IAW the syllabus. Each team member will be evaluated based on:

- The **appropriateness** of work accomplished based on their individual skill set
- The **amount** of work accomplished
- **Interpersonal** skills

Bring your lab notebooks to the design review so your faculty team can review them. **Make it clear in the presentation what each member has done.**

6. Peer Evaluations. Submit IAW syllabus

Requirements:**Grade Margins**

Area (weight)	A Work	B Work	C Work	Unsatisfactory
Requirements Traceability Matrix and Objective Tree	<ul style="list-style-type: none">• Requirements achievable, unambiguous, consistent & verifiable• Cover input/output, physical constraints, performance and environment• Threshold & objective specified if applicable• KPPs identified• Ambiguities identified with get-well plans;• Functional allocation complete and logical	<ul style="list-style-type: none">• Several minor requirements issues	<ul style="list-style-type: none">• Significant problems with requirements, problem areas overlooked, allocation problems• Some ambiguous requirements lack get-well plans;• No objective requirements• Some acceptance tests not clear or specified• No KPPs	<ul style="list-style-type: none">• Requirements poorly written;• Many ambiguities, unclear acceptance tests or allocation problems• NOT PRE-COORDINATED WITH CUSTOMER

Functional Description:**Grade Margins**

Area	A Work	B Work	C Work	Unsatisfactory
FFBD	<ul style="list-style-type: none">• Thoroughly describes the top level system functions• Logical breakdown and arrangement of functions;• Correct syntax for FFBD	<ul style="list-style-type: none">• Several minor oversights, logic errors or diagramming errors	<ul style="list-style-type: none">• Some functions omitted or some logic errors describing behavior• Significant FFBD syntax errors which obscure the function being described	<ul style="list-style-type: none">• Does not describe system behavior;• Does not follow FFBD syntax to the extent that the function is unclear• NOT PRE-COORDINATED WITH CUSTOMER
OV-1 and UI Mockup	<ul style="list-style-type: none">• Clearly demonstrates proposed system concept• Clearly identifies boundaries and relationships to external systems• UI shows inputs and outputs, is logical and complete• Professional/easy to read	<ul style="list-style-type: none">• Several minor ambiguities, oversights or other issues• Minor readability issues	<ul style="list-style-type: none">• Simple presentation• Significant portions of graphics unclear• Significant boundaries or external relationships not covered• Significant user interface issues	<ul style="list-style-type: none">• Unclear operational concept; External systems and boundaries not addressed• User interface provides no insight to operator• Sloppy presentation• NOT PRE-COORDINATED WITH CUSTOMER

Project Plan:**Grade Margins**

Area	A Work	B Work	C Work	Unsatisfactory
Schedule	<ul style="list-style-type: none">• Detailed and logically linked set of tasks that thoroughly cover the activities required to achieve PDR• Tasks have clear outcomes• Includes overview of entire project• Resources logically allocated for each task• Critical path identified, analyzed, with risk management addressed• Resource utilization analyzed	<ul style="list-style-type: none">• Plan is complete with several minor issues with task descriptions, linkage, resource allocation, critical path analysis	<ul style="list-style-type: none">• Significant tasks missing• Some tasks vague or not linked• Workload allocated to resources but has significant balance problems• Critical path identified, but analysis cursory	<ul style="list-style-type: none">• Major PDR tasks missing• Schedule unusable because not linked, resourced, or because of serious logic problems• Missing critical path analysis
Risk Management	<ul style="list-style-type: none">• Risks are assessed against meeting a documented requirement and are logical;• Solid analysis support for probabilities and consequences;• Logical and achievable management plans and strategies	<ul style="list-style-type: none">• Minor ambiguities in risk definition, analysis or management plans.	<ul style="list-style-type: none">• Some generic risks;• Some analysis support for probability and consequence analysis is supported, some is vague;• Some management plans lack actionable steps to manage risk	<ul style="list-style-type: none">• Mostly generic risks;• Little or no support for probability and consequence analysis;• Some key risks are ignored• Management plans either do not exist or are mostly ambiguous--lacking actionable steps
Config Mgt	<ul style="list-style-type: none">• Plan are simple, sound and clearly articulated• Addresses versioning, backups, repository locations• Plan addresses all products• Consistent evidence of use	<ul style="list-style-type: none">• A few minor ambiguities in plan details	<ul style="list-style-type: none">• Any anticipated design products not addressed• Ambiguities or omissions in description• Evidence of usage on majority of products exists, but inconsistent utilization	<ul style="list-style-type: none">• Only cursory treatment of configuration control• Little or no evidence of use

SRR Presentation:**Grade Margins**

Area	A Work	B Work	C Work	Unsatisfactory
Clarity of communication	<ul style="list-style-type: none">• Team shows a clear and unified understanding of the system requirements• Concise communication• Answers to questions are concise and accurate• Logically structured and well executed• Team has a professional appearance and uses intelligent language	<ul style="list-style-type: none">• Minor ambiguities• Minor detractions from briefing	<ul style="list-style-type: none">• Team shows basic understanding of the system requirements with a few significant disconnects• Communication of requirements is unclear in few areas• A few questions not well answered• Many colloquialisms, including, “stuff like this”, “you guys”, and “my bad”	<ul style="list-style-type: none">• Requirements not well understood or major inconsistencies in understanding amongst the team• Communication unclear in several areas• Several questions not answered well• Briefing lacks planning• Briefing more than 10 minutes over time
Briefing slides	<ul style="list-style-type: none">• Slides support the delivery of information• Professional• Readable• Well organized• Accurately referenced	<ul style="list-style-type: none">• Some minor problems	<ul style="list-style-type: none">• Slides convey most information required, but• Information on some slides does not support the point of the briefing• Several format inconsistencies and errors• Minor changes after slides submitted for review• Some slides difficult to read	<ul style="list-style-type: none">• Major errors, format problems or readability issues• Several revisions after slides submitted for review• CADET HOURS AND ACTIONS NOT REPORTED

Technical Report (using template):

Sections:

- Section 1 (Executive Summary),
- Section 2 (Requirements),
- Section 3 (Implementation Considerations)

Area	A Work	B Work	C Work	Unsatisfactory
Content	<ul style="list-style-type: none">• The writing is clearly focused which leads to achieving a well-defined goal.• The purpose is clearly defined.• The writing supports the purpose with concise, logical details that meet the reader's informational needs.• Sources, if used, are acknowledged	<ul style="list-style-type: none">• Mostly "A" work, with several minor detractions• Few if any characteristics of "C" Work	<ul style="list-style-type: none">• The writing addresses an identifiable goal by offering the reader general basic information. The development is limited, sketchy, and/or general• The purpose can be identified.• The writing sometimes supports the purpose with concise, logical details that meet the reader's informational needs.• Sources, if used, are sometimes acknowledged.	<ul style="list-style-type: none">• The writing has not clarified the selected goal. The text has no clear sense of purpose• The purpose is not identifiable.• The writer does not support the purpose with concise, logical details that meet the reader's information needs.• Sources, if used, are not acknowledged.
Voice	<ul style="list-style-type: none">• The writer speaks directly to the reader in a way that is professional and engaging.• The text and/or graphics are appropriate for the audience and purpose.• Writes with authority so the voice is not distracting.	<ul style="list-style-type: none">• Mostly "A" work, with several minor detractions• Few if any characteristics of "C" Work	<ul style="list-style-type: none">• The writing seems sincere, but not genuinely engaged, committed, or involved. The result is short of compelling• The text and/or graphics are sometimes appropriate for the audience and purpose• Writes with authority but sometimes voice is distracting.	<ul style="list-style-type: none">• The writer seems indifferent, uninvolved, or distanced from the topic and/or audience• The text and/or graphics are not appropriate for the audience and purpose• Writes without authority and the voice is distracting
Word Choice	<ul style="list-style-type: none">• Words convey the intended message in an accurate and concise manner that increases the reader's understanding• Words are clear, precise, and professional.• The meaning of technical terms or professional jargon is defined or can be determined by the context.• The vocabulary suits the purpose, subject, and	<ul style="list-style-type: none">• Mostly "A" work, with several minor detractions• Few if any characteristics of "C" Work	<ul style="list-style-type: none">• The language is functional but sometimes lacks interest. The words do not get the message across• Sometimes words are clear, precise, and professional.• The meaning of technical terms or professional jargon is sometimes defined or can be determined by the context.• The vocabulary sometimes suits the purpose, subject, and audience.	<ul style="list-style-type: none">• The writer struggles with a limited vocabulary and searches for words to convey meaning. The words do not get the message across• Words are not clear, precise, and professional.• The meaning of technical terms or professional jargon is not defined or cannot be determined by the context.• The vocabulary does not suit the

	audience.			purpose, subject, and audience.
Sentence Fluency	<ul style="list-style-type: none"> • The text flows easily with a variety of sentence structures and lengths • Compact sentences or phrases make the point clear. • The text reflects logic and sense and helps show how ideas relate. • The writer uses active voice. 	<ul style="list-style-type: none"> • Mostly “A” work, with several minor detractions • Few if any characteristics of “C” Work 	<ul style="list-style-type: none"> • The text flows efficiently but lacks variety in sentence structure • Sometimes compact sentences or phrases make the point clear but several sentences are wordy. • The text reflects logic and sense and helps show how some ideas relate. • Fragments, if used, distract from the flow of the text • Writer uses primarily passive voice 	<ul style="list-style-type: none"> • The text uses sentences that tend to be choppy, incomplete, rambling, or awkward. The text is difficult to follow • Wordy sentences detract from the purpose. • The text tends to obscure meaning, rather than showing the reader how ideas relate. • Fragments, if used, are ineffective.
Conventions	<ul style="list-style-type: none"> • The writer demonstrates control of standard writing conventions and uses them effectively to enhance readability. Errors tend to be so few and minor the reader can easily skim right over them • Paragraph division is sound and reinforces the organizational structure. • Grammar and usage are correct and contribute to clarity and style. • Punctuation is smooth and guides the reader through the text. • Spelling is correct even on more difficult words. • Only light editing would be required to polish the text for publication. • Graphic devices, when used, are clear, helpful, visually appealing and supportive of the text. • The writer may manipulate conventions, particularly grammar, for stylistic effect. 	<ul style="list-style-type: none"> • Mostly “A” work, with several minor detractions • Few if any characteristics of “C” Work 	<ul style="list-style-type: none"> • The writer shows reasonable control over a limited range of standard writing conventions. Errors are numerous or serious enough to be somewhat distracting, but the writer handles some conventions well • Paragraph divisions are attempted but paragraphs sometimes run together or begin in the wrong places. • Problems with grammar and usage are not serious enough to distort meaning. • Terminal (end-of-sentence) punctuation is almost always correct; internal punctuation (commas, apostrophes, semicolons) may be incorrect or missing. • Spelling is usually correct on common words. • Moderate editing would be required to polish the text for publication. • Graphic devices, when used, are sometimes clear, helpful, visually appealing and supportive of the text. 	<ul style="list-style-type: none"> • Errors in spelling, punctuation, usage and grammar, capitalization, and/or paragraphing repeatedly distract the reader and make the text difficult to read. The reader must read once to decode, then again for meaning • Paragraph divisions are missing, irregular, or so frequent (e.g. every sentence) that it does not relate to the organization of the text. • Errors in grammar and usage are very noticeable and may affect meaning. • Punctuation is often missing or incorrect. • Spelling errors are frequent even on common words. • Extensive editing would be required to polish the text for publication. • Graphic devices, when used, are not clear, helpful, visually appealing or supportive of the text

Individual Performance Rubric

Grade Margins				
Area (weight)	A Work	B Work	C Work	Unsatisfactory
Appropriateness of Work	<ul style="list-style-type: none"> • Cadet is doing required work in their area of expertise and is learning from cadets with other skills; • Where there are problems, the cadet is seeking advice on solutions and implementing the advice 	<ul style="list-style-type: none"> • Cadet is doing required work in their area of expertise and is learning some from cadets with other skills. • Cadet seeks advice in solving problems, and uses it some of the time or uses it wrong occasionally 	<ul style="list-style-type: none"> • Cadet is doing most of the work required from his/her area of expertise, but is learning little from others; • Cadet has sought little advice in solving problems • Cadet fails to follow advice given or follows it wrongly 	<ul style="list-style-type: none"> • Cadet tends to compartmentalize his/her work; • Seeks no advice in solving problems or appears unaware of problems
Work accomplished	<ul style="list-style-type: none"> • Cadet is accomplishing tasks on time per the project plan, or ahead of schedule; • Cadet is contributing to helping others get their tasks done; • Effective use of time 	<ul style="list-style-type: none"> • Cadet making above average progress, some tasks are on-time or ahead of schedule, others are behind; • Cadet is assisting others occasionally 	<ul style="list-style-type: none"> • Cadet is accomplishing some progress toward the project plan; some tasks on schedule, some are behind; • Satisfactory use of time • Cadet occasionally wastes time 	<ul style="list-style-type: none"> • Cadet is not working according to the project plan • Poor use of time (too much for results or too little for accomplishments)
Interpersonal Skills	<ul style="list-style-type: none"> • Exemplary positive attitude • Cadet works well with other team members • Cadet shows outstanding leadership and followership traits • Actively communicates with team members and faculty • Takes initiative to solve team issues • High quality peer evaluation • Accurate time log 	<ul style="list-style-type: none"> • Generally good attitude • Cadet works well with other team members • Cadet shows good leadership and followership traits • Communicates well with team members and faculty • Solving some team issues and working around others • High quality peer evaluation • Accurate time log 	<ul style="list-style-type: none"> • Some interpersonal problems mostly resolvable • Cadet shows minor if any conflicts with team members • Cadet is working at minor followership and leadership issues • Communicates with team and faculty members when prompted • Week peer evaluation • Accurate time log 	<ul style="list-style-type: none"> • Can't work with one or more team members • Unprofessional behavior • Cadet has problems either showing leadership and/or being a good follower • Fails to communicate with either team or faculty • Fails to submit peer evaluation • Inaccurate time log