

Outcome 2. Graduates will be proficient in the oral and written communication of their work and ideas.

This outcome maps to ABET Criterion 3 g

Course	Performance indicators
ChE 201, 202, 230, 310, 311, 312, 315, 320, 325, 326, 435, 455, 465	Graduates will be able to organize an oral presentation and present it in a professional manner.
	Graduates will prepare written reports according to the prescribed format.

Tools used: Written Presentation Rubric, Oral Presentation Rubric

Data Collection: The data are collected every semester based on the course offerings.

Frequency of data collection: The data are collected every time courses are taught.

Data Analysis: The data obtained are analyzed every year.

Closing the loop: This outcome is subject to review every year based on performance criteria and metrics and specific action items are developed, if necessary, to revise the content of the courses. The analyzed data are presented separately to the following groups in meetings.

- a) Feedback to students on all assignments
- b) Feedback to faculty, particularly from major design project.

Performance criteria and metrics:

- a) Students should reach a level of proficiency defined as a goal metric value of 2.8 based on the Written Presentation Rubric and Oral Presentation Rubric scale of 0-4.

Assessment Tool:

Written Presentation Rubric

Written Presentation Rubric

Attribute	0 (F) -Not proficient	1 (D) - Progressing to proficiency	2 (C) -Marginal Proficiency	3 (B) - Good Proficiency	4 (A) -Superior proficiency	Score
Report Mechanics						
Organization	no organization or logical flow of information	inappropriate content of most sections of report	no more than 2 instances of content in inappropriate section of report	content appropriate to all sections of report	organization/layout enhances ability of reader to understand work, while still following guidelines	
Complete Story Told	no story told, very incomplete	aspects of complete story missing	minor aspects of the story are not included	complete story told	additional material enhances quality of report	
Aesthetics	tables and figures cannot be read/understood, font is illegible	text, tables and figures are difficult to interpret and/or read	portions are sloppy and difficult to read	text, tables, figures readable	text, tables, figures readable and clearly understandable	
Format	so many format errors as to make report useless	multiple format errors that make the report difficult to read	no more than 2 format errors	format followed	format aspects enhance report impact	
Spelling	multiple spelling errors	any spelling errors	only spelling errors are different spellings for same pronunciation	no spelling errors	no spelling errors	

Attribute	0 (F) -Not proficient	1 (D) - Progressing to proficiency	2 (C) -Marginal Proficiency	3 (B) - Good Proficiency	4 (A) -Superior proficiency	Score
Grammar and Punctuation	grammar and punctuation errors make report unreadable	numerous grammar and punctuation errors	minor grammar and punctuation errors	correct grammar and no more than 2 punctuation errors	no grammar or punctuation errors	
Length	excessively long or short		too long or too short		appropriate length	
Content						
Cover Memo – problem stated, conclusion summarized	not present	present, no required information included	present but does not include all required information	includes key results or conclusions, but not both	includes key results and appropriate recommendations	
Abstract/Executive Summary – problem stated, conclusion summarized	not present	problem not stated, conclusion not summarized, only stated what did	problem stated somewhat, significant results not included	problem and results stated, perhaps not appropriate length for each	problem clearly stated, key results clearly stated, appropriate length for each	
Introduction – problem stated, constraints explained	not present	problem not stated, constraints not explained, contains results/conclusions	problem stated, perhaps poorly, no or limited discussion of constraints	problem stated, perhaps some constraints mentioned	problem clearly stated, constraints discussed in detail	
Theoretical development – appropriate detail	no theoretical development	theoretical development cannot be understood	theoretical development is difficult to follow	clear theoretical development	so clear and complete as to convey clear understanding	

Attribute	0 (F) -Not proficient	1 (D) - Progressing to proficiency	2 (C) -Marginal Proficiency	3 (B) - Good Proficiency	4 (A) -Superior proficiency	Score
Results – presented, methodology clear, problem solved	missing results, for design report PFD and stream table not first	unclear and/or incomplete	some aspects unclear or incomplete	clearly stated, for design report, PFD, stream table, equipment summary, utility summary all present	clearly stated, all appropriate items present, items described/explained, but not discussed in detail (goes in discussion section)	
Discussion – physical explanations provided	no physical explanations attempted, repeat of computational details	unclear explanations	few unclear explanations, some computational details	clear explanation	clear explanations that show perspective and understanding	
Conclusions/ Recommendations – present, significance explained, no new ideas	not stated, includes ideas not already discussed in report	weak, includes ideas not already discussed in report, wishes rather than recommendations	all ideas discussed in report are included, but unclear, weak recommendations given	clear and follow report discussion	clear, clearly follow report discussion, meaningful recommendations	
References – provided as appropriate	present, but no cited in report or no present when needed	present, inappropriate citations, poor formatting	present, cited in report, significant formatting errors	present, cited in report, no more than 2 formatting errors	correct format, all cited in report	
Appendix	appendix contains material that should be in text, text contains material that	material is in appropriate location; however, not beneficial use of appendix	appropriate locations, appendix not clear and easy to follow	appropriate locations, can be understood	appropriate locations, appendix indexed, clear and easy to follow	

Attribute	0 (F) -Not proficient	1 (D) - Progressing to proficiency	2 (C) -Marginal Proficiency	3 (B) - Good Proficiency	4 (A) -Superior proficiency	Score
	should be in appendix					
Effective use of software to prepare written report	makes no use of or incompetent use of software features	poor use of or uses very few software features	some features not used appropriately	uses appropriate software features	uses software features consistently, correctly, possibly to enhance presentation effectiveness	

Assessment Tool:

Oral Presentation Rubric

Oral Presentation Rubric

Attribute	0 (F) – Not proficient	1 (D) – Less than desired proficiency	2 (C) – Marginal proficiency	3 (B) – Good proficiency	4 (A) – Superior proficiency	Score
Effective use of Visual Aids (VA)						
Overall clarity	not clear or readable	difficulty reading	no more than 2 items difficult to read	clear and readable	superior clarity and readability	
Layout of VA	VA unreadable because too crowded	layout detracts from impact of VA	Layout of VA satisfactory, but could be improved	VA appropriately laid out	VAs very well laid out – enhances presentation	
Lettering readable	font unreadable	font consistently too small	several VAs have smaller than desired font	most fonts readable	font readable	
Color, over- or under-use (if used)	colors too hard to distinguish, colors do not project well, no use of color (all black and white)	color used, poor choice and use of colors, color contrasts difficult to see	color used, colors easy to see	effective/appealing choice of colors	use of color enhances clarity of presentation	
Wording	slides full of text, full sentences used	slides too wordy, full sentences used frequently	no more than 2 slides too wordy, bullets used instead of sentences	slides appropriate, bullets used	slides appropriate and worded well	

Attribute	0 (F) – Not proficient	1 (D) – Less than desired proficiency	2 (C) – Marginal proficiency	3 (B) – Good proficiency	4 (A) – Superior proficiency	Score
Appropriate amount of information per VA	so much information per VA or so much missing information to make VAs useless	too much information per VA, missing information such as size of total pie	no more than 2 VAs with too much or too little information, inconsistent with what is spoken	appropriate level of information per VA, not always consistent with what is spoken	appropriate level of information per VA, consistent with what is spoken	
Presentation Organization						
Logical order of topics	totally disjointed, no organization	multiple items presented out of order	no more than 2 items presented out of order	organization as per guidelines but improvement possible	organization logical and as per guidelines	
Appropriate use of time: Not too long /short	far too long or far too short		somewhat too long or too short		appropriate length	
Complete "story" told	story missing, no story told		story incomplete		complete story told	
Introduction: problem stated, background presented, constraints presented, theory presented (all as applicable)	problem not stated, no background, no constraints presented, no theory presented	problem poorly stated, little or no background, constraints and theory not presented	problem stated at a basic level; some background, constraints, and theory presented	problem clearly stated; background, constraints and theory all presented	problem clearly stated, background provides perspective on problem, constraints and theory well defined	

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Results	results not presented	unclear what the results are	results explained	results clearly explained	results so clearly explained as not to require additional questioning	
Discussion: explanations and/or methodology description attempted as appropriate	no explanations and/or methodology descriptions attempted	few explanations and/or methodology descriptions attempted	explanations and/or methodology description for most results attempted	explanations and/or methodology description for all results attempted	explanations and/or methodology description for all results attempted and presented clearly	
Conclusions and Recommendations: significance explained	no conclusions and/or recommendations presented	conclusions and/or recommendations presented, but not based on presentation content	conclusions and/or recommendations presented, logically based on presentation content	conclusions and/or recommendations presented, logically based on presentation content, explanations attempted	conclusions and/or recommendations presented, logically based on presentation content, explanations presented, superior clarity	
Effective use of software to prepare visual aids	makes no use of or incompetent use of software features	very few software features used or many software features inconsistently used	some inconsistencies in use of software features	uses appropriate software features consistently and correctly	uses software features and/or uses software features consistently, correctly to	

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		or not used correctly			enhance presentation effectiveness	
Group synergism / dynamics (if applicable)						
Even division of effort	product apparently due to one person's contribution	one person dominates or one person's contribution not apparent	uneven distribution apparent, but within acceptable deviations	apparent even division of effort	even division of effort, all members speak on and answer questions on technical material	
Interaction between team members	it is clear that solution did not result from good team interaction	poor interaction between team members apparent	teamwork apparent, some less than desired interactions, but within acceptable deviations	team functioned appropriately	clearly team functioned appropriately, product clearly exceeds sum of parts	
All members of group understand solution	clearly at least one or more members totally unaware of solution/strategy	not clear that all members understand solution and methodology	most members apparently understand complete solution or methodology	all members understand complete solution and methodology	all members understand complete solution, what they did, and what team members did	

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Presentation Mechanics						
Delivery	no delivery or delivery with no relevant content	difficult to understand, voice consistently hard to hear, voice trails off often, spoke too slow or too fast, overuse of slang and/or jargon, presentation full of hesitations, ums, ahs, etc.	generally competent delivery with fewer than 2 instances of voice hard to hear, voice trailing off, speaking too fast, use of slang and/or jargon, some ums, ahs, etc.	voice clearly heard, words clearly enunciated, did not speak too slowly or too rapidly clear, continuous presentation, perhaps a few ums, ahs, etc.	voice projected very well, clear enunciation, did not speak too slowly or rapidly superior presentation, free of ums, ahs, etc.	
Mannerisms	presentation has so many distracting mannerisms as to render presentation completely ineffective	presentation has distracting mannerisms (such as giggling or fidgeting)	few distracting mannerisms	no distracting mannerisms	presentation mannerisms enhance clarity and delivery	
Maintaining eye contact	no eye contact at all	poor eye contact – looking down or at screen significant portion of time	fewer than 2 instances of poor eye contact	maintained eye contact other than quick glances at screen (unless pointing to item on screen)	maintained complete eye contact (unless pointing to item on screen)	

Attribute	0 (F) – Not proficient	1 (D) – Less than desired proficiency	2 (C) – Marginal proficiency	3 (B) – Good proficiency	4 (A) – Superior proficiency	Score
Composure	clearly unsure, nervous, confused	at times appears unsure, nervous, confused throughout presentation	perhaps nervous at start, but composure gained as presentation progresses	composed at all times	exudes/conveys confidence	
Response to Questions – Demeanor	non-responsive, evasive	response evasive or defensive and/or does not answer question asked	responds but is evasive or defensive at times	clear and direct	very clear and complete	

