Notes:

- It is recommended to use this rubric in combination with the SoE Lab Template;
- You may adapt this rubric by removing some categories if they are not relevant to the course learning outcomes.
- It is recommended to use the mid-point method to calculate the overall lab report grade. An example calculation is provided below:

	Below Expectations	Marginal	Meet Expectations	Exceed Expectations	Weight	Indicator
	F	D to C-	C to B+	A- to A+		
	<50%	50 - 59%	60 - 79%	≥80%		
Introduction & theory		X			0.1	2.1
Experimental design & data collection			X		0.2	3.1
Results and discussions (data analysis & synthesis)			X		0.4	3.2
Conclusions (assess results)				X	0.3	3.3

Grade assigned: 55% x 0.1 + 70% x 0.2 + 70% x 0.4 + 90% x 0.3 = 74.5%

SoE Lab Report Evaluation Form

	Below Expectations	Marginal	Meet Expectations	Exceed Expectations	Weight	Indicator
	F	D to C-	C to B+	A- to A+		
	<50%	50 - 59%	60 - 79%	≥80%		
Introduction & theory • Define scope and goals of investigation • Describe background information/previous works • Describe physical principles or working hypotheses						2.1
Experimental design & data collection • Identify and describe important instruments / apparatuses / materials • Formulate or apply appropriate procedures to perform experiment and collect data • Consider limitations of the equipment and testing method						3.1
Results and discussions (data analysis & synthesis) • Formulate/apply appropriate procedures, tools, and techniques to analyze and process data to reach appropriate conclusions • Proper presentation of data • Proper presentation of sample calculations/derivations • Demonstrate accuracy of calculation and error discussions • Answer question completely and correctly						3.2
Conclusions (assess results) • Summarize experiment by citing data and source of error, and addressing hypotheses • Consider limitations of theory or measurement errors (if applicable).						3.3
Quality of visuals and data presentation • Effectiveness of figures, maps, photos, etc. • Figures referred to and used in text • Quality of engineering drawings • Correct captions, titles, source lines						7.3
Quality of writing • Format conforms to expectations • Document is organized effectively at macro and micro levels • Sentences are correct and concise • Document has been proofread (misspellings and typos) • Appropriate Appendices provided						7.1

SoE Lab Report Evaluation Rubric Descriptors

	Below Expectations (major errors or lack of depth)	**Marginal** (some errors or superficial)	**Meet Expectations** (few-to-no errors and appropriate depth)	**Exceed Expectations** (no errors and exceptional depth/accuracy)
	F	**D to C-**	**C to B+**	**A- to A+**
	<50%	**50 - 59%**	**60 - 79%**	**≥80%**
Introduction & theory	Provided no description of background information/previous works; no scope and goals of investigation; showed no/little physical principles or working hypotheses but with mistakes.	Provided some description of background information/previous works; lack of scope and goals of investigation; showed the physical principles or working hypotheses but with mistakes.	Provided description of background information/previous works; defined the scope and goals of investigation; described the physical principles or working hypotheses.	Provided detailed description of background information/previous works; defined the specific scope and goals of investigation; fully described the physical principles or working hypotheses.
Experimental design & data collection	Experiment design missing or does not align with the objectives of the investigation; unaware of basic instrument/apparatus necessary for the experiment; data collected is unclear or will not support the objectives of the investigation.	Experiment design is ambiguous or does not fully align with the objectives of the investigation; lacking understanding of instrument/apparatus necessary for the experiment; data collected is incomplete.	Experiment design is clear and achieves the investigation's objectives; instrument/apparatus described; data collected is sufficient to achieve the investigation's goals.	Experiment design is concise, correct, and achieves the investigation's objectives; instrument/apparatus fully described; data collected is sufficient to achieve the investigation's goals; pertinent limitations clearly explained.
Results and discussions (data analysis & synthesis)	Not able to properly present figures, sample calculations/derivations; no discussion of accuracy or errors; questions answered incorrectly.	Figures presented but lack of explanations; sample calculations/derivations not complete; lack of discussion about accuracy or error; questions answered incorrectly.	Figures presented with explanations; sample calculations/derivations presented; discussion about accuracy and error provided; questions answered correctly.	Proper presentation and citation of figures; proper presentation of sample calculations/derivations Discussion of accuracy and error is complete; questions answered completely and correctly.
Conclusions (assess results)	Misinterprets data; provides physically unrealistic explanations; unable to reconcile theory to results.	Data interpretation is unconvincing; explanations are unconvincing; inconsistencies in theory and results not fully explained.	Reaches valid conclusions justified by the data; relates theory to the observations in a convincing way.	Correct conclusions are clearly stated with reference to the supporting data; sources of error or limitations of theory are used in a convincing way to explain inconsistencies in the data; conclusions are directly supporting the objective of the investigation.
Quality of visuals and data presentation	Visuals are used infrequently or are unprofessional; visualizations do not add to the quality or impact of the document; references are missing.	Visuals are used minimally and/or could be presented more professionally; visualizations generally add to the quality or impact of the document; references are included but with possible errors or lacking clarity.	Visuals are used frequently and appropriately; there may be instances where additional visualizations would be beneficial; most are professionally produced and add to the quality and impact of the document; references are included and correct.	Visuals are used extensively and appropriately; all are professionally produced and significantly add to the quality and impact of the document; references are included and correct.
Quality of writing	The report is difficult to read and poorly constructed; the tone may be unprofessional and/or inappropriate; sections are inconsistent with the template; there are regular typographical, grammatical, and formatting errors.	The report is somewhat difficult to read or poorly constructed in places; the tone may be unprofessional and/or inappropriate in places; the template mostly followed; there are typographical, grammatical, and formatting errors.	The report is clear, concise, and generally well-constructed; the tone is generally professional and appropriate; the template is followed; there are almost no typographical, grammatical, or formatting errors.	The report is very clear, concise, and well-constructed; the tone is highly professional and appropriate; the template is followed; sections flow seamlessly from one to the next; there are no typographical, grammatical, or formatting errors.