Engineering and Physics

Whole Person Assessment Handbook

June, 2011

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Introduction

In accordance with the recommendations of the Accreditation Board for Engineering and Technology (ABET), the Department of Engineering, Physics, and Physical Science at Oral Roberts University requires students in all engineering programs to prepare an electronic portfolio. A portfolio can be defined as follows: A documented profile of an individual's accomplishments, learning, and strengths related to the competencies, standards, and outcomes established by accrediting agencies, the institution (ORU), and its constituencies.

Engineering, Physics, and Physical Science Department Purpose and Goals

The department is vigorously engaged in the God-given calling to prepare professional engineers and physicists for service in industry, research laboratories, and academia. The theme of the department, *Students of the Creator and Stewards of Creation*, summarizes our dual passion for unlocking the mysteries of the universe for young minds, and also helping them discover how to appropriately harness the resources of the creation, and the power of their own creativity.

The department has also incorporated departmental standards which have been aligned with ABET competencies and standards to reflect engineering knowledge, professional commitments, dispositions, and performance standards which serve as departmental goals in the support of developing qualified, competent, professional engineering candidates for service to God and the engineering/scientific community.

Mission Statement

The Engineering, Physics, and Physical Science Department seeks to provide students with the knowledge, skills, and experiences that will prepare them to enter directly into professional practice as Christian engineers, or into advanced studies in engineering, or other professional areas. This training equips students in the application of science and mathematics for the improvement of the physical world, and enables graduates to enter the engineering and scientific communities, and contribute to the healing of the human condition. The department supports the overall university mission by the development of analytical thinking and problem solving in science and engineering, and promotes understanding and reconciliation between the fields of science and theology.

Engineering Portfolio Philosophy

The engineering portfolio is a collection of artifacts which reflect the competencies recommended by the Oral Roberts University Engineering, Physics, and Physical Science Department and its constituencies, including the Accreditation Board for Engineering and Technology (ABET). The Engineering, Physics, and Physical Science Department believes that the benefits of the engineering portfolio include the opportunity for candidates to demonstrate growth and development toward mastery of these competencies, and for candidates to engage in self and peer-reflection. Additionally, the portfolio serves as the foundation of the department's assessment system and is used for program improvement.

Educational Outcomes

The following are the Engineering, Physics, and Physical Science Department's educational outcomes, which reflect the engineering knowledge, the professional commitments, dispositions, and performance outcomes adopted by the departmental faculty in support of the development of engineering candidates. It is the goal of the Oral Roberts University Engineering, Physics, and Physical Science Department to achieve the following:

Outcome	Keywords
1. Graduates are able to apply knowledge of mathematics, science, and engineering.	Knowledge
2. Graduates are able to design and conduct experiments, as well as analyze and interpret data.	Experiment
3. Graduates are able to design a system, component, or process to meet desired needs.	Design
4. Graduates are able to function on multi-disciplinary teams.	Teamwork
5. Graduates are able to identify, formulate, and solve engineering problems.	Problem Solving
6. Graduates understand professional and ethical responsibility.	Ethics
7. Graduates are able to communicate effectively.	Communication
8. Graduates have a broad education necessary to understand the impact of engineering solutions in a global and societal context.	Broader Impact
9. Graduates recognize the need for, and are able to engage in life-long learning.	Life Long Learning
10. Graduates have knowledge of contemporary issues.	Contemporary Issues
11. Graduates are able to use the techniques, skills, and modern tools necessary for engineering practice.	Tools
12. Graduates are able to apply Christian principles of stewardship.	Stewardship

Portfolio Assessment

All Engineering, Engineering Physics, and Biomedical Engineering Majors will be required to compile and maintain an electronic, developmental portfolio. This allows the department accessibility to candidates' portfolios for the purposes of aggregating and disaggregating data, which leads to program improvement. Candidates will be evaluated on portfolio artifacts: supporting documents, evaluations and recommendations, evidence of competencies, written samples and projects to support competencies, evidence of creativity and performance.

Artifacts and Educational Outcomes

Name of Artifact	Outcomes Assessed	Course
Entry Level Artifacts		
Freshman Interview		
Stewardship Paper	Communication, Broader Impact, Stewardship, Life-Long Learning	EGR 101
Initial Resume	Communication	EGR 101
Freshman Project		
Intro Video Clip	Communication	EGR 101
Intro Project Oral Presentation Reflection	Life-Long Learning	EGR 101
Intro Project Report	Communication	EGR 101
Engineering Graphics Exam	Tools	EGR 140
Sophomore Interview		
Intermediate Level Artifacts		
Electronics I Lab Report	Experiment	EE 321L
Network Analysis I Exam	Knowledge, Problem Solving	EGR 210
Network Analysis II Exam*	Problem Solving	
Mechanics I: Statics Exam	Problem Solving	EGR 221
Dynamics Exam*	Knowledge, Problem Solving	EGR 222
Physics II Design Project		
Physics II Video Clip	Communication	PHY 112
Physics II Project Oral Presentation Reflection	Life-Long Learning	PHY 112
Physics II Report	Knowledge, Communication	PHY 112
Principles of Design Exam/Assignment*	Problem Solving	ME 381
Control Systems Exam*	Knowledge	EGR 330
Digital Systems Mini Project*	Knowledge	CMPE 340
Computational Methods C Programming Project*	Tools	EGR 252
Finite Element Analysis Using ANSYS*	Tools	ME 447
Capstone Level Artifacts		
Design Process Paper	Design	EGR 498
Resume	Communication	EGR 498
Senior Design Project		

Senior Project Research Paper	Life-Long Learning	EGR 498
Senior Project Video Clip	Communication	EGR 499
Senior Project Oral Presentation Reflection	Life-Long Learning	EGR 499
Senior Project Report	Knowledge, Design, Teamwork, Communication, Life Long Learning	EGR 499
Economics Paper	Broader Impact, Stewardship, Communication	EGR 461
Ethics Quiz	Ethics	EGR 498
Professional Level		
Exit Interview Questionnaire	All	
Alumni Survey	Broader Impact	
Employer Survey	Teamwork, Problem Solving, Ethics, Life-Long Learning, Tools, Stewardship	
Advisor Survey	Teamwork, Problem Solving, Ethics, Life-Long Learning, Tools, Stewardship	

*Starred artifacts are required for students in specific concentrations, and are not required of all engineering students.

Description of Artifacts

The artifacts are designated as Entry Level, Intermediate Level, Capstone Level, or Professional Level depending on the point in your academic career when they are submitted. Instructions for the artifacts in all four levels are given below, along with the rubrics that will be used to evaluate the artifact.

Assessor's Response
PLEASE NOTE: THE ITEMS CONTAINED IN THE BOXES ARE AN EXPLANATION OF WHAT THE FACULTY MEMBER AND/OR ADVISOR WILL DO WHEN ASSESSING THE ARTIFACT.

Entry Level Artifacts

The following is a description of each of the portfolio artifacts that are to be placed in your portfolio prior to the completion of the first benchmark, the Entry Level. This portion of the portfolio must be completed by the candidate and approved by the candidate's advisor prior to scheduling the candidate's second-year interview for admission to the engineering program. The artifacts are completed as a required assignment as part of the coursework or independently with the assistance of the advisor.

Freshman Interview— Each student will be interviewed by a faculty member in the department, typically their advisor. Candidates will be asked a series of questions designed to encourage reflection on their own experience in the program.

Assessor's Response:
The department head will review the candidate's portfolio and determine that the student has completed the interview and uploaded the transcript.

Stewardship Paper—This paper is a description of the candidate's concepts of stewardship and ethics as would be practiced by a Christian engineer. It should also include an explanation of why the candidate desires to become an engineer. This artifact is completed as an assignment in the EGR 101 Introduction to Engineering course and is graded by the professor of record. A rubric is provided for use as a reference when completing the assignment. Upload the completed stewardship/ethics paper into the portfolio and share it with the professor for it to be assessed (please use the "help" feature in e-Portfolio for assistance with this process).

Assessor's Response:
The professor will use the scoring rubric, which is a duplicate of the rubric the candidate used, to grade the completed assignment. Candidates can access the scoring rubric to view the scores obtained for each of the areas as well as the overall grade for the paper.

Initial Resume--The candidate is required to complete an initial resume in preparation for summer internships and other job opportunities. Resume samples are available in the portfolio resource website. This artifact is completed as an assignment in the EGR 101 Introduction to Engineering course and is graded by the professor of record. A rubric is provided for use as a reference when completing the assignment. Upload the completed resume into the portfolio and share it with the professor for it to be assessed (please use the "help" feature in e-Portfolio for assistance with this process).

Assessor's Response:
The professor will use the scoring rubric, which is a duplicate of the rubric the candidate used, to grade the completed assignment. Candidates can access the scoring rubric to view the scores obtained for each of the areas as well as the overall grade for the resume.

Freshman Project— The following is a description of each of the artifacts required for this section of the portfolio:

Intro Video Clip-The candidate is required to submit a video of a presentation of design work conducted during the freshman project in EGR 101. This video clip must be between one and two minutes in length and can be extracted from the video files of the group presentations made in class.. Once this process has been completed, upload the video clip in the appropriate section of the portfolio (please use the "help" feature in e-Portfolio for assistance with this process).

Intro Project Oral Presentation Reflection—The student is to use the form for this reflection to evaluate their own presentation performance and make concrete plans for improvement.

Assessor's Response:
The advisor will use the scoring rubric to evaluate the student's reflection and plans for improvement.

Intro Project Report—This report is a written description of the candidate's design work conducted during the freshman project. This artifact is completed as an assignment in the EGR 101 Introduction to Engineering course and is graded by the professor in charge of the project. A rubric is provided for use as a reference when completing the assignment. Upload the completed report into the portfolio and share it with the professor for it to be assessed (please use the "help" feature in e-Portfolio for assistance with this process). The report must be submitted twice, once to ePortfolio, and once to the professor.

Assessor's Response:
The professor will use the scoring rubric, which is a duplicate of the rubric the candidate used, to grade the completed assignment. Candidates can access the scoring rubric to view the scores obtained for each of the areas as well as the overall grade for the report.

Engineering Graphics Exam—This electronic file is an exam for a course on computer-aided-drafting. This artifact is completed as an assignment in the EGR 141 Engineering Graphics course and is graded by the professor of record. A rubric is provided for use as a reference when completing the assignment. Upload the completed exam into the portfolio and share it with the professor for it to be assessed (please use the "help" feature in e-Portfolio for assistance with this process).

Assessor's Response:
The professor will use the scoring rubric, which is a duplicate of the rubric the candidate used, to grade the completed assignment. Candidates can access the scoring rubric to view the scores obtained for each of the areas as well as the overall grade for the exam.

Sophomore Interview— Each student will be interviewed by a faculty member in the department, typically their advisor. Candidates will be asked a series of questions designed to encourage reflection on their own experience in the program. Successful completion is a requirement for formal admission to the engineering program.

Assessor's Response:

The department head will review the candidate's portfolio and determine that the student has completed the interview and uploaded the transcript.

Intermediate Level Artifacts

The following is a description of each of the portfolio artifacts that are to be placed in your portfolio prior to completion of the second benchmark, the Intermediate Level. This portion of the portfolio should be completed and approved by the candidate's advisor prior to completion of the Application for Candidacy (graduation) Form. The artifacts are completed as a required assignment as part of the coursework or independently with the assistance of the advisor.

Electronics I Lab Report—This artifact describes laboratory work conducted in the area of introductory electronics. This artifact is completed as an assignment in the EE 321 Electronics I Laboratory course and is graded by the professor of record. A rubric is provided for use as a reference when completing the assignment. Upload the completed lab into the portfolio and share it with the professor for it to be assessed (please use the "help" feature in e-Portfolio for assistance with this process).

Assessor's Response:
The professor will use the scoring rubric, which is a duplicate of the rubric the candidate used, to grade the completed assignment. Candidates can access the scoring rubric to view the scores obtained for each of the areas as well as the overall grade for the lab report.

Network Analysis Exam—This artifact presents solutions to problems in the area of introductory circuit analysis. This artifact is completed as an assignment in the EGR 210 Network Analysis I course and is graded by the professor of record. A rubric is provided for use as a reference when completing the assignment. Upload the returned and graded exam into the portfolio and share it with the professor for it to be assessed (please use the "help" feature in e-Portfolio for assistance with this process).

Assessor's Response:
The professor will use the scoring rubric, which is a duplicate of the rubric the candidate used, to grade the completed assignment. Candidates can access the scoring rubric to view the scores obtained for each of the areas as well as the overall grade for the exam.

Network Analysis II Exam—This artifact presents solutions to problems in the area of electrical circuit analysis. This artifact is completed as an assignment in the EE 311 Network Analysis II course and is graded by the professor of record. A rubric is provided for use as a reference when completing the assignment. Upload the returned and graded exam into the

portfolio and share it with the professor for it to be assessed (please use the "help" feature in e-Portfolio for assistance with this process).

Assessor's Response:
The professor will use the scoring rubric, which is a duplicate of the rubric the candidate used, to grade the completed assignment. Candidates can access the scoring rubric to view the scores obtained for each of the areas as well as the overall grade for the exam.

Mechanics I: Statics Exam—This artifact presents solutions to problems in the area of simple mechanics of particles and rigid bodies with zero acceleration. This artifact is completed as an assignment in the EGR 221 Mechanics I: Statics course and is graded by the professor of record. A rubric is provided for use as a reference when completing the assignment. Upload the returned and graded exam into the portfolio and share it with the professor for it to be assessed (please use the "help" feature in e-Portfolio for assistance with this process).

Assessor's Response:
The professor will use the scoring rubric, which is a duplicate of the rubric the candidate used, to grade the completed assignment. Candidates can access the scoring rubric to view the scores obtained for each of the areas as well as the overall grade for the exam.

Physics II Project— The following is a description of each of the artifacts required for this section of the portfolio:

Physics II Video Clip-The candidate is required to submit a video of a presentation of design work conducted during the Physics II Design Projects. This video clip must be between one and two minutes in length and can be extracted from the video files of the group presentations made in class.. Once this process has been completed, upload the video clip in the appropriate section of the portfolio (please use the "help" feature in e-Portfolio for assistance with this process).

Assessor's Response:
The professor will use the scoring rubric to evaluate the quality of the speaker, slides and content.

Physics II Project Oral Presentation Reflection—The student is to use the form for this reflection to evaluate their own presentation performance and make concrete plans for improvement.

Assessor's Response:
The advisor will use the scoring rubric to evaluate the student's reflection and plans for improvement.

Physics II Report—This report is a written description of the candidate's design work conducted during the Physics II Design Projects. This artifact is completed as an assignment in the PHY 112 Physics II course and is graded by the professor of record. A rubric is provided for use as a reference when completing the assignment. Upload the completed report into the portfolio and share it with the professor for it to be assessed (please use the "help" feature in e-Portfolio for assistance with this process).

> Assessor's Response:
> The professor will use the scoring rubric, which is a duplicate of the rubric the candidate used, to grade the completed assignment. Candidates can access the scoring rubric to view the scores obtained for each of the areas as well as the overall grade for the report.

Dynamics Exam— This artifact consists of scanned pages from one or more midterm exams in EGR 222 Mechanics II: Dynamics.

> Assessor's Response: The assessor will use the scoring rubric to evaluate the student's ability to apply engineering concepts and solve problems based on the graded exam.

Principles of Design Assignment—This artifact consists of scanned pages from one or more assignments/exams in ME 381 Principles of Design.

> Assessor's Response: The assessor will use the scoring rubric to evaluate the student's ability to formulate and solve engineering problems in mechanical engineering.

Control Systems Exam—This artifact consists of scanned pages from an exam in EGR 330 Control Systems.

> Assessor's Response: The assessor will use the scoring rubric to evaluate the student's ability to use modern engineering tools..

Finite Element Analysis Using ANSYS—This artifact consists of a finite element analysis conducted in ANSYS as part of ME 447 Finite Element Method.

> Assessor's Response: The assessor will use the scoring rubric to evaluate the student's ability to use modern engineering tools..

Digital Systems Mini-Project—This artifact consists of a short project in digital systems.

> Assessor's Response: The assessor will use the scoring rubric to evaluate the student's ability to apply engineering concepts.

Computational Methods C Programming Project—This artifact consists of a C programming project.

> Assessor's Response: The assessor will use the scoring rubric to evaluate the student's ability to apply engineering concepts.

Capstone Level Artifacts

The following is a description of each of the portfolio artifacts that are to be placed in your portfolio prior to the completion of the third benchmark, the Capstone Level. The artifacts are completed during the final year in the Engineering Program as part of the coursework or independently with the assistance of the advisor.

Resume – Update the resume completed at the Entry Level to include any internship or other work experiences. A rubric is provided for use as a reference when completing the assignment. Once completed, upload the revised resume to the portfolio and share it with the advisor (please use the "help" feature in e-Portfolio for assistance with this process).

> Assessor's Response:
> The professor will use the scoring rubric, which is a duplicate of the rubric the candidate used, to grade the completed assignment. Candidates can access the scoring rubric to view the scores obtained for each of the areas as well as the overall grade for the resume.

Senior Design Project— The following is a description of each of the artifacts required for this section of the portfolio:

Senior Project Video Clip-The candidate is required to submit a video of a presentation of design work conducted during the Senior Design Project. This video clip must be between one and two minutes in length. The candidate will need to compress the video using software called Cleaner 5. Go to the Second Floor Technology lab in the Graduate Center for assistance with this process. Once this process has been completed, upload the video clip in the appropriate section of the portfolio (please use the "help" feature in e-Portfolio for assistance with this process).

> Assessor's Response:
> The advisor is to determine if the video has been submitted and select met or not met in the appropriate location.

Senior Project Oral Presentation Reflection—

> Assessor's Response:
> The advisor will use the scoring rubric which is a duplicate of the rubric the candidate uses to complete the reflection portion of the assignment to grade that part of the Reflection. The advisor will then record the reflection grade.

Senior Project Report—This report is a written description of the candidate's design work conducted during the Senior Design Project. This artifact is completed as an assignment in the EGR 499 Senior Design and Research II course and is graded by the professor of record. A rubric is provided for use as a reference when completing the assignment. Upload the completed report into the portfolio and share it with the professor for it to be assessed (please use the "help" feature in e-Portfolio for assistance with this process).

Assessor's Response:
The professor will use the scoring rubric, which is a duplicate of the rubric the candidate used, to grade the completed assignment. Candidates can access the scoring rubric to view the scores obtained for each of the areas as well as the overall grade for the report.

Economics Paper—This paper is a description of the candidate's concepts of stewardship and ethics from the perspective of Engineering Economics. This artifact is completed as an assignment in the EGR 461 Engineering Management and Economy course and is graded by the professor of record. A rubric is provided for use as a reference when completing the assignment. Upload the completed stewardship/ethics paper into the portfolio and share it with the professor for it to be assessed (please use the "help" feature in e-Portfolio for assistance with this process).

Assessor's Response:
The professor will use the scoring rubric, which is a duplicate of the rubric the candidate used, to grade the completed assignment. Candidates can access the scoring rubric to view the scores obtained for each of the areas as well as the overall grade for the paper.

Design Paper—This artifact consists of scanned pages from a quiz in EGR 498 in which students must describe the design process and answer questions about it.

Assessor's Response: The assessor will use the scoring rubric to evaluate the student's ability to describe the design process.

Ethics Quiz—This artifact consists of scanned pages from a quiz in EGR 498 in which students must demonstrate an understanding and ability to apply principles of engineering ethics.

Assessor's Response: The assessor will use the scoring rubric to evaluate the student's ability to apply concepts of engineering ethics.

Snr. Project 498 Research Paper—This artifact consists of the student's background research paper for their senior project from EGR 498.

Assessor's Response: The assessor will use the scoring rubric to evaluate the student's ability to utilize print and online resources.

Professional Level Artifacts

Exit Interview Questionnaire--Candidates are expected to complete the Exit Interview Questionnaire received from The Department of Engineering, Physics and Physical Science during the last few weeks of the senior year. Scan and upload the completed questionnaire in the appropriate area of the portfolio (please use the "help" feature in e-Portfolio for assistance with this process).

Assessor's Response:
The advisor will record whether or not the candidate placed the document in the portfolio.

Alumni Survey—After graduation, alumni are encouraged to complete the Alumni Survey Form and enter it as an artifact in their portfolio. This form will be sent out periodically to assist with program assessment and improvement.

Assessor's Response:
The advisor will review and record the artifact at the level in which the candidate met the requirement.

Employer/Advisor Survey—After graduation, alumni are encouraged to deliver the Employer/Advisor Survey Form to their current employment supervisor or graduate school advisor. Once they have completed and returned the survey to the department, it will be uploaded as an artifact in the alumnus' portfolio. This form will be sent out periodically to assist with program assessment and improvement.

Assessor's Response:
The advisor will review and record the artifact at the level in which the candidate met the requirement.

<u>Forms</u>

Oral Roberts University
Engineering, Physics, and Physical Science Department

Engineering Candidate E-Portfolio Agreement Form

By signing this statement, I understand the Oral Roberts University Department of Engineering, Physics, and Physical Science leadership will access my E-Portfolio as presented on-line with the use of an on-line assessment instrument. I understand that my demographic information, artifacts, and written documents will be used by the department for assessment purposes to inform program improvement and to prepare for accreditation.

I understand that my information will be held in confidence between the Department of Engineering, Physics, and Physical Science and accrediting associations. I also understand that artifacts in my portfolio may be used as samples or for demonstration purposes.

I understand that the use of my E-Portfolio for program evaluation or accreditation review will in no way affect my grades on individual projects, artifacts, or the final over-all portfolio assessment. Grades and assessment of portfolios and individual artifacts will be determined and rest solely with the assessors to be determined by the Engineering, Physics, and Physical Science Department.

_____
Print Name

_____ Date _____
Signature

Freshman Project Oral Presentation Reflection

Name: _____   Date: _____

Part I – Evaluation (To be completed by student)

Characteristics	Exemplary	Competent	Acceptable	Unacceptable
TOPIC – complete description of speakers portion of the project				
PREPARATION - organized meaningfully, adequately supported, materials ready, fluent presentation				
ATTENTIVE - aware of self and audience, attentive to audience, flexible, minimal distractions, real contact with audience				
ENTHUSIASM - show interest in audience, topic and prepared message				
LOOK - professional appearance, facial expression matches message, smile, helpful gestures, confident posture, meaningful movement, direct and inclusive eye contact				
SOUND - appropriate volume, varied pitch and rate, pleasant quality, correct enunciation and clarity.				
LANGUAGE - appropriate vocabulary, no extraneous word fillers or jargon, clarity of construction, concrete and completed thoughts				
CONVERSATIONAL - attitude of sharing, inclusive language, active and present tense language, personal and fluent delivery				
PRESENTATIONAL AIDS - visuals simple, legible, speaker controlled, enhance message, maintains attention, aids understanding and retention, clarifies and supplements				

Part II- Reflection (To be completed by student)

I thought I did well…

I think I could improve…

Plan of Improvement (How I plan to improve…)	
Characteristic(s) you wish to improve:	Steps I will take to improve this item:

Physics II Oral Presentation Reflection

Name: _____   Date: _____

Part I – Evaluation (To be completed by student)

Characteristics	Exemplary	Competent	Acceptable	Unacceptable
TOPIC – complete description of speakers portion of the project				
PREPARATION - organized meaningfully, adequately supported, materials ready, fluent presentation				
ATTENTIVE - aware of self and audience, attentive to audience, flexible, minimal distractions, real contact with audience				
ENTHUSIASM - show interest in audience, topic and prepared message				
LOOK - professional appearance, facial expression matches message, smile, helpful gestures, confident posture, meaningful movement, direct and inclusive eye contact				
SOUND - appropriate volume, varied pitch and rate, pleasant quality, correct enunciation and clarity.				
LANGUAGE - appropriate vocabulary, no extraneous word fillers or jargon, clarity of construction, concrete and completed thoughts				
CONVERSATIONAL - attitude of sharing, inclusive language, active and present tense language, personal and fluent delivery				
PRESENTATIONAL AIDS - visuals simple, legible, speaker controlled, enhance message, maintains attention, aids understanding and retention, clarifies and supplements				

Part II- Reflection (To be completed by student)

I thought I did well…

I think I could improve…

Plan of Improvement (How I plan to improve…)	
Characteristic(s) you wish to improve:	Steps I will take to improve this item:

Senior Project Oral Presentation Reflection

Identify what you did well and what can be improved. Then list characteristics you wish to improve and the steps you will take after graduation to achieve the desired improvement.

I thought I did well…

I think I could improve…

Plan of Improvement (How I plan to improve…)	
Characteristic(s) you wish to improve:	Steps I will take to improve this item:

Rubrics

Most artifacts will be evaluated according to a rubric that scores the quality of various aspects of the artifact. The rubrics for evaluation are collected below.

Assessment Rubric for EGR 101 Stewardship Essay

Category	Exemplary	Competent	Acceptable	Unacceptable	Unattempted
Content	Subject knowledge is evident throughout the report. All information is clear, accurate and relevant.	Appropriate content is evident throughout the report. Most information is clear accurate and relevant.	Appropriate content is insufficient in parts of the report. A majority of the information is clear accurate and relevant.	Little evidence of appropriate content. Much of the information is confusing or flawed.	No evidence of appropriate content.
Stewardship	The implications of good engineering practices as they relate to the stewardship of time, natural resources, human resources, financial resources, and the environment are clearly addressed.	The implications of good engineering practices as they relate to the stewardship of the listed categories are addressed, but with some obvious omissions of content.	The implications of good engineering practices as they relate to the stewardship of most of the listed categories are addressed or all categories are addressed, but considerable content is omitted.	The implications of good engineering practices as they relate to the stewardship of some of the listed categories are addressed, or all categories are addressed, but content is not acceptable.	Does not address stewardship.
Biblical References for Stewardship	Uses appropriate biblical references for all listed stewardship categories with appropriate discussion.	Uses appropriate biblical references for three of the listed stewardship categories with appropriate discussion or presents limited discussion for all listed categories.	Uses appropriate biblical references for two of the listed stewardship categories with appropriate discussion or presents limited discussion for three of the listed categories.	Uses appropriate biblical references for one of the listed stewardship categories with appropriate discussion or presents limited discussion for two of the listed categories.	No biblical references are used.

Research	Clear evidence of the thorough use of research resources to gain background and additional technical knowledge for project. All research information is properly referenced in the paper using correct format.	Clear evidence of the adequate use of research resources to gain background and additional technical knowledge for project. All research information is properly referenced in the paper using correct format with only minor errors.	Clear evidence of the use of some research resources to gain background and additional technical knowledge for project. All research information is properly referenced in the paper using correct format with only some errors.	Evidence of the use of some research resources to gain background and additional technical knowledge for project. Research information is referenced in the paper. Multiple formatting errors are present.	No evidence of research presented.
Organization	The sequence of information is logical and intuitive. Paths to all information are clear and direct.	The sequence of information is logical. Lacks some clarity and consistency.	The sequence of information is somewhat logical. Some ideas seem disconnected.	The sequence of information is mostly illogical. Ideas seem scrambled or disconnected.	The sequence of information is not logical.

Assessment Rubric for EGR 101 Initial Resume

Category	Exemplary	Competent	Acceptable	Unacceptable	Unattempted
Work Experience	Concise statement of experience that clearly identifies employer, location, position, duties and beginning and ending dates of employment. The list is in reverse chronological order with no missing periods of time.	Statement of experience that identifies employer, location, position, duties and beginning and ending dates of employment. The list is in reverse chronological order with no missing periods of time.	Statement of experience that identifies employer, location, position, duties and beginning and ending dates of employment. The list is in reverse chronological order with no missing periods of time with minor omissions.	Statement of experience that identifies employer, location, position, duties and beginning and ending dates of employment. The list is in reverse chronological order with no missing periods of time with major omissions.	Multiple omissions of required items. Little evidence that any effort was made to follow instructions.

Education	A concise listing of institutions attended, including the name of the institution, the location, the dates attended, the degree or course of study, graduation date and GPA.	A listing of institutions attended, including the name of the institution, the location, the dates attended, the degree or course of study, graduation date and GPA with minor omissions.	A listing of institutions attended, including the name of the institution, the location, the dates attended, the degree or course of study, graduation date and GPA with major omissions.	Little evidence that careful consideration has been given to preparing an adequate education summary.	No Education Summary is included.
Spelling and Grammar	The resume honors all rules of spelling and grammar.	The resume adequately honors the rules of spelling and/or grammar. (3 or less).	The resume minimally honors the rules of spelling and/or grammar. (6 or less).	The resume has multiple errors in spelling and/or grammar. (7 or more).	The resume has multiple errors in spelling and/or grammar. (10 or more).
Format	Contact Information, Work Experience, and Education are present with no errors.	Contact Information, Work Experience, and Education are present with minor errors.	Contact Information, Work Experience, and Education are present with multiple errors.	Contact Information, Work Experience, and Education are not all present and contain multiple errors.	Multiple omissions of required items. Little evidence of any effort to follow formatting instructions.

Assessment Rubric for EGR 101 Freshman Project Oral Presentation

Category	Exemplary	Competent	Acceptable	Unacceptable	Unattempted
Speaking and Audience Engagement	Speaker presents clearly and engages the audience (e. g. eye contact).	Speaker presents clearly and engages the audience some of the time.	Speaker presents fairly clearly but does not engage the audience.	Speaker does not present clearly.	Not attempted.
Slide Quality	Slides communicate clearly and hold audience interest.	Slides communicate clearly, and most slides hold audience interest.	Slides communicate clearly.	Slides do not communicate clearly.	Not attempted.
Organization of Ideas	Organizes all ideas in a logical sequence.	Organizes most ideas in a logical sequence.	Organizes some ideas in a logical sequence.	Does not organize ideas.	Not attempted.

Technical Content	Technical content is evident and presented clearly in an audience appropriate manner.	Technical content is evident, presented clearly, and mostly appropriate for the audience.	Technical content is evident, mainly presented clearly and somewhat appropriate for the audience.	Technical content is lacking or not presented clearly.	Not attempted.

Assessment Rubric for EGR 101 Freshman Project Oral Presentation Reflection

Category	Exemplary	Competent	Acceptable	Unacceptable	Unattempted
Implications for Professional Development	Presents learning goals that clearly emerge from the insights and experiences described in this section. Describes plans for meeting these goals.	Development goals are appropriate and based on insights described in this section; however, the student does not describe plans to meet the goals.	The student presents development goals, that are either vague or not strongly related to the insights and experiences described in this section.	The student provides implications for personal development, however no goals are included, nor are the insights and experiences based on information provided in this section.	The student does not address implications for professional development.

Assessment Rubric for EGR 101 Freshman Project Report

Category	Exemplary	Competent	Acceptable	Unacceptable	Unattempted
Content	Subject knowledge is evident throughout the report. All information is clear, accurate and relevant.	Appropriate content is evident throughout the report. Most information is clear accurate and relevant.	Appropriate content is insufficient in parts of the report. A majority of the information is clear accurate and relevant.	Little evidence of appropriate content. Much of the information is confusing or flawed.	No evidence of appropriate content.
Style and Vocabulary	Articulates appropriate vocabulary and terms associated with subject. Style enhances the readability of the paper.	Some inappropriate vocabulary. Minor errors in style that do not detract from paper.	Limited use of appropriate vocabulary. Errors in style that limit readability of paper.	Inappropriate vocabulary and use occurs. Poor style. Paper has poor readability.	No evidence of correct style.

Organization	The sequence of information is logical and intuitive. Paths to all information are clear and direct.	The sequence of information is logical. Lacks some clarity and consistency.	The sequence of information is somewhat logical. Some ideas seem disconnected.	The sequence of information is mostly illogical. Ideas seem scrambled or disconnected.	The sequence of information is not logical
Spelling and Grammar	The project honors all rules of spelling and grammar.	The project adequately honors the rules of spelling and/or grammar. (3 or less).	The project minimally honors the rules of spelling and/or grammar. (6 or less).	The project has multiple errors in spelling and/or grammar. (7 or more).	The project has multiple errors in spelling and/or grammar. (10 or more).
Format and Appearance	Title page with no errors and individual sections as assigned are present. Uses headings to organize the material logically.	Title page with minor errors and individual sections as assigned are present. Uses headings to visually organize the material.	Title page with some errors and individual sections as assigned are present. Formatting does not help visually organize the material.	Title page or individual sections are missing. Formatting does not help visually organize the material.	Multiple omissions of required items. Little evidence that any effort was made to follow formatting instructions.

Assessment Rubric for EGR 140 Graphics Exam

Category	Exemplary	Competent	Acceptable	Unacceptable	Unattempted
Basic Modeling Requirements	Builds the model with correct orientation using a logical order for construction of features and names all features.	Builds the model with correct orientation using a logical order for construction of features and omits no more than one feature name.	Builds the model with correct orientation with less than a logical order for construction of features or omits no more than two feature names.	Builds the model with incorrect orientation or does not demonstrate any logic in the order of construction of features or omits more than two feature names.	Not applicable.

Use of SolidWorks Features	Makes use of SolidWorks appropriate features to complete a model using the minimum number of steps.	Makes use of SolidWorks appropriate features to complete a model using a minor number of steps in addition to the minimum required.	Is able to apply SolidWorks features to complete a model, but does not demonstrate knowledge of efficient use of the features.	Is unable to apply SolidWorks features to fully develop a part.	Not applicable.
Dimensioning of Sketches	Applies all required dimensions to the feature sketches in the appropriate locations to define the sketches.	Omits no more than two dimensions from the feature sketches to define the sketches.	Omits no more than three dimensions from the feature sketches to define the sketches.	Omits more than three dimensions from the feature sketches.	Is unable to demonstrate the ability to apply dimensions to the parts.
Use of specified Features	Uses all specified features.	Omits the use of one specified feature to complete the part.	Omits the use of two specified feature to complete the part.	Omits the use of more than two specified feature to complete the part.	Not applicable.
Interpretation of Drawings	Constructs the solid part by correctly utilizing all of the dimensions provided by the part drawing.	Constructs the solid part by correctly utilizing all but one of the dimensions provided by the part drawing.	Constructs the solid part by correctly utilizing all but three of the dimensions provided by the part drawing.	Constructs the solid part by not correctly utilizing more than three of the dimensions provided by the part drawing.	Is unable to demonstrate the ability to interpret the drawing
Appropriate Feature Application and Location.	All features are applied correctly and are in the specified location.	One feature is not applied correctly or is not in the specified location.	Two features are not applied correctly or are not in the specified location.	More than Two features are not applied correctly or are not in the specified location.	Not applicable

Assessment Rubric for PHY 112 Physics II Oral Presentation

Category	Exemplary	Competent	Acceptable	Unacceptable	Unattempted
Speaking and Audience Engagement	Speaker presents clearly and engages the audience (e. g. eye contact).	Speaker presents clearly and engages the audience some of the time.	Speaker presents fairly clearly but does not engage the audience.	Speaker does not present clearly.	Not attempted.
Slide Quality	Slides communicate clearly and hold audience interest.	Slides communicate clearly, and most slides hold audience interest.	Slides communicate clearly.	Slides do not communicate clearly.	Not attempted.
Organization of Ideas	Organizes all ideas in a logical sequence.	Organizes most ideas in a logical sequence.	Organizes some ideas in a logical sequence.	Does not organize ideas.	Not attempted.
Technical Content	Technical content is evident and presented clearly in an audience appropriate manner.	Technical content is evident, presented clearly, and mostly appropriate for the audience.	Technical content is evident, mainly presented clearly and somewhat appropriate for the audience.	Technical content is lacking or not presented clearly.	Not attempted.

Assessment Rubric for PHY 112 Physics II Oral Presentation Reflection

Category	Exemplary	Competent	Acceptable	Unacceptable	Unattempted
Implications for Professional Development	Presents learning goals that clearly emerge from the insights and experiences described in this section. Describes plans for meeting these goals.	Development goals are appropriate and based on insights described in this section; however, the student does not describe plans to meet the goals.	The student presents development goals, that are either vague or not strongly related to the insights and experiences described in this section.	The student provides implications for personal development, however no goals are included in the discussion, nor are the insights and experiences based on information provided in this section.	The student does not address implications for professional development.

Assessment Rubric for PHY 112 Physics II Report

Category	Exemplary	Competent	Acceptable	Unacceptable	Unattempted
Content	Subject knowledge is evident throughout the report. All information is clear, accurate and relevant.	Appropriate content is evident throughout the report. Most information is clear accurate and relevant.	Appropriate content is insufficient in parts of the report. A majority of the information is clear accurate and relevant.	Little evidence of appropriate content. Much of the information is confusing or flawed.	No evidence of appropriate content.
Style and Vocabulary	Articulates appropriate vocabulary and terms associated with subject. Style enhances the readability of the paper.	Some inappropriate vocabulary. Minor errors in style that do not detract from paper.	Limited use of appropriate vocabulary. Errors in style that limit readability of paper.	Inappropriate vocabulary and use occurs. Poor style. Paper has poor readability.	No evidence of correct style.
Organization	The sequence of information is logical and intuitive. Paths to all information are clear and direct.	The sequence of information is logical. Lacks some clarity and consistency.	The sequence of information is somewhat logical. Some ideas seem disconnected.	The sequence of information is mostly illogical. Ideas seem scrambled or disconnected.	The sequence of information is not logical
Spelling and Grammar	The project honors all rules of spelling and grammar.	The project adequately honors the rules of spelling and/or grammar. (3 or less).	The project minimally honors the rules of spelling and/or grammar. (6 or less).	The project has multiple errors in spelling and/or grammar. (7 or more).	The project has multiple errors in spelling and/or grammar. (10 or more).
Format and Appearance	Title page with no errors and individual sections as assigned are present. Uses headings to organize the material logically.	Title page with minor errors and individual sections as assigned are present. Uses headings to visually organize the material.	Title page with some errors and individual sections as assigned are present. Formatting does not help visually organize the material.	Title page or individual sections are missing. Formatting does not help visually organize the material.	Multiple omissions of required items. Little evidence that any effort was made to follow formatting instructions.

Assessment Rubric for EGR 210 Network Analysis I Exam

Category	Exemplary	Competent	Acceptable	Unacceptable	Unattempted
Information	Problems are accurately interpreted and clearly restated. Given Information is correctly applied with appropriate units.	Problems are accurately interpreted and given information is correctly applied.	Given information is correctly applied.	Incorrect or irrelevant information is applied.	Given information is not applied.
Schematics diagrams and waveforms	Circuit schematics, diagrams and waveforms are correctly and neatly drawn, and labeled in consistent with the symbols and values used.	Circuit schematics, diagrams and waveforms are correctly drawn and labeled in consistent with the symbols and values used.	Circuit schematics, diagrams and waveforms are correctly drawn and labeled with symbols or values used.	Incorrect or illegible circuit schematics, diagrams and waveforms are drawn or acceptable drawing but with no labeling at all.	No circuit schematic, diagram and waveform are drawn
Theories and assumptions	Appropriate laws and rules are applied. Proper and consistent assumptions are made following universally accepted standards.	Appropriate laws and rules are applied. Proper assumptions are made and listed.	Appropriate laws and rules are applied with primary assumptions listed.	Incorrect or irrelevant laws and rules are applied, and incomplete assumptions are applied.	No law and assumption are applied.
Formulas	Appropriate, concise, and direct formulas are accurately applied in a logical sequence.	Correct formulas are accurately applied in a logical sequence.	Correct formulas are properly applied.	Incorrect or irrelevant formulas are applied or formulas are misapplied.	No formula is applied.
Solutions	Solutions are worked out in details and concise steps with appropriate units. High accuracy is maintained by retaining adequate decimal points. A check is conducted.	Solutions are correctly worked out with appropriate units. High accuracy is maintained by retaining adequate decimal points.	Solutions are correctly worked out with correct units. Reasonable accuracy is maintained.	Solutions are incorrect or incomplete with incorrect units.	No attempt is made to solve for the desired quantities.

Assessment rubric for EE 311 Network Analysis II Exam

Category	Exemplary	Competent	Acceptable	Unacceptable	Unattempted
Information	Problems are accurately interpreted and clearly restated. Given Information is correctly applied with appropriate units.	Problems are accurately interpreted and given information is correctly applied.	Given information is correctly applied.	Incorrect or irrelevant information is applied	Given information is not applied.
Schematic Diagrams and Waveforms	Circuit schematics, diagrams and waveforms are correctly and neatly drawn, and labeled in consistent with the symbols and values used.	Circuit schematics, diagrams and waveforms are correctly drawn and labeled in consistent with the symbols and values used.	Circuit schematics, diagrams and waveforms are correctly drawn and labeled with symbols or values used.	Incorrect or illegible circuit schematics, diagrams and waveforms are drawn or acceptable drawing but with no labeling at all.	No circuit schematic, diagram and waveform are drawn.
Theories	Appropriate laws and rules are applied. Proper and consistent assumptions are made following universally accepted standards	Appropriate laws and rules are applied. Proper assumptions are made and listed.	Appropriate laws and rules are applied with primary assumptions listed.	Incorrect or irrelevant laws and rules are applied, and incomplete assumptions are applied.	No law and assumption are applied.
Solutions	Solutions are worked out in details and concise steps with appropriate units. High accuracy is maintained by retaining adequate decimal points. A check is conducted.	Solutions are correctly worked out with appropriate units. High accuracy is maintained by retaining adequate decimal points.	Solutions are correctly worked out with correct units. Reasonable accuracy is maintained.	Solutions are incorrect or incomplete with incorrect units.	No attempt is made to solve for the desired quantities.

Assessment Rubric for EE 321 Electronics I Lab

Category	Exemplary	Competent	Acceptable	Unacceptable	Unattempted
Experiment Preparation	Circuits are clearly understood and accurately related to the theory. Proper components and equipments are identified and selected with correct rating.	Circuits are clearly understood. Proper components and equipments are identified and selected.	Proper components and equipments are selected with help	Incorrect or irrelevant components or equipments are selected even with help.	No attempt to select components and equipment.
Circuit Assembly	Circuits are correctly and neatly assembled independently. The right measurement equipments are correctly connected to the circuit with right convention	Circuits are correctly assembled independently. The right measurement equipments are correctly connected to the circuit.	Circuits are correctly assembled and the right measurement equipments are correctly connected to the circuit with help.	Failed to assemble the circuit and connect the measurement equipments even with help.	No attempt to assemble the circuits and connect the measurement equipment.
Data Measurement	The measurement equipments are correctly set and the required data are correctly measured with appropriate units and polarity all independently.	The measurement equipments are correctly set and the required data are correctly measured.	The measurement equipments are correctly set and the required data are correctly measured with help.	Failed to measure the required data or wrong data are recorded even with help.	No attempt to measure the required data but simply copy the data from others.
Data analysis	Appropriate, concise and direct formulas are accurately applied. Waveforms and characteristic curves are correctly drawn and fully labeled with correct units and convention.	Correct formulas are accurately applied in a logic sequence. Waveforms and characteristic curves are correctly drawn and labeled.	Correct formulas are properly applied. Waveforms and characteristic curves are correctly drawn.	Incorrect or irrelevant formulas are applied. Wrong waveforms and characteristic curves are drawn.	No formula is applied. No waveforms and characteristic curves are drawn.
Data Interpretation	Precise and correct conclusions are reached from the data. Discrepancy, if any, is correctly discovered and interpreted with convincing reasoning.	Correct conclusions are reached from the data. Discrepancy, if any, is correctly discovered and interpreted	Correct conclusions are reached from the data. Questions are correctly answered.	Conclusions and answers to the question are wrong or irrelevant.	No attempt to reach any conclusion and to answer any question.

	Questions are correctly answered with convincing reasoning.	with reasoning. Questions are correctly answered.			

Assessment Rubric for CMPE 340 Digital Systems Mini Project

Category	Exemplary	Competent	Acceptable	Unacceptable	Unattempted
Problem Formulation: Binary representation of engineering problem, translation from problem to state space representation, State transition, and binary truth table.	Formulates problem correctly, completely and in a way that will lead to a solution.	Formulates problem correctly, but not completely.	Formulates problem with minor errors. Incomplete formulation.	Formulates problem with significant errors.	Not Attempted
Application of Karnaugh Map to design combinational digital system with a minimum of hardware	Applies concept of Karnaugh Map with no errors	Applies concept of Karnaugh Map with one error.	Applies concept of Karnaugh Map with multiple errors.	Shows no understanding of how to use Karnaugh Map.	Not Attempted.
Application of Finite State Machine (FSM) and Implication Chart Method (ICM) to design sequential logic circuit with minimum configuration.	Applies concept of FSM and ICM with no errors	Applies concept of FSM and ICM with one error.	Applies concept of FSM and ICM with multiple errors.	Shows no understanding of how to use FSM and ICM.	Not Attempted.

Assessment Rubric for EGR 252 – Engineering Computational Methods C Programming Final Project

Category	Exemplary	Competent	Acceptable	Unacceptable
Specifications	The program works and meets all of the specifications.	The program works and produces the correct results and displays them correctly. It also meets most of the other specifications.	The program produces correct results but does not display them correctly.	The program is producing incorrect results.
Readability	The code is exceptionally well organized and very easy to follow.	The code is fairly easy to read.	The code is readable only by someone who knows what it is supposed to be doing.	The code is poorly organized and very difficult to read.
Reusability	The code could be reused as a whole or each routine could be reused.	Most of the code could be reused in other programs.	Some parts of the code could be reused in other programs.	The code is not organized for reusability.
Efficiency	The code is extremely efficient without sacrificing readability and understanding.	The code is fairly efficient without sacrificing readability and understanding.	The code is brute force and unnecessarily long.	The code is huge and appears to be patched together.
Delivery	The program was delivered on time	The program was delivered within three days of the due date.	The code was within 1 week of the due date	The code was more than 1 week overdue.

Assessment Rubric for EGR 221 – Mechanics I: Statics Final Examination

Category	Exemplary	Competent	Acceptable	Unacceptable	Unattempted
Information	Problem is completely and clearly restated, and necessary information is accurately applied.	Problem is partially restated, and necessary information is accurately applied.	Necessary information is accurately applied.	Incorrect or inappropriate information is applied.	Information is not applied.

Assumptions	Appropriate assumptions are applied and listed along with explanations of relevant implications.	Appropriate assumptions are applied, with the primary assumptions listed.	Appropriate assumptions are applied.	Incorrect or incomplete assumptions are applied.	Assumptions are not applied.
Diagrams	All pertinent diagrams are neatly and correctly drawn to assist in the solution procedure	All pertinent diagrams are correctly drawn to assist in the solution procedure	Diagrams are correctly drawn to assist in the solution procedure	Incorrect or illegible diagrams are drawn	Diagrams are not drawn.
Formulas	Governing mathematical and physical relations are accurately & efficiently applied in a logical sequence.	Governing mathematical and physical relations are accurately applied in a logical sequence.	Governing mathematical and physical relations are accurately applied.	Incorrect or incomplete mathematical and physical relations are applied, or correct relations are misapplied.	Mathematical and physical relations are not applied.
Solution	Governing relations are quickly solved for the desired quantities, and a check is conducted.	Governing relations are quickly solved for the desired quantities.	Governing relations are solved for the desired quantities.	Attempts to solve for the desired quantities are unsuccessful.	No attempt is made to solve for the desired quantities.

Assessment Rubric for EGR 222 Dynamics Exam

Category	Exemplary	Competent	Acceptable	Unacceptable	Unattempted
Student is able to formulate dynamics problems involving rigid bodies, translation and rotation	Formulates problem correctly, completely and in a way that will lead to a solution.	Formulates problem correctly, but not completely.	Formulates problem with minor errors. Incomplete formulation.	Formulates problem with significant errors.	Does not formulate problem.
Application of Energy Methods to solve problems in Rigid Body Dynamics	Applies concept of energy with no errors.	Applies concept of energy with one error.	Applies concept of energy with multiple errors.	Shows no understanding of how to use energy methods.	Not attempted.

Application of Momentum to solve problems in Rigid Body Dynamics	Applies concept of momentum with no errors.	Applies concept of momentum with one error.	Applies concept of momentum with multiple errors.	Shows no understanding of how to use momentum methods.	Not attempted.
Apply vectors to analyze dynamic motion.	Applies vectors with no errors.	Applies vectors with one minor error.	Applies vectors with one error or two minor errors.	Applies vectors with multiple errors.	Use of vectors not attempted.

Assessment Rubric for ME 381 Principles of Design Exam/Assignment

Category	Exemplary	Competent	Acceptable	Unacceptable	Unattempted
Problem Formulation: Ball Bearing Analysis	Identifies an appropriate solution method with no errors.	Identifies an appropriate solution method with one minor error.	Identifies an appropriate solution method with two minor or one significant error.	Does not identify an appropriate solution method.	Not attempted.
Problem Formulation: Journal Bearing Analysis	Identifies an appropriate solution method with no errors.	Identifies an appropriate solution method with one minor error.	Identifies an appropriate solution method with two minor or one major error.	Does not identify an appropriate solution method.	Not attempted.
Gear Force Analysis	Identifies an appropriate solution method with no errors.	Identifies an appropriate solution method with one minor error.	Identifies an appropriate solution method with two minor or one major error.	Does not identify an appropriate solution method.	Not attempted.

Assessment Rubric for ME 447 Finite Element Analysis Using ANSYS

Category	Exemplary	Competent	Acceptable	Unacceptable	Unattempted
Software Use	Software used correctly, efficiently, and in an organized manner.	Software used correctly.	Software used with minor errors.	Software used with significant errors, or without success.	Not attempted.

Assessment Rubric for EGR 330 Control Systems Exam

Category	Exemplary	Competent	Acceptable	Unacceptable	Unattempted
Information	Problems are accurately interpreted and clearly restated. Necessary information is correctly applied	Problems are partially restated and necessary information is correctly applied.	Necessary information is correctly applied.	Incorrect or irrelevant information is applied.	Information is not applied.
Assumptions	Appropriate assumptions are made and listed along with explanations of relevant implications.	Appropriate assumptions are made with the primary assumptions listed.	Correct assumptions are made.	Incorrect or incomplete assumptions are applied.	Assumptions are not applied.
Theories	Knowledge from mathematics and physics are fully and accurately applied for system modeling and analysis.	Knowledge from mathematics and physics are accurately applied.	Knowledge from mathematics and physics are applied with minor errors.	Incorrect or irrelevant knowledge from mathematics and physics are applied.	No knowledge from mathematics and physics is applied.
Formulas	Appropriate, concise and direct, formulas are accurately applied in a logical sequence.	Correct formulas are accurately applied in a logical sequence.	Correct formulas are properly applied.	Incorrect or irrelevant formulas are applied or formulas are misapplied.	No formula is applied.
Diagrams and Curves	Pertinent diagrams and curves are neatly and correctly drawn, and clearly and appropriately labeled to assist in the solution procedure.	Pertinent diagrams and curves are correctly drawn and clearly labeled to assist in the solution procedure.	Diagrams and curves are correctly drawn and labeled to assist in the solution procedure.	Diagrams and curves are incorrect or illegible or not labeled at all.	Neither diagram nor curve is drawn.
Solutions	Solutions are worked out in details and concise steps with appropriate units. High accuracy is maintained.	Solutions are correctly worked out with appropriate units. High accuracy is maintained.	Solutions are correctly worked out with correct units and reasonable accuracy.	Solutions are incorrect or incomplete with incorrect units.	No attempt is made to solve for the desired quantities.

Assessment Rubric for EGR 498 Resume

Category	Exemplary	Competent	Acceptable	Unacceptable	Unattempted
Job Objective	Concise and clear description of the position the applicant is seeking and the applicant's expectations for the position.	Clear description of the position the applicant is seeking and the applicant's expectations for the position.	Clear description of the position the applicant is seeking.	Little evidence that careful consideration has been given to the position the applicant is seeking.	No Job Objective is stated.
Other (Extra-Curricular Activities, skills, volunteer work, etc.)	Concise and organized description of other items that will enhance the applicant's ability to obtained the position listed in the Job Objective.	Description of other items that will enhance the applicant's ability to obtain the position listed in the Job Objective with minor inclusions of non-relevant material.	Description of other items that will enhance the applicant's ability to obtain the position listed in the Job Objective with major inclusions of non-relevant material.	Little evidence that careful consideration has been given to other appropriate items to enhance the ability of the applicant to gain position the applicant is seeking.	No Summary is included.
Professional Experience	Concise statement of experience that clearly identifies employer, location, position, duties and beginning and ending dates of employment. The list is in reverse chronological order with no missing periods of time.	Statement of experience that identifies employer, location, position, duties and beginning and ending dates of employment. The list is in reverse chronological order with no missing periods of time.	Statement of experience that identifies employer, location, position, duties and beginning and ending dates of employment. The list is in reverse chronological order with no missing periods of time with minor omissions.	Statement of experience that identifies employer, location, position, duties and beginning and ending dates of employment. The list is in reverse chronological order with no missing periods of time with major omissions	Multiple omissions of required items. Little evidence that any effort was made to follow instructions
Education Summary	A concise listing of institutions attended, including the name of the institution, the location, the dates attended,	A listing of institutions attended, including the name of the institution, the location, the dates attended, the degree or	A listing of institutions attended, including the name of the institution, the location, the dates attended, the degree or	Little evidence that careful consideration has been given to preparing an adequate education summary.	No Education Summary is included.

		the degree or course of study, graduation date and GPA	course of study, graduation date and GPA with minor omissions.	course of study, graduation date and GPA with major omissions.		
Spelling and Grammar		The resume honors all rules of spelling and grammar.	The resume adequately honors the rules of spelling and/or grammar. (3 or less).	The resume minimally honors the rules of spelling and/or grammar. (6 or less).	The resume has multiple errors in spelling and/or grammar. (7 or more).	The resume has multiple errors in spelling and/or grammar. (10 or more).
Format		Contact Information, Job Objective, Summary of Qualifications, Professional Experience, and Education are present with no errors.	Contact Information, Job Objective, Summary of Qualifications, Professional Experience, and Education are present with minor errors.	Contact Information, Job Objective, Summary of Qualifications, Professional Experience, and Education are present with multiple errors.	Contact Information, Job Objective, Summary of Qualifications, Professional Experience, and Education are not all present and contain multiple errors.	Multiple omissions of required items. Little evidence that any effort was made to follow formatting instructions.

Assessment Rubric for EGR 499 Senior Project Oral Presentation

Category	Exemplary	Competent	Acceptable	Unacceptable	Unattempted
Speaking and Audience Engagement	Speaker presents clearly and engages the audience (e. g. eye contact).	Speaker presents clearly and engages the audience some of the time.	Speaker presents fairly clearly but does not engage the audience.	Speaker does not present clearly.	Not attempted.
Slide Quality	Slides communicate clearly and hold audience interest.	Slides communicate clearly, and most slides hold audience interest.	Slides communicate clearly.	Slides do not communicate clearly.	Not attempted.
Organization of Ideas	Organizes all ideas in a logical sequence.	Organizes most ideas in a logical sequence.	Organizes some ideas in a logical sequence.	Does not organize ideas.	Not attempted.
Technical Content	Technical content is evident and presented clearly in an	Technical content is evident, presented clearly, and	Technical content is evident, mainly presented clearly and	Technical content is lacking or not presented clearly.	Not attempted.

	audience appropriate manner.	mostly appropriate for the audience.	somewhat appropriate for the audience.		

Assessment Rubric for EGR 499 Senior Project Oral Presentation Reflection

Category	Exemplary	Competent	Acceptable	Unacceptable	Unattempted
Implications for Professional Development	Presents learning goals that clearly emerge from the insights and experiences described in this section. Describes plans for meeting these goals.	Development goals are appropriate and based on insights described in this section; however, the student does not describe plans to meet the goals.	The student presents development goals, that are either vague or not strongly related to the insights and experiences described in this section.	The student provides implications for personal development, however no goals are included in the discussion, nor are the insights and experiences based on information provided in this section.	The student does not address implications for professional development.

Assessment Rubric for EGR 499 Senior Project Report

Category	Exemplary	Competent	Acceptable	Unacceptable	Unattempted
Content	Subject knowledge is evident throughout the report. All information is clear, accurate and relevant.	Appropriate content is evident throughout the report. Most information is clear accurate and relevant.	Appropriate content is insufficient in parts of the report. A majority of the information is clear accurate and relevant.	Little evidence of appropriate content. Much of the information is confusing or flawed.	No evidence of appropriate content.
Depth and Breadth of Project Content	Clear evidence that higher level thinking skills were used in the creation of this project.	Some evidence that higher level thinking skills were used in the creation of this project.	Little evidence that higher level thinking skills were used in the creation of this project.	No evidence of higher level thinking skills was used in the creation of this project.	No evidence of higher level thinking skills was used in the creation of this project.

Style and Vocabulary	Articulates appropriate vocabulary and terms associated with subject. Style enhances the readability of the paper.	Some inappropriate vocabulary. Minor errors in style that do not detract from paper.	Limited use of appropriate vocabulary. Errors in style that limit readability of paper.	Inappropriate vocabulary and use occurs. Poor style. Paper has poor readability.	No evidence of correct style.
Research	Clear evidence of the thorough use of research resources to gain background and additional technical knowledge for project. All research information is properly referenced in the paper using correct format.	Clear evidence of the adequate use of research resources to gain background and additional technical knowledge for project. All research information is properly referenced in the paper using correct format with only minor errors.	Clear evidence of the use of some research resources to gain background and additional technical knowledge for project. All research information is properly referenced in the paper using correct format with only some errors.	Evidence of the use of some research resources to gain background and additional technical knowledge for project. Research information is referenced in the paper. Multiple formatting errors are present.	No evidence of research presented.
Organization	The sequence of information is logical and intuitive. Paths to all information are clear and direct.	The sequence of information is logical. Lacks some clarity and consistency.	The sequence of information is somewhat logical. Some ideas seem disconnected.	The sequence of information is mostly illogical. Ideas seem scrambled or disconnected.	The sequence of information is not logical.
Spelling and Grammar	The project honors all rules of spelling and grammar.	The project adequately honors the rules of spelling and/or grammar. (3 or less).	The project minimally honors the rules of spelling and/or grammar. (6 or less).	The project has multiple errors in spelling and/or grammar. (7 or more).	The project has multiple errors in spelling and/or grammar. (10 or more).
Format	Title page, abstract, table of contents, list of references researched, appendices and in-text references are present with no	Title page, abstract, table of contents, list of references researched, appendices and in-text references are present with	Title page, abstract, table of contents, list of references researched, appendices and in-text references are present with	Title page, abstract, table of contents, list of references researched, appendices and in-text references are not all present	Multiple omissions of required items. Little evidence that any effort was made to follow

	errors. Individual sections as assigned are present.	minor errors. Individual sections as assigned are present.	multiple errors. Individual sections as assigned are present.	and contain multiple errors. Individual sections as assigned are missing.	formatting instructions.
Application of Engineering Concepts	Engineering concepts were applied creatively and correctly.	Engineering concepts were applied correctly.	Little application of engineering concepts.	No understanding of engineering concepts demonstrated.	Not Attempted.
Design Problem Statement	Problem statement shows full understanding of the problem and clearly includes the definition of completeness.	Problem statement shows some understanding of the problem and includes a fairly clear definition of completeness.	Problem statement shows some understanding of the problem, but the definition of completeness is vague.	Problem statement does not show an understanding of the problem.	Problem statement is not included.
Response to Customer Needs	Design clearly meets the need of a real or hypothetical customer.	Design is responsive to customer needs.	Design minimally benefits the customer.	The design does not have a customer.	Not attempted.
Consideration of Alternatives	Design process considers several alternatives and explains the selection.	Design process considers several alternatives, but does not explain the selection.	Little consideration of alternatives.	No consideration of alternatives.	Not attempted.
Teaming	Demonstrates an understanding of good teaming, with reference to team's experience.	Demonstrates an understanding of good teaming, not connected to team's experience.	Reports team's experience only.	No understanding of good teaming demonstrated.	Not attempted.

Assessment Rubric for EGR 498 Design Process Paper

Category	Exemplary	Competent	Acceptable	Unacceptable	Unattempted
Student is able to describe the design process:	Completely	With one omission	With multiple omissions	Not at all.	Not attempted

Assessment Rubric for EGR 498 Ethics Quiz

Category	Exemplary	Competent	Acceptable	Unacceptable	Unattempted
Identification and Description of Conflict of Interest	Correctly identifies and describes conflicts of interest.	Correctly identifies conflicts of interest, however their description is inadequate.	Correctly identifies but does not describe the conflict of interest.	Does not correctly identify the conflict of interest.	Not attempted.
Disclosure	Correctly describes when and to whom disclosure should be made.	Describes both when and to whom disclosure should be made with minor errors or omissions.	Correctly describes either when or to whom disclosure should be made but not both.	Gives incorrect or no descriptions of both when or to whom disclosure should be made.	Not attempted.
Responsibilies of Engineers	Correctly describes the responsibilites of engineers to customers, employers, the public, and regulatory agencies.	Correctly describes the responsibilities of engineers to all but one of: customers, employers, the public, and regulatory agencies.	Correctly describes the responsibilities of engineers to all but two of: customers, employers, the public, and regulatory agencies.	Incorrectly describes the responsibilities of engineers to at least three of: customers, employers, the public, and regulatory agencies.	Not attempted.

Assessment Rubric for EGR 498 Senior Project Research Paper

Category	Exemplary	Competent	Acceptable	Unacceptable	Unattempted
Use of online and print media, as well as published patents.	All three media used.	Online and print media used, but no patents.	Only one medium used.	Inadequate references.	Not attempted.

Assessment Rubric for EGR 461 Economics Paper

Category	Exemplary	Competent	Acceptable	Unacceptable	Unattempted
Content	Subject knowledge is evident throughout the report. All information is clear, accurate and relevant.	Appropriate content is evident throughout the report. Most information is clear accurate and relevant.	Appropriate content is insufficient in parts of the report. A majority of the information is clear accurate and relevant.	Little evidence of appropriate content. Much of the information is confusing or flawed.	No evidence of appropriate content.
Stewardship	The implications of good engineering practices as they relate to the stewardship of time, natural resources, human resources, financial resources, and the environment are clearly addressed.	The implications of good engineering practices as they relate to the stewardship of the listed categories are addressed, but with some obvious omissions of content.	The implications of good engineering practices as they relate to the stewardship of most of the listed categories are addressed or all categories are addressed, but considerable content is omitted.	The implications of good engineering practices as they relate to the stewardship of some of the listed categories are addressed, or all categories are addressed, but content is not acceptable.	Does not address stewardship.
Biblical References for Stewardship	Uses appropriate biblical references for all listed stewardship categories with appropriate discussion.	Uses appropriate biblical references for three of the listed stewardship categories with appropriate discussion or presents limited discussion for all listed categories.	Uses appropriate biblical references for two of the listed stewardship categories with appropriate discussion or presents limited discussion for three of the listed categories.	Uses appropriate biblical references for one of the listed stewardship categories with appropriate discussion or presents limited discussion for two of the listed categories.	No biblical references are used.
Research	Clear evidence of the thorough use of research resources to gain	Clear evidence of the adequate use of research resources to gain	Clear evidence of the use of some research resources to gain	Evidence of the use of some research resources to gain	No evidence of research presented

	background and additional technical knowledge for project. All research information is properly referenced in the paper using correct format.	background and additional technical knowledge for project. All research information is properly referenced in the paper using correct format with only minor errors.	background and additional technical knowledge for project. All research information is properly referenced in the paper using correct format with only some errors.	background and additional technical knowledge for project. Research information is referenced in the paper. Multiple formatting errors are present.	
Organization	The sequence of information is logical and intuitive. Paths to all information are clear and direct.	The sequence of information is logical. Lacks some clarity and consistency.	The sequence of information is somewhat logical. Some ideas seem disconnected.	The sequence of information is mostly illogical. Ideas seem scrambled or disconnected.	The sequence of information is not logical
Spelling and Grammar	The project honors all rules of spelling and grammar.	The project adequately honors the rules of spelling and/or grammar. (3 or less).	The project minimally honors the rules of spelling and/or grammar. (6 or less).	The project has multiple errors in spelling and/or grammar. (7 or more).	The project has multiple errors in spelling and/or grammar. (10 or more).
Format	Title page, table of contents, list of references researched and in-text references are present with no errors.	Title page, table of contents, list of references researched and in-text references are present with minor errors.	Title page, table of contents, list of references researched and in-text references are present with multiple errors.	Title page, table of contents, list of references researched and in-text references are not all present and contain multiple errors.	Multiple omissions of required items. Little evidence that any effort was made to follow formatting instructions.
Contemporary Issues	Shows thorough understanding of contemporary issues related to the topic, and can critically discuss them.	Shows understanding of contemporary issues related to the topic, and can discuss them somewhat.	Shows knowledge of contemporary issues related to the topic.	Treatment of contemporary issues related to the topic is inadequate.	Contemporary issues are not treated.
Broader Impact	Identifies the impact of	Identifies the impact of	Identifies the impact of	Identifies the impact of	Not attempted.

	engineering solutions/technology/economic activity on the public, environment and society thoroughly and with insight.	engineering solutions/technology/economic activity on the public, environment and society with insight.	engineering solutions/technology/economic activity on the public, environment and society with little insight.	engineering solutions/technology/economic activity on the public, environment and society with no insight.	