**ECCS 2311 Electric Circuits**

**EML Signal Conditioning Product Proposal Rubric**

**Due December 1, 2017**

**Students: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

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| **Writing Quality and Format** |
|  | **Excellent** | **Above Avg** | **Average** | **Marginal** | **Unsatisfactory** | **Pts** |
| **Paragraph Structure** | **4pts**Paragraph structure is strong and each paragraph flows well into the next | **3pts**Paragraphs are generally limited to one idea, but not always well connected together | **2pts**Paragraphs sometimes have unrelated ideas expressed and missing introductory & transitional sentences | **1pt**Paragraphs often have unrelated ideas expressed and many missing introductory & transitional sentences | **0pts**Report is NOT organized effectively into paragraphs |  |
| **Word Choice** | **4pts**Words are used correctly and with precision; writing indicates mastery of technical concepts | **3pts**Mostly acceptable vocabulary; technical terms are used correctly | **2pts**Somewhat informal vocabulary and minor inaccuracies in use of technical content | **1pt**Informal vocabulary and many minor or a couple of major inaccuracies in use | **0pts**Incorrect usage of technical terms and excessive informality |  |
| **Voice & Tense** | **4pts**Near perfect use of tense and voice | **3pts**Minor issues with tense and voice | **2pts**Few mixed or improper tense and decent use of passive/active voice | **1pt**Frequent mixed or improper tense and marginal use of passive/active voice | **0pts**Abundant misuse of tense and voice |  |
| **Spelling & Punctuation** | **4pts**No spelling or punctuation mistakes | **3pts**Few spelling or punctuation mistakes | **2pts**Several spelling and/or punctuation mistakes | **1pt**Frequent spelling and punctuation errors; incorrect capitalization | **0pts**Spelling & punctuation interfere with understanding |  |
| **Audience, Conciseness, & Reproducibility** | **4pts**Effectively targets the intended audience both in the amount of information and the way it is presented; work can easily be reproduced | **3pts**Mostly appropriate content, but sometimes not presented as concisely as possible; work could be reproduced with effort | **2pts**Sometimes Extraneous information and sometimes lacking necessary information; authors may need to be contacted on one or two points to be able to reproduce | **1pt**Extraneous information and often lacks needed information; not confident authors could explain how to reproduce | **0pts**Wrong audience; not concise; could not be reproduced  |  |
| **Report Format** | **5pts**Formatted as outlined in Report Format Guidelines | **4pts**Renamed but similar sections  | **3pts**Missing title page, different, but mostly appropriate section names | **2pts**Inappropriate sections (do not outline well what is included) | **1-0 pts**Missing hierarchical structure |  |

**Additional Comments on Written Proposal: Overall Proposal Score:**

**Instructor Signature: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

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| **Content** |
|  | **Excellent** | **Above Avg** | **Average** | **Marginal** | **Unsatisfactory** | **Pts** |
| **Introduction** | **5pts**Successfully motivates the problem; provides excellent high-level description of problem, solution, and results; outlines report | **4pts**Mostly successful in motivation of the problem; provides good high-level description of problem, solution and results | **3pts**Provides decent high-level description of problem, solution, and results | **2pts**Missing high-level description of problem, solution, or results; poor high-level descriptions | **1-0 pts**Missing high-level descriptions and does not successfully motive problem  |  |
| **Problem Description, Constraints, & Criteria** | **10pts**Clearly & concisely defines problem, identifies important constraints & evaluation metrics, specifies I/O and attributes, superbly defines architecture, and interfaces with other components | **9-8 pts**Clearly defines the problem, identifies some important constraints & evaluation metrics, specifies I/O, and some discussion of architecture, and interfaces with other components | **7-6 pts**Defines the problem, and identifies some constraints & evaluation metrics; unclear specification of I/O; little or unclear discussion of system architecture or interfaces with other components | **5-4 pts**Problem is mentioned yet ill defined, lacking in constraints & evaluation metrics; little and unclear discussion of system architecture and interfaces with other components | **3-0 pts**Problem is not well defined, severely lacking in constraints & evaluation metrics; no discussion of system architecture or interfaces |  |
| **Alternative Solution & Analysis** | **10 pts**Both designs are well presented through nice models and/or diagram(s) with thorough and clear descriptions; Designs are expertly analyzed through sound reasoning and mathematics | **9-8 pts**Both designs are presented through models and/or diagram(s) with a good description; Designs are analyzed through sound reasoning and mathematics | **7-6 pts**Designs are presented through models or diagram(s) with some description; Designs are fairly analyzed with mostly sound reasoning and/or mathematics | **5-4 pts**One design description is missing necessary diagrams, models, or description; Analysis of design has significant mistakes or is generally lacking for one design | **3-0 pts**Designs are poorly presented; Analysis of designs is missing, is completely erroneous, or is incomprehensible |  |
| **Simulations**  | **10 pts**Appropriate simulation tool; superbly set up simulation experiment; excellent presentation and analysis of results  | **9-8 pts**Appropriate simulation tool; good setup; good presentation and analysis of results | **7-6 pts**Appropriate simulation tool; missing some aspects of the setup; decent presentation and analysis of results  | **5-4 pts**Appropriate simulation tool; missing much of the setup; poor presentation and/or analysis of results | **3-0 pts**Inappropriate simulation tool or missing simulations; missing or very poor analysis of results |  |
| **Cost Analysis** | **10 pts**Identifies at least two suppliers for circuit components and provides correct prices based on correct BoM; expertly analyzes and compares cost; identifies excellent distributor for signal conditioning circuit  | **9-8 pts**Identifies at least two suppliers for circuit components and provides correct prices based on mostly correct BoM; analyzes and compares cost; identifies reasonable distributor for signal conditioning circuit  | **7-6 pts**Identifies one supplier for circuit components and provides correct prices based on mostly correct BoM; analyzes and compares cost; identifies a distributor for signal conditioning circuit  | **5-4 pts**Identifies one supplier for circuit components and provides prices based on mostly correct BoM; analyzes and compares cost; does not identify a distributor | **3-0 pts**Cost analysis has many mistakes or is incomprehensible; fails to identify supplier and/or distributor |  |
| **Value Proposition** | **10 pts**Expertly describes need for signal conditioning in the robotic arm application; expertly describes concisely the design approach; expertly articulates the benefits of the solution based on criteria, normalizing to the cost; expertly justifies design choice over design alternative | **9-8 pts**Describes correctly the need for signal conditioning in the robotic arm application; describes correctly the design approach; articulates the benefits of the solution based on criteria; justifies design choice over design alternative | **7-6 pts**Describes mostly the need for signal conditioning in the robotic arm application; describes the design approach; articulates some benefits of the solution; discusses design choice over design alternative | **6-5 pts**Misses the main ideas of the need for signal conditioning in the robotic arm application; describes aspects of the design approach; missing some benefits of the solution; marginal design choice | **4-0 pts**Poor discussion of need, approach, benefits, and/or competition (design alternative selection justification) |  |
| **Testing & Implementa-tion** | **15 pts**Well thought and reasonable test plans; Detailed procedural description; excellent presentation of results with insights; includes exhaustive parts and equipment list | **14-13 pts**Mostly useful test plans; good description with most details; good presentation of results with some insights; good parts and equipment list  | **12-10 pts**Decent test plans; decent description missing some details; decent presentation of results; mostly complete parts and equipment list | **9-7 pts**Poor test plans; poor description missing details; poor presentation of results; mostly incomplete parts and equipment list | **6-0 pts**Very poor test plans; awful description with few details; missing presentation of results; missing parts and equipment list |  |
| **Conclusions** | **5 pts**Concise summary of problem & solution; adds value to report; insightful discussion of redesign/lessons | **4 pts**Good summary; adds some value to report; good discussion of redesign/lessons | **3 pts**Decent summary; marginal additional value to report; some mention of lessons and redesign ideas | **2 pts**Poor summary; no additional value; little mention of lessons or redesign ideas | **1-0 pts**Poor or no summary; no additional value; no mention of lessons or redesign |  |