

CHAPTER V

CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusions

Based on the formulation of the problem, objectives, results and discussion of the development of STEM-based E-Student Worksheets on the material of electrolyte and non-electrolyte solutions stated earlier, it can be concluded that:

1. STEM-based E-Student Worksheets have been developed on electrolyte and non-electrolyte solution materials to improve student learning outcomes that are arranged according to student needs through the ADDIE development model which is implemented by integrating four fields of science, namely Science, Technology, Engineering and Mathematics (STEM).
2. The results of the validity of STEM-based E-Student Worksheets with the aim of improving student learning outcomes STEM-based E-Student Worksheets assessed by nine expert lecturers consisting of three material expert validators, three learning expert validators, three design expert validators were declared very feasible to use in learning process with successive average scores: 81.5%, 87.78% and 85.97% with very feasible criteria.
3. STEM-based E-Student Worksheets on electrolyte and non-electrolyte solution materials that have been designed and developed effectively to improve student learning outcomes and can be used in chemistry learning, with learning outcomes obtained an average pretest score of 51.67 and a posttest of 86.33 and an average N-Gain of 0.72 with a high interpretation and percentage of classical completeness of 90%.

5.2 Recommendations

Based on the results of this study, it is suggested several things as follows:

1. For future researchers, before researching about learning outcomes in a material, it is better to find out whether the grades on the material are indeed low or the overall chemistry learning outcomes are low.

2. For future researchers, STEM-based E-Student Worksheets need to be developed to be more interesting and complete, so that they can provide direct feedback and there are animations to support the content of the material.
3. For future researchers, the presentation of practice questions on the STEM-based E-Student Worksheet product needs to be augmented and contains more real examples in the environment around students.

