**Appendix**

A questionnaire consisting of both open and closed items was utilized to collect data about preservice teachers’ understanding of STEM education. It was designed as a Google Form, and included 11 questions, namely:

1. Have you ever heard about STEM?
2. What does S-T-E-M stand for?
3. How did you hear about STEM? (you can select more than one option)

TV, radio, internet or social media

Politicians

Teachers, instructors or educators

The courses from Faculty of Education

The courses from other Faculties (please identify) \_\_\_\_\_\_\_\_\_\_\_\_\_\_

Other \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. What do you think STEM is?
2. What is the purpose of STEM Education?
3. Is STEM important for you?

Yes  No

1. How does STEM relate to your major?
2. What is integration?
3. How are S-T-E-M integrated? Please draw a diagram to illustrate how you visualize this integration.
4. When should STEM be taught?
5. Which teachers should teach STEM?