

PLANETARY GEAR EDUCATIONAL MEDIA FOR VOCATIONAL EDUCATION MANUFACTURED BY 3D PRINTING TECHNOLOGY

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ABSTRACT

The automatic transmission system is a compulsory material to convey in the teaching activity for vocational education in automotive engineering. One sub-material in the automatic transmission system is a planetary gear unit. However, students feel that the planetary gear unit subject is difficult to understand, and it needs a physical interpretation of how the unit works. The study is aimed to explore the development process of educational media of planetary gear by using 3d printing technology and performing alpha testing with the experts to assess the worthiness of educational media to be implemented. The design and Development methodology was explored to develop the educational media. The research is descriptive quantitative research which utilizes some questionnaires to collect the required data. Two experts were chosen to evaluate the developed educational media of planetary gear in terms of the media itself and the media material. The obtained data were then processed to interpret the worthiness of developed learning media. The results indicate that the media experts categorized the learning media is a very worthy media assessed in terms of design, robustness, and pedagogy aspects. In terms of material, the learning media is very worthy after it was evaluated in terms of content quality, motivation, feedback and adaptation, and learning goal alignment.

Kata Kunci: educational media, 3D printing, planetary gear, vocational education