An Application Program Designed For Curve Learning

Project Brief

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1. **Introduction**

This project is aimed at making an illustrated handbook liked application to introduce some typical planar curves, for most of which rational parametrisations are known to exist, and for others that there are no known exact rational representations, are analyzed for CPA approximation. Some surfaces may also be introduced. It is an individual completing project that there are no human participants other than undertaker and supervisor. This project seems not will have any intellectual property rights issues.

1. **Objective**

It will be an application produced to provide an easier way for geometry learning, so the application should be designed to be interactive. Thus user interface is necessary and should be nice and friendly. The program should not only give definitions and equations, but include the following contents: dynamic display of each curve, usage examples of special curves, connection between different curves, tips in learning, etc.

1. **Method**

To finish this project, both knowledge of special curves and programming skill are required. To intuitively illustrating geometric figures, either rectangular coordinate system or polar coordinate system may be used for different curves. The project is planned to be a WPF (Windows Presentation Foundation) application written in C#.

1. **Outcome**

An application program for Windows, a report for the project.

1. **Schedule**

It’s a provisional project workplan that might be different from the project timetable handed in later.

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| Time | Work |
| 25/10/14- 20/11/14 | Curves learning |
| 21/11/14- 10/01/15 | Necessary programing tools and function libraries learning |
| 11/01/15- 20/02/15 | Application content and layout design |
| 21/02/15- 05/05/15 | Programming |
| 06/05/15- 20/05/15 | Testing and improvement |
| 21/05/15- 01/06/15 | Report preparing |

1. **Reference**

T. J. Wetzel and H.E. Bez, Index of Special Curves with Rational Parametrisations.

(Additional references will be appended in the report)