ACKNOWLEDGEMENT

The greatest praise and thankfulness to the Almighty God, Jesus Christ for His grace and blessing who always provide health, spirit, strength and everything to the author in finishing this thesis well and accordance to the planning time.

This thesis, “The Development of Interactive and Innovative Chemistry Learning Material on the Teaching of Chemical Equilibrium” has been arranged to obtain the degree of Sarjana Pendidikan in Department of Chemistry, Faculty of Mathematics and Natural Sciences (FMIPA), State University of Medan (UNIMED).

In this opportunity, the author would like to express the great appreciation to Prof. Drs. Manihar Situmorang, M.Sc., Ph.D., as the thesis supervisor and Dr. Simson Tarigan, M.Pd., Dr. Ajat Sudrajat, M.Si and also Drs. Rahmat Nauli, M.Si as the thesis examiners and also to Drs. Marudut Sinaga, M.Si., as the author’s academic supervisor for their valuable time spent in giving guidances, advices, motivations, comments and suggestions during the process of finishing this thesis.

The author also says thanks to Prof. Drs. Motlan, M.Sc., Ph.D., as the dean Faculty of Mathematics and Natural Sciences, State University of Medan, then Prof. Dr.rer.nat. Binari Manurung, M.Si., and Dr. Iis Siti Jahro, M.Si., as the head and secretary of Bilingual Program. Great thanks to Prof. Dr. Ramlan Silaban, M.Si., Prof. Dr. Retno Dwi Suyanti, M.Si., Dr. Zainuddin Muchtar, M.Si, Dra. Anna Juniar, M.Si, and also Freddy Tua Musa Panggabean, S.Pd., M.Pd as the expert lecturer to standarize the module. And also thanks to Syamsuddin, S.E., (Pak Sam) as bilingual staff for his helping in administrative assistance and kindness.

The author’s gratitude also to all of students who have rendered their time to standarize the module as a sample of research, the chemistry bilingual 2011, chemistry bilingual 2012, chemistry bilingual 2014, and mathematic bilingual 2013 who have given their helping and their support to finishing this research.
The deepest and special gratitude, appreciation and love to my beloved parents, E. T. P. Samosir and D. Sitinjak for their countless love, supports, prays, motivation and careness and also to my beloved brothers, Septian Adil Putra Samosir and Denis Ary Yusuf Samosir, then to my beloved sisters Sriratika Samosir for their supports. And also special thanks to my beloved sister Vera Christina Manalu and also my brothers and my sisters at “Bersama 25” for their loves and great motivations and also funny capricious that make me spiritfully.

Special thanks also goes to my friends Lanita Br Munthe, Liesa Afridhila, Nova Syntia, Januelman Purba (Dik’A 2011), Corry, Fitri, Esalygna, Novi, Dessy, Yory Yosua Siahaan (BilChem 11), Rhone P. Brocha (BilChem 11), Rusdi Lastaida (BilChem 11), Juwita Sitorus (BilChem 11), Hesti vera (BilChem 11), that have accompany me during the research. I also would like to thanks for all of my friend in BILINGUAL CHEMISTRY 2011, and for Bilingual Chemistry 2010 as our “original senior”, Brother Dimas Frananta Simatupang, S.Pd (BilChem’09), Sis Fenny Rizki Amelia, S.Pd (BilChem’10) and also for my closed friend Obi Satrinanda Manik for his support during the research, and everyone who cannot be mentioned his/her name for their support and frienship during my academic years.

Finally, the author hopes this thesis would be useful for everyone who like to explore more about the learning material and the innovation and integration to learn chemical equilibrium notably and chemistry generally. May God bless us forever.

Medan, July 2015

The author,

Mariany Gusniar Samosir