

TABLE OF CONTENTS

<i>List of Abbreviations</i>	a
<i>Motive, Topic and Background: An Introduction</i>	1
1. Research Motive	1
2. Problem Statement	3
3. Research Objectives	7
4. Research Methodology	8
Framework.....	8
Scope	8
5. Literature Survey	9
6. References.....	11
<i>A review of functional safety models for Public Safety Management Systems</i>	12
1. Introduction.....	13
2. Methodology	14
a. Public Safety System	16
b. Enterprise Process Safety System	17
3. Models	21
a. IEC Functional Safety Model	21
b. Cognitive Model	22
c. Accident Models [8]	24
d. Systematic Models (fmea, reliability etc.) [9].....	25
e. Systemic Models	26
f. Stamp Model [10]	27
4. Discussion.....	27
5. Conclusion	31
6. References.....	31
<i>Elemental Functional & Cognitive Safety in Disaster Preparedness & Management</i>	33
1. Introduction.....	34
2. The SoS View & The Safety Grid	35
3. Functional , Cognitive & Situational Safety : A Study	37
4. Safety in Chemical Storage Tank: A case.....	43
5. Discussion.....	47
6. Conclusion	51
7. References.....	52
Appendix – 1 :	53
Tank Safety Construction & Operations : Categorization w.r.t Safety Segmentation & Verification Method	53

Appendix – 2:.....	63
NIEM Emergency Management Model domain.....	63
<i>Safety Information Model in Internet of Everything – Process, People and Things</i>	65
1.Introduction.....	66
2.Public Safety Communications using 3GPP LTE.....	67
3.Safety management and Safety Preparedness	68
4.Internet of Everything & Smart Objects	69
5.Information Modeling for Safety management & Compliance.....	71
6.Discussion.....	78
7.Conclusion	85
<i>Safety Management: Communicating Systems Design as in Internet of Everything</i>	88
1.Introduction.....	89
2.The System Context.....	90
3.Function Blocks & Communication Profile.....	92
4.Service API & OR3C Interface Definition	98
5.Case Analysis.....	102
6.Conclusion & Future work.....	107
7.References.....	108
<i>SMS: Communicating Systems Design: Concluding Remarks</i>	110
1.Use case – Building Fire Safety	112
2.Use Case – Emergency Medical Response	113
3.Use Case – Pipe Line Monitoring: - Gas Distribution	114
<i>Appendix I: Visual Information Modeller</i>	116
1.Visual Information Modeller	116
2.Tank Safety Model.....	117
3.E.g. Stored Chemical Tag Identifier	118
4.Simulation 1	119
5.Simulation 2 – Lead / Lag Indicators.....	121
<i>Appendix II: Recommendations for LTE Communications</i>	125
1.LTE Communications Basics.....	125
2.LTE Network Components and Functions.....	126
3.LTE Frame Structure and Communication Channel.....	128
4.Recommendations for LTE for Disaster Management	130
Recommendation 1	130
Recommendation 2	131
Recommendation 3	131

Bibliography	133
<i>List of Publications and Conferences</i>	137
<i>Professional profile</i>	138
<i>Published Articles & Certificates</i>	140