

**Curriculum for the Degree of
Bachelor of Engineering in
Software and Knowledge Engineering
Total Number of Credits Required
for Graduation is 143**

GENERAL EDUCATION

31 CREDITS

1. Science and Mathematics

11 credits

208111	Engineering Drawing	3	credits
403111	General Chemistry	4	credits
403112	Laboratory in General Chemistry	1	credit
and choose 3 credits from the following courses :			
999011	Food for Mankind	3	credits
999012	Health for Life	3	credits
999213	Environment, Technology and Life	3	credits

2. Language

12 credits

355xxx	English	9	credits
999021	Thai Language for Communication	3	credits

3. Social Sciences

3 credits

Choose 3 credits from the following courses :

999041	Economics for Better Living	3	credits
999141	Man and Society	3	credits

4. Humanities

3 credits

Choose 3 credits from the following courses :

999031	The Heritage of World Civilizations	3	credits
999032	Thai Studies	3	credits
999033	Arts of Living	3	credits

5. Physical Education Activities	2 credits
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175xxx	Physical Education Activities	1, 1	credit
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SPECIFIC COURSES **106 CREDITS**

1. Engineering Core Courses	25 credits
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204111	Computers and Programming	3	credits
204112	Information Technology for Engineers	1	credit
213211	Materials Science for Engineers	3	credits
417167	Engineering Mathematics I	4	credits
417168	Engineering Mathematics II	3	credits
417267	Engineering Mathematics III	3	credits
420111	General Physics I	3	credits
420112	General Physics II	3	credits
420113	Laboratory in Physics I	1	credit
420114	Laboratory in Physics II	1	credit

2. Major Courses	39 credits
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204211	Discrete Mathematics	3	credits
204212	Abstract Data Types and Problem Solving	3	credits
204214	Programming Skill Development Laboratory	1	credit
204313	Algorithms Design and Analysis	3	credits
204351	Database Systems	3	credits
204352	Laws and Ethics in Information Technology	3	credits
208201	Basic Principle in Engineering Mechanics	3	credits
219211	Software Development Training Camp	1	credit
219221	Computer Organization and Architecture	3	credits
219241	Object-Oriented Modeling and Programming	3	credits
219311	Operating Systems for Software and Knowledge Engineer	3	credits
219324	Data Communication and Computer Networks for Software and Knowledge Engineer	3	credits
219342	Software Process and Quality Assurance	3	credits
219497	Seminar	1	credit
219499	Software and Knowledge Engineering Workgroup Project	3	credits

3. Technical Electives at least	42 credits
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Choose 42 credits from only one group :

1. Software Engineering

219212	Programming Languages	3	credits
219331	Knowledge Management	3	credits
219341	Software Specification and Design	3	credits
219343	Software Validation and Verification	3	credits
219344	Computer System Project Management	3	credits
219345	Software and Knowledge Engineering Economics	3	credits
219490	Co-operative Education	9	credits

Choose 15 credits from the following courses :

130111	Principles of Accounting Introductory	3	credits
132111	Principles of Management	3	credits
132211	Organization Behavior	3	credits
134111	Principles of Marketing	3	credits
204213	Theory of Computation	3	credits
204222	Digital Systems Design	3	credits
204312	Probability and Random Processes for Computer Engineers	3	credits
204325	Data Communication and Computer Networks	3	credits
204371	Transform Techniques in Signal Analysis	3	credits
204421	Computer Networks	3	credits
204425	Network Programming	3	credits
204426	Network Configuration	3	credits
204433	Programming Language Translation	3	credits
204461	Artificial Intelligence	3	credits
204462	Introduction to Expert Systems	3	credits
204463	Introduction to Natural Language Processing	3	credits
204464	Computer Vision	3	credits
204481	Foundations of Computer Graphics	3	credits
204482	Computer-Human Interfaces	3	credits
219321	Internet Technology	3	credits
219322	Electronic Commerce Engineering	3	credits
219323	Probability and Statistics for Software and Knowledge Engineer	3	credits
219332	Data warehouse	3	credits

219333	Introduction to Data Mining	3	credits
219334	Transaction Processing	3	credits
219361	Decision Support System	3	credits
219362	Machine Learning	3	credits
219363	Knowledge Representation	3	credits
219364	Knowledge Discovery	3	credits
219365	Knowledge Engineering	3	credits
219371	Information Technology for Managing Knowledge	3	credits
219372	Innovation Management	3	credits
219381	Multimedia Data Engineering	3	credits
219411	Computer Systems Security	3	credits
219412	Formal Languages	3	credits
219451	Web Services Technology	3	credits
219481	Multimedia Content Analysis	3	credits
219482	Hypermedia Presentation	3	credits
219483	Digital Arts	3	credits
219491	Basic Research Methodology in Software and Knowledge Engineering	3	credits
219495	Software and Knowledge Engineering Individual Project	3	credits
219496	Selected Topics in Software and Knowledge Engineering	3	credits
219498	Special Problems	1-3	credits

2. Knowledge Engineering

204213	Theory of Computation	3	credits
204461	Artificial Intelligence	3	credits
219323	Probability and Statistics for Software and Knowledge Engineer	3	credits
219361	Decision Support System	3	credits
219362	Machine Learning	3	credits
219364	Knowledge Discovery	3	credits
219365	Knowledge Engineering	3	credits
219491	Basic Research Methodology in Software and Knowledge Engineering	3	credits
219495	Software and Knowledge Engineering Individual Project	3	credits
Choose 15 credits from the following courses :			
130111	Principles of Accounting Industry	3	credits
132111	Principles of Management	3	credits
132211	Organization Behavior	3	credits

Structure of Engineering Curricula (Software and Knowledge Engineering) 5

134111	Principles of Marketing	3	credits
204222	Digital Systems Design	3	credits
204312	Probability and Random Processes for Computer Engineers	3	credits
204325	Data Communication and Computer Networks	3	credits
204371	Transform Techniques in Signal Analysis	3	credits
204421	Computer Networks	3	credits
204425	Network Programming	3	credits
204426	Network Configuration	3	credits
204433	Programming Language Translation	3	credits
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204463	Introduction to Natural Language Processing	3	credits
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219212	Programming Languages	3	credits
219321	Internet Technology	3	credits
219322	Electronic Commerce Engineering	3	credits
219331	Knowledge Management	3	credits
219332	Data warehouse	3	credits
219333	Introduction to Data Mining	3	credits
219334	Transaction Processing	3	credits
219341	Software Specification and Design	3	credits
219343	Software Validation and Verification	3	credits
219344	Computer System Project Management	3	credits
219345	Software and Knowledge Engineering Economics	3	credits
219363	Knowledge Representation	3	credits
219371	Information Technology for Managing Knowledge	3	credits
219372	Innovation Management	3	credits
219381	Multimedia Data Engineering	3	credits
219411	Computer Systems Security	3	credits
219412	Formal Languages	3	credits
219451	Web Services Technology	3	credits
219481	Multimedia Content Analysis	3	credits
219482	Hypermedia Presentation	3	credits
219483	Digital Arts	3	credits

219490	Co-operative Education	9	credits
219496	Selected Topics in Software and Knowledge Engineering	3	credits
219498	Special Problems	1-3	credits

FREE ELECTIVES

6 CREDITS

Engineering Training

Industrial Practice of at least 240 hours