

Curriculum Format

Programme Name:	M. Tech. Software Engineering (5 Year Integrated Programme)
Programme Department:	Computer Science and Engineering
Curriculum applicable to (for admitted year xxxx-xx format):	AY 2018-19
Curriculum Version:	2.0
Approved by & Date	2 nd Academic Council, 21-07-2018

University Core [Min. of 111 Credits]

Course Code	Category	Course Title	T	P	C	Pre/Co-Requisite	Anti-requisite	Course Discipline
MIC5002		Internship/CO-OP			20			Engineering
CAP5001		Capstone			16			Engineering
	Engineering Clinics Basket	All are Compulsory						
ECS1001		Engineering Clinics - Embedded C & Arduino	0	4	2	None		Engineering
ECS1002		Engineering Clinics - Python & Raspberry Pi	0	4	2	None		Engineering
ECS2001		Engineering Clinics - Robotics & Reverse Engineering	0	4	2	None		Engineering
ECS2002		Engineering Clinics - System Design	0	4	2	None		Engineering
	Engineering Basket	Minimum of 13 Credits from courses in the basket						
SWE1001		Introduction to Programming in JAVA [Compulsory]	3	2	4	None	CSE1004	Engineering
SWE2001		Data Structures and its Applications [Compulsory]	3	2	4	SWE1001	CSE2001	Engineering
ECE1005		Basic Electrical and Electronics Engineering [Compulsory]	3	2	4	None	ECE1001, ECE1002	Engineering
ECE1002		Fundamentals of Electrical and Electronics Engineering	3	2	4	None	ECE1005	Engineering
MEC1004		Engineering Drawing [Compulsory]	0	2	1	None		Engineering
MEC1002		Engineering Graphics	0	4	2	None		Engineering
	English Basket	Minimum of 6 Credits from courses in the basket						
ENG1001		English for Essential Communication	2	2	3	EPT	ENG1005	Humanities
ENG1002		English for Effective Communication	2	2	3	EPT, ENG1001	ENG1006	Humanities
ENG2001		English for Professional Communication	2	2	3	ENG1002	ENG2004	Humanities
	Humanities Basket	Minimum of 9 Credits from courses in the basket						
LIB1001		Anthropology : An Introduction	2	0	2	None		Humanities
LIB1002		Critical Thinking Skills	2	0	2	None		Humanities
LIB1003		Psychology - An Introduction	2	0	2	None		Humanities
LIB1004		Sociology - An Introduction	2	0	2	None		Humanities
LIB1005		Introduction To Indian Music	2	0	2	None		Humanities
LIB1006		Wellbeing and Purpose in Life	2	0	2	None		Humanities
LIB1007		Gender Studies - An Introduction	2	0	2	None		Humanities

FRL1001		Basic French	2	0	2	None		Humanities
FRL1004		Basic Spanish	2	0	2	None		Humanities
FRL2001		Proficiency in French	3	0	3	FRL1001		Humanities
	Soft skills Basket	All are Compulsory						
STS0101		Introduction to Soft Skills	0	2	1	None		Humanities
STS0301		Basics of Problem Solving	0	2	1	STS0101		Humanities
STS1002		Fundamentals of Aptitude	0	2	1	STS0301		Humanities
STS1007		Arithmetic problem solving	0	2	1	STS1002		Humanities
STS2006		Getting started to skill enhancement	0	2	1	STS2007		Humanities
STS2007		Enhancing problem solving skills	0	2	1	STS2006		Humanities
STS3004		Introduction to programming skills	0	2	1	STS2007		Humanities
STS4003		Enhancing programming ability	0	2	1	STS3004		Humanities
	Management Basket	Minimum of 7 Credits from courses in the basket						
MGT1001		Ethics and Values [Compulsory]	0	2	1	None		Management
MGT1002		Lean Start-up Management	2	0	2	None		Management
MGT1003		Fundamentals of Marketing	2	0	2	None		Management
MGT1004		Introduction to Organizational Behaviour	2	0	2	None		Management
MGT1005		Creativity and Innovation Management	2	0	2	None		Management
MGT1006		Fundamentals of Operations Management	2	0	2	None	MGT1021	Management
MGT1007		Economics for Engineers	2	0	2			Management
MGT1008		Accounting and Finance for Engineers	2	0	2	None		Management
MGT1009		Banking and Financial Services	2	0	2	None		Management
MGT1010		Behavioral Finance	2	0	2	None		Management
MGT1011		Cross Cultural Management	2	0	2	None		Management
MGT1012		Entrepreneurship Lab	2	0	2	None		Management
MGT1013		Fundamentals of Advertising Management	2	0	2	None		Management
MGT1014		Fundamentals of Brand Management	2	0	2	None		Management
MGT1015		Fundamentals of Consumer Behaviour	2	0	2	None		Management
MGT1016		Fundamentals of Customer Relationship Management	2	0	2	None		Management
MGT1017		Fundamentals of Digital Media Marketing	2	0	2	None		Management
MGT1018		Fundamentals of Operation Research	2	0	2	None		Management
MGT1019		Fundamentals of Project Management	2	0	2	None		Management
MGT1020		Fundamentals of Services Marketing	2	0	2	None		Management
MGT1021		Fundamentals of Supply Chain Management	2	0	2	None	MGT1006	Management
MGT1022		Insurance and Risk Management	2	0	2	None		Management
MGT1023		International Business	2	0	2	None		Management
MGT1024		Introduction to Human Resource Management	2	0	2	None		Management
MGT1025		Introduction to Leadership	2	0	2	None		Management

	Science Basket	Minimum of 23 Credits from courses in the basket						
MAT1008		Fundamentals of Calculus [Compulsory]	3	2	4	None	MAT1001	Science
MAT1009		Applied Linear Algebra [Compulsory]	3	2	4	MAT1001	MAT1002, MAT2005	Science
MAT1014		Fundamental Statistics [Compulsory]	1	2	2	None	MAT1010, MAT1011	Science
PHY1002		Semiconductor Device Physics	3	0	3	None		Science
MAT2001		Numerical Methods for Engineers	2	2	3	MAT1002		Science
PHY1005		Introduction to Nanoscience and Technology	3	0	3	None		Science
MAT2004		Applied Optimization Techniques	3	2	4	MAT1002	CSE2003, MEC4012	Science
PHY2004		Opto Electronics	3	0	3	PHY1001		Science
MAT2002		Complex Variables and Partial Differential Equations	3	0	3	MAT1002		Science
PHY1004		Physics for Engineers [Compulsory]	3	2	4	None	PHY1001	Science
CHY1002		Environmental Sciences [Compulsory]	2	2	3	None	CHY1001	Science
		Co/Extra Curricular [Compulsory]			1	None		

Programme Core [min. of 78 Credits]

Course Code	Category	Course Title	T	P	C	Pre-Requisite	Anti-requisite	Course Discipline
SPJ2001		Summer Project	0	0	8	None		Engineering
SPJ3001		Summer Project	0	0	8	None		Engineering
SWE2005		Object Oriented Programming Systems	3	2	4	SWE1001/CSE1004	CSE2005	Engineering
SWE2006		Database Systems	3	2	4	SWE2001/CSE2002	CSE2007	Engineering
ECE1006		Digital Logic and Microprocessors	3	2	4	ECE1005	ECE1003, ECE2004	Engineering
SWE2007		Fundamentals of Operating Systems	3	2	4	None	CSE2008	Engineering
SWE3001		Fundamentals of Computer Networks	3	2	4	SWE2005	ECE3003, CSE3003	Engineering
SWE1002		Principles of Software Engineering	3	2	4	None	CSE1005	Engineering
SWE4001		Internet and Web Technologies	3	2	4	None	CSE4004	Engineering
SWE2004		Software Design and Architecture	3	2	4	SWE1002		Engineering
SWE4002		Software Testing	3	2	4	SWE1002		Engineering
SWE3002		Software Project Management	3	2	4	SWE1002		Engineering
MAT1007		Discrete Mathematics	3	0	3	None	MAT1003	Science
SWE2003		Requirements Engineering Management	3	2	4	SWE1002		Engineering
SWE4003		Concepts of Mobile Application Development	3	2	4	SWE2005	CSE4002	Engineering
SWE4004		Cloud Computing and its Applications	3	2	4	SWE3001,SWE2007	CSE4001	Engineering
SWE4005		Storage Technologies and Management	3	0	3	SWE2006		Engineering
SWE3003		Information and System Security	3	2	4	None	CSE1007	Engineering

Programme Electives [Min. of 32 Credits]

Course Code	Category	Course Title	T	P	C	Pre-Requisite	Anti-requisite	Course Discipline
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CSE3009		NoSQL Databases	3	2	4	SWE2006		Engineering
CSE4007		Digital Image Processing	3	2	4	None		Engineering
CSE4016		Database Administration	3	2	4	SWE2006		Engineering
CSE4017		Health Care Analytics	3	2	4	CSE1006		Engineering
CSE4003		Parallel Computing	3	2	4	SWE2001		Engineering
CSE1006		Foundation for Data Analytics	2	2	3	None		Engineering
SWE2002		Human Computer Interaction	3	0	3	None		Engineering
SWE2008		Object Oriented Analysis and Design	3	2	4	SWE1002/CSE1003		Engineering
CSE4012		UI/UX User Experience Design	3	2	4	None		Engineering
CSE3018		Software Configuration Management	3	0	3	SWE1002/CSE1003		Engineering
CSE3019		Software Quality and Reliability	3	0	3	SWE1002/CSE1003		Engineering
CSE3001		Agile Development Process	3	2	4	SWE1002/CSE1003		Engineering
CSE4013		Reverse Engineering	3	0	3	SWE1002/CSE1003		Engineering
CSE4006		Deep Learning	3	2	4	CSE3008		Engineering
CSE3020		Product Definition and Validation	3	0	3	SWE1002/CSE1003		Engineering
CSE4014		Team Software Process	3	0	3	SWE1002/CSE1003		Engineering
CSE4005		Datawarehousing and Data Mining	3	2	4	SWE2006		Engineering
CSE4009		Wireless and Mobile Computing	3	2	4	SWE3001		Engineering
CSE4015		Network Administration	3	2	4	SWE3001		Engineering
CSE3002		Artificial Intelligence	3	2	4	SWE1001/CSE1001		Engineering
CSE2011		Cyber Security and Digital Forensics	3	2	4	CSE1007/SWE3003		Engineering
CSE3008		Introduction to Machine Learning	3	2	4	MAT2004/MAT2003		Engineering
CSE2009		Soft Computing	3	2	4	MAT1001		Engineering
CSE4011		Internet of Things	3	2	4	None		Engineering

University Electives [Min. of 6 Credits]

Course Code	Course Title	T	P	C	Pre-Requisite	Anti-requisite
Any Course after fulfilling Programme Core & University Core requirements and without duplicity can be taken as University Elective						

Credit Summary	Credits
University Core	111
Programme Core	78
Programme Electives	32
University Electives	6
Total Credits	227
Course Discipline	%
Engineering	72.2
Science & Maths	11.4

Management	3.08
Humanities	10.1
Open	3.08
Total Credits	227
Minimum Credits required for Programme completion	227

Verified by:
(HoD, Computer Science and Engineering)

(HoD, Academics)