

Faculty of Engineering
School of Information, Security and Data Science
Department of Information Technology

Degree: B. Tech. Information Technology (2019-2023, 2020-2024, 2021-2025 and 2022-2026)

Year	THIRD SEMESTER						FOURTH SEMESTER					
	Sub. Code	Subject Name	L	T	P	C	Sub. Code	Subject Name	L	T	P	C
II	BB0025	Value, Ethics and Governance	2	0	0	2	EO2001	Economics	2	1	0	3
	MA2101	Engineering Mathematics – III	2	1	0	3	MA2201	Engineering Mathematics – IV	2	1	0	3
	IT2101	Computer-System Architecture	3	1	0	4	IT2201	Web Technologies	3	1	0	4
	IT2102	Data Structures and Algorithms	3	1	0	4	IT2202	Operating Systems	3	1	0	4
	IT2103	Object-Oriented Programming	3	1	0	4	IT2203	Relational Database Management Systems	3	1	0	4
	IT2104	Data Communications	3	1	0	4	*** **	Open Elective – I	3	0	0	3
	IT2130	Object-Oriented Programming Lab	0	0	2	1	IT2230	Operating Systems Lab	0	0	2	1
	IT2131	Data Structures and Algorithms Lab	0	0	2	1	IT2231	Relational Database Management Systems Lab	0	0	2	1
							IT2232	Web Technologies Lab	0	0	2	1
			16	5	4	23			16	5	6	24
	Total Contact Hours (L + T + P)		25			Total Contact Hours (L + T + P) + OE			27			
III	FIFTH SEMESTER						SIXTH SEMESTER					
	IT31XX	Program-Elective-1	3	0	0	3	BB0026	Organization and Management	2	1	0	3
	IT3101	Foundations of Data Science	3	1	0	4	IT32XX	Program-Elective-2	3	0	0	3
	IT3102	Software Engineering	3	1	0	4	IT3270	Minor-Project	0	0	4	2
	IT3103	Design and Analysis of Algorithms	3	1	0	4	*** **	Open Elective – III	3	0	0	3
	IT3104	Computer Networks	3	1	0	4	IT3201	Artificial Intelligence and Machine Learning	3	1	0	4

	*** **	Open Elective – II	3	0	0	3	IT3202	Automata Theory and Compiler Design	3	1	0	4
	IT3130	Design and Analysis of Algorithms Lab	0	0	2	1	IT3203	Cryptography and Information Security	3	1	0	4
	IT3131	Computer Networks Lab	0	0	2	1	IT3230	Compiler Design Lab	0	0	2	1
	IT3132	Software Engineering Lab	0	0	2	1	IT3231	Artificial Intelligence and Machine Learning Lab	0	0	2	1
			18	4	6	25			17	4	8	25
	Total Contact Hours (L + T + P) + OE		28			Total Contact Hours (L + T + P) + OE		29				
IV	SEVENTH SEMESTER						EIGHTH SEMESTER					
	IT41XX	Program-Elective-3	3	0	0	3	IT4270	Major Project				12
	IT41XX	Program-Elective-4	3	0	0	3						
	IT41XX	Program-Elective-5	3	0	0	3						
	IT41XX	Program-Elective-6	3	0	0	3						
	IT41XX	Program-Elective-7	3	0	0	3						
	IT4170	Industrial Training	0	0	0	1						
			15	0	0	16						12
	Total Contact Hours (L + T + P)		15			Total Contact Hours (L + T + P)						

Minor Specializations	Program Electives (For PE-5, PE-6 and PE-7 Slots)	Open Electives
1. Data Science <ul style="list-style-type: none"> IT3140 Soft Computing IT3240 Data Mining and Data Warehousing IT4140 Big Data Analytics IT4141 Deep Learning 2. Computer Vision and Image Processing <ul style="list-style-type: none"> IT3141 Digital Image Processing IT3241 Computer Vision IT4142 Parallel Computing IT4143 Advanced Computer Vision 	<ul style="list-style-type: none"> IT4144 Advanced Data Structures IT4145 Distributed Computing IT4146 Software Testing Techniques IT4147 Software Reliability IT4148 Object-Oriented Design and Patterns IT4149 Wireless Ad-hoc and Sensor Networks IT4150 Cloud Computing IT4151 Software Defined Networks IT4152 Mobile Computing IT4153 Natural Language Processing IT4154 Information Retrieval 	<ul style="list-style-type: none"> IT0010 Python Programming IT0011 Basics of Information Security IT0012 Linux Fundamentals IT0013 Introduction to Data Science <p>Note: Course Numbers of Open Electives are Changed in 14th BoS Meeting</p>

	<ul style="list-style-type: none"> • IT4155 Network Security and Management • IT4156 Fundamentals of Quantum Computing (Introduced in 12th BoS) • IT4157 Cognitive Intelligence (Introduced in 14th BoS) • IT4158 Foundations of Blockchain (Introduced in 14th BoS) 	
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Degree: B. Tech. Information Technology (2023-2027)

Total Credits: 160

Third Semester						Fourth Semester					
Code	Subject Name	L	T	P	C	Code	Subject Name	L	T	P	C
MEE22XX	Engineering Economics	3	0	0	3	MAS21XX	Statistics & Probability	3	0	0	3
MBB21XX	Management of Technology	3	0	0	3	INT2201	Operating Systems	3	1	0	4
INT2101	Computer System Architecture	3	1	0	4	INT2202	Object-Oriented Programming	3	1	0	4
INT2102	Data Structures and Algorithms	3	1	0	4	INT2220 / INT2221	Data Communications / Modern Web Technologies	3	1	0	4
INT2103	Relational Database Management Systems	3	1	0	4	INT22XX	Program Elective 1	3	0	0	3
INT2120 / INT2121	C++ Programming / Python Programming	3	1	0	4	INT00XX	Open Elective 1	3	0	0	3
INT2130	Data Structures and Algorithms Lab	0	0	2	1	INT2230	Operating Systems Lab	0	0	2	1
INT2131	Relational Database Management Systems Lab	0	0	2	1	INT2231	Object-Oriented Programming Lab	0	0	2	1
INT2170	Project-based Learning 1	0	0	2	1	INT2270	Project-based Learning 2	0	0	2	1
	Total	18	4	6	25		Total	18	3	6	24
	Total Contact Hours (L+T+P)	28 Hours				Total Contact Hours (L+T+P)	27 Hours				
Fifth Semester						Sixth Semester					
Code	Subject Name	L	T	P	C	Code	Subject Name	L	T	P	C
INT3101	Design and Analysis of Algorithms	3	1	0	4	INT3201	Computer Networks	3	1	0	4
INT3102	Software Engineering	3	1	0	4	INT32XX	Program Elective 4	3	0	0	3
INT3120 / INT 3121	Artificial Intelligence / Theory of Computation	3	1	0	4	INT32XX	Program Elective 5	3	0	0	3
INT31XX	Program Elective 2	3	0	0	3	INT32XX	Program Elective 6	3	0	0	3
INT31XX	Program Elective 3	3	0	0	3	INT00XX	Open Elective 3	3	0	0	3
INT00XX	Open Elective 2	3	0	0	3	INT3210	Professional Practice	0	0	0	1
INT3130	Design and Analysis of Algorithms Lab	0	0	2	1	INT3230	Computer Networks Lab	0	0	2	1
INT3131	Software Engineering Lab	0	0	2	1	INT3231 / INT3232	Machine Learning Lab / Compiler Design Lab	0	0	2	1
INT3170	Project-based Learning 3	0	0	2	1	INT3270	Project-based Learning 4	0	0	6	3
	Total	18	3	6	24		Total	15	1	10	22
	Total Contact Hours (L+T+P)	27 Hours				Total Contact Hours (L+T+P)	26 Hours				
Seventh Semester						Eighth Semester					
Code	Subject Name	L	T	P	C	Code	Subject Name	L	T	P	C
INT41XX	Program Elective 7	3	0	0	3	INT4270	Major Project	0	0	0	12
INT41XX	Program Elective 8	3	0	0	3						
INT00XX	Open Elective 4	3	0	0	3						
INT00XX	Open Elective 5	3	0	0	3						
INT4170	Internship (Industry or Research)	0	0	0	1						
	Total	12	0	0	13		Total	0	0	0	12
	Total Contact Hours (L+T+P)	12 Hours				Total Contact Hours (L+T+P)					

Flexi Core

Flexi Core 1	Flexi Core 2	Flexi Core 3
1. INT2120 C++ Programming 2. INT2121 Python Programming	1. INT2220 Data Communications 2. INT2221 Modern Web Technologies	1. INT3120 Artificial Intelligence 2. INT3121 Theory of Computation

Program Electives

Program Electives			
Semester IV	Semester V	Semester VI	Semester VII
Program Elective 1 <ul style="list-style-type: none"> INT2240: Computer Organization and Microprocessors INT2241: IoT Fundamentals INT2242: Python Programming Fundamentals <p>[Note: student should not have taken the course as flexible core in 3rd semester.]</p>	Program Elective 2 <ul style="list-style-type: none"> INT3140: Advanced Java INT3141: Soft Computing Techniques INT3142: Artificial Intelligence Fundamentals [Note: student should not have taken a similar course as flexible core in the same semester.] Program Elective 3 <ul style="list-style-type: none"> INT 3143: Foundations of Data Science INT 3144: Distributed Computing INT 3145: Cryptography and Network Security 	Program Elective 4 <ul style="list-style-type: none"> INT3240: Data Analytics Using Python INT3241: Cloud Infrastructures and Services INT3242: Secure Programming Program Elective 5 <ul style="list-style-type: none"> INT3243: Data Warehousing and Mining INT3244: Cloud Computing and Virtualization INT3245: Vulnerability Assessment and Ethical Hacking Program Elective 6 <ul style="list-style-type: none"> INT3246: Compiler Design INT3247: Machine Learning Techniques 	Program Elective 7 <ul style="list-style-type: none"> INT4140: Big Data Analytics INT4141: Cloud Application Development INT4142: Block Chain Technologies Program Elective 8 <ul style="list-style-type: none"> INT4143: Deep Learning INT4144: Software Testing Techniques INT4145: Natural Language Processing INT4146: Image processing INT4147: Quantum Computing

Open Electives

Graded OE	Non-Graded OE
	<ul style="list-style-type: none"> INT0050: Java Programming Basics INT0051: Introduction to AI INT0052: Linux Fundamentals INT0053: Basics of Cloud Computing INT0054: Python Basics INT0055: Introduction to Data Analytics INT0056: Basics of Computer Networks INT0057: Introduction to Data Structures

ⁱ Statistics & Probability: CSE, AIML, SEEC students will take in 3rd semester. Engineering Economics: SIT, SCCE, All Core (-) SEEC will take in 3rd semester. In 4th semester, these courses are switched.

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Degree: B. Tech. (Hons) IT (2023-2027)

Total Credits: 178 (160 + 18*)

Third Semester						Fourth Semester					
Code	Subject Name	L	T	P	C	Code	Subject Name	L	T	P	C
MEE22XX	Engineering Economics	3	0	0	3	MAS21XX	Statistics & Probability	3	0	0	3
MBB21XX	Management of Technology	3	0	0	3	INT2201	Operating Systems	3	1	0	4
INT2101	Computer System Architecture	3	1	0	4	INT2202	Object-Oriented Programming	3	1	0	4
INT2102	Data Structures and Algorithms	3	1	0	4	INT2220 / INT2221	Data Communications / Modern Web Technologies	3	1	0	4
INT2103	Relational Database Management Systems	3	1	0	4	INT22XX	Program Elective 1	3	0	0	3
INT2120 / INT2121	C++ Programming / Python Programming	3	1	0	4	INT00XX	Open Elective 1	3	0	0	3
INT2130	Data Structures and Algorithms Lab	0	0	2	1	INT2230	Operating Systems Lab	0	0	2	1
INT2131	Relational Database Management Systems Lab	0	0	2	1	INT2231	Object-Oriented Programming Lab	0	0	2	1
INT2170	Project-based Learning 1	0	0	2	1	INT2270	Project-based Learning 2	0	0	2	1
Total		18	6	4	25	Total		18	3	6	24
	Total Contact Hours (L+T+P)	28 Hours					Total Contact Hours (L+T+P)	27 Hours			
Fifth Semester						Sixth Semester					
Code	Subject Name	L	T	P	C	Code	Subject Name	L	T	P	C
INT3101	Design and Analysis of Algorithms	3	1	0	4	INT3201	Computer Networks	3	1	0	4
INT3102	Software Engineering	3	1	0	4	INT32XX	Program Elective 4	3	0	0	3
INT3120 / INT 3121	Artificial Intelligence / Theory of Computation	3	1	0	4	INT32XX	Program Elective 5	3	0	0	3
INT31XX	Program Elective 2	3	0	0	3	INT32XX	Program Elective 6	3	0	0	3
INT31XX	Program Elective 3	3	0	0	3	INT00XX	Open Elective 3	3	0	0	3
INT00XX	Open Elective 2	3	0	0	3	INT3210	Professional Practice	0	0	0	1
INT3130	Design and Analysis of Algorithms Lab	0	0	2	1	INT323X	Computer Networks Lab	0	0	2	1
INT3131	Software Engineering Lab	0	0	2	1	INT3230 / INT3231	Machine Learning Lab / Compiler Design Lab	0	0	2	1
INT3170	Project-based Learning 3	0	0	2	1	INT3270	Project-based Learning 4	0	0	6	3
INT3180	Research Methodology	0	0	2	1	INT3280	Advanced Algorithms	3	0	0	3
Total		18	3	8	25	Total		18	1	10	25
	Total Contact Hours (L+T+P)	29 Hours					Total Contact Hours (L+T+P)	29 Hours			
Seventh Semester						Eighth Semester					
Code	Subject Name	L	T	P	C	Code	Subject Name	L	T	P	C
INT41XX	Program Elective 7	3	0	0	3	INT4270	Major Project	0	0	0	12
INT41XX	Program Elective 8	3	0	0	3	INT4280	Honors Project	0	0	0	8
INT00XX	Open Elective 4	3	0	0	3						
INT00XX	Open Elective 5	3	0	0	3						
INT4170	Internship (Industry or Research)	0	0	0	1						
CSE4180	Advanced Computer Networks	3	0	0	3						
CSE4181	Object Oriented System Development	3	0	0	3						
Total		18	0	0	19	Total					20
	Total Contact Hours (L+T+P)	18 Hours					Total Contact Hours (L+T+P)				

Flexi Core

Flexi Core 1	Flexi Core 2	Flexi Core 3
1. INT2120 C++ Programming 2. INT2121 Python Programming	1. INT2220 Data Communications 2. INT2221 Modern Web Technologies	1. INT3120 Artificial Intelligence 2. INT3121 Theory of Computation

Program Electives

Program Electives			
Semester IV	Semester V	Semester VI	Semester VII
Program Elective 1 <ul style="list-style-type: none"> INT2240: Computer Organization and Microprocessors INT2241: IoT Fundamentals INT2242: Python Programming Fundamentals [Note: student should not have taken the course as flexible core in 3rd semester.]	Program Elective 2 <ul style="list-style-type: none"> INT3140: Advanced Java INT3141: Soft Computing Techniques INT3142: Artificial Intelligence Fundamentals [Note: student should not have taken a similar course as flexible core in the same semester.] Program Elective 3 <ul style="list-style-type: none"> INT 3143: Foundations of Data Science INT 3144: Distributed Computing INT 3145: Cryptography and Network Security 	Program Elective 4 <ul style="list-style-type: none"> INT3240: Data Analytics Using Python INT3241: Cloud Infrastructures and Services INT3242: Secure Programming Program Elective 5 <ul style="list-style-type: none"> INT3243: Data Warehousing and Mining INT3244: Cloud Computing and Virtualization INT3245: Vulnerability Assessment and Ethical Hacking Program Elective 6 <ul style="list-style-type: none"> INT3246: Compiler Design INT3247: Machine Learning Techniques 	Program Elective 7 <ul style="list-style-type: none"> INT4140: Big Data Analytics INT4141: Cloud Application Development INT4142: Block Chain Technologies Program Elective 8 <ul style="list-style-type: none"> INT4143: Deep Learning INT4144: Software Testing Techniques INT4145: Natural Language Processing INT4146: Image processing INT4147: Quantum Computing

Open Electives

Graded OE	Non-Graded OE
	<ul style="list-style-type: none"> INT0050: Java Programming Basics INT0051: Introduction to AI INT0052: Linux Fundamentals INT0053: Basics of Cloud Computing INT0054: Python Basics INT0055: Introduction to Data Analytics INT0056: Basics of Computer Networks INT0057: Introduction to Data Structures

Program Electives For Honors

Program Electives for Hons.
<ul style="list-style-type: none"> INT3180: Research Methodology (Semester V) INT3280: Advanced Algorithms (Semester VI) INT4180: Advanced Computer Networks INT4181: Object Oriented System Development INT4280: Honors Project