

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

	<ul style="list-style-type: none"> <li>• IT4155 Network Security and Management</li> <li>• IT4156 Fundamentals of Quantum Computing (Introduced in 12<sup>th</sup> BoS)</li> <li>• <b>IT4157 Cognitive Intelligence (Introduced in 14<sup>th</sup> BoS)</b></li> <li>• <b>IT4158 Foundations of Blockchain (Introduced in 14<sup>th</sup> BoS)</b></li> </ul>	
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**Faculty Of Science, Technology & Architecture**  
**School of Computer Science and Engineering**  
**Department of Information Technology**

Degree: B. Tech. Information Technology (2023-2027 and 2024-28)

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

PE details - BTECH Information Technology			
PE Cluster- Department of IT (PE in Minor Tracks) (PE3, PE4, PE5, PE7)			
Cloud Computing Track	Data Science Track	Artificial Intelligence and Machine Learning Track	Cyber Security Track
1. INT 3143: Distributed Computing (V sem, PE-3)  2. INT3241: Cloud Infrastructures and Services (VI Sem, PE-4)  3. INT3244: Cloud Computing and Virtualization (VI Sem, PE-5)  4. INT4141: Cloud Application Development (VII Sem, PE-7)	1. INT 3142: Foundations of Data Science (Vsem , PE-3)  2. INT3240: Data Analytics Using Python (VI Sem, PE-4)  3. INT3243: Data Warehousing and Mining (VI Sem, PE-5)  4. INT4140: Big Data Analytics (VII Sem, PE-7)	1. INT3141 Soft Computing (V Sem, PE-3)  2. INT3247: Machine Learning Techniques (VI Sem, PE-4)  3. INT3248: Image Analysis and Computer Vision (VI Sem, PE-5)  4. INT4145: Natural Language Processing (VII Sem, PE-7)	1. INT 3144: Cryptography and Network Security (V Sem, PE-3)  2. INT3242: Secure Programming (VI Sem, PE-4)  3. INT3245: Vulnerability Assessment and Ethical Hacking (VI Sem, PE-5)  4. INT4142: Block Chain Technologies (VII Sem, PE-7)

## Open PE Courses (PE2, PE-6 and PE-8)

Program Elective-2	Program Elective -6	Program Elective -8
INT3140: Advanced Java (V Sem, PE-2)	INT3246: Compiler Design (VI Sem, PE-6)	INT4143: Deep Learning (VII Sem, PE-8)
INT3145: Artificial Intelligence Fundamentals (V Sem, PE-2) [Note: Students should not have taken the Artificial Intelligence as Flexi Core 3]	INT3249: Data Science & Machine Learning Techniques (VI Sem, PE-6) [Note: Students should not have taken the Artificial Intelligence and Machine Learning Track]	INT4144: Software Testing Techniques (VII Sem, PE-8)
INT3146 Cyber Security Essentials (V Sem, PE-2)	INT3250 Advanced Data Structures (VI Sem, PE-6)	INT4146: Image processing (VII Sem, PE-8)
		INT4147: Quantum Computing (VII Sem, PE-8)
		INT4148 Information Retrieval (VII Sem, PE-8)

## Open Electives

Graded OE	Non-Graded OE
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	<ul style="list-style-type: none"> <li>• INT0050: Java Programming Basics</li> <li>• INT0051: Introduction to AI</li> <li>• INT0052: Linux Fundamentals</li> <li>• INT0053: Basics of Cloud Computing</li> <li>• INT0054: Python Basics</li> <li>• INT0055: Introduction to Data Analytics</li> <li>• INT0056: Basics of Computer Networks</li> <li>• INT0057: Introduction to Data Structures</li> </ul>
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<sup>i</sup> Statistics & Probability: CSE, AIML, SEEC students will take in 3<sup>rd</sup> semester. Engineering Economics: SIT, SCCE, All Core (-) SEEC will take in 3<sup>rd</sup> semester. In 4<sup>th</sup> semester, these courses are switched.

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**Department of Information Technology**

Degree: B. Tech. (Hons) IT (2023-2027 and 2024-28)

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**

PE details - BTECH Information Technology			
PE Cluster- Department of IT (PE in Minor Tracks) (PE3, PE4, PE5, PE7)			
Cloud Computing Track	Data Science Track	Artificial Intelligence and Machine Learning Track	Cyber Security Track
5. INT 3143: Distributed Computing (V sem, PE-3)  6. INT3241: Cloud Infrastructures and Services (VI Sem, PE-4)  7. INT3244: Cloud Computing and Virtualization (VI Sem, PE-5)  8. INT4141: Cloud Application Development (VII Sem, PE-7)	5. INT 3142: Foundations of Data Science (Vsem , PE-3)  6. INT3240: Data Analytics Using Python (VI Sem, PE-4)  7. INT3243: Data Warehousing and Mining (VI Sem, PE-5)  8. INT4140: Big Data Analytics (VII Sem, PE-7)	5. INT3141 Soft Computing (V Sem, PE-3)  6. INT3247: Machine Learning Techniques (VI Sem, PE4)  7. INT3248: Image Analysis and Computer Vision (VI Sem, PE-5)  8. INT4145: Natural Language Processing (VII Sem, PE-7)	5. INT 3144: Cryptography and Network Security (V Sem, PE-3)  6. INT3242: Secure Programming (VI Sem, PE-4)  7. INT3245: Vulnerability Assessment and Ethical Hacking (VI Sem, PE-5)  8. INT4142: Block Chain Technologies (VII Sem, PE-7)

**Open PE Courses (PE2, PE-6 and PE-8)**

Program Elective-2	Program Elective -6	Program Elective -8
INT3140: Advanced Java (V Sem, PE-2)	INT3246: Compiler Design (VI Sem, PE-6)	INT4143: Deep Learning (VII Sem, PE-8)
INT3145: Artificial Intelligence Fundamentals (V Sem, PE-2) [Note: Students should not have taken the Artificial Intelligence as Flexi Core 3]	INT3249: Data Science & Machine Learning Techniques (VI Sem, PE-6) [Note: Students should not have taken the Artificial Intelligence and Machine Learning Track]	INT4144: Software Testing Techniques (VII Sem, PE-8)
INT3146 Cyber Security Essentials (V Sem, PE-2)	INT3250 Advanced Data Structures (VI Sem, PE-6)	INT4146: Image processing (VII Sem, PE-8)
		INT4147: Quantum Computing (VII Sem, PE-8)
		INT4148 Information Retrieval (VII Sem, PE-8)

**Open Electives**

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

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