MUJ Faculty of Engineering: BTech Information Technology Engineering (160 Credits)

New Curriculum Semester-wise Schema from Batch 2023-2027

Code	First Semester Course Name	Cr
	Engineering Chemistry	4
	Calculus & Matrices	3
	Electrical and Electronics Engineering	4
	Creativity and Innovation	2
	Problem Solving Using Computers	3
	Engineering Graphics Lab	1
	Constitution of India	1
	Electrical and Electronics Engineering Lab	1
	Problem Solving Using Computers Lab	1
	First Semester Credits	**20**

Code	Second Semester Course Name	Cr
	Engineering Physics	4
	Computational Mathematics	3
	Environmental Studies	2
	Engineering Materials & Mechanics	4
	MatLab for Engineers	2
	Biology for Engineers	2
	Technical Writing Clinic 1	1
	IoT Fab Lab	1
	Universal Human Values	1
	Second Semester Credits	**20**

Code	Third Semester Course Name	Cr
XXXXXX	Statistics & Probability	3
INT2101	Computer System Architecture	3
INT2102	Data structures and Algorithms	4
INT2103	Relational Data Base Management System	4
XXXXXX	Economics	3
XXXXXX	University Elective I	3
INT2130	Data structures and Algorithms Lab	1
INT2131	Relational Data Base Management System Lab	1
INT2132	C++ Lab	1
INT2170	Self-Study or Project	1
	Third Semester Credits	**24**

Code	Fourth Semester Course Name	Cr
XX22XX	Management	3
INT2201	Operating Systems	4
INT2202	Object-Oriented Programming	4
INT2210 / INT2211	Data Communications / Computer Organization (Flexi Core 1)	4
INTXXXX	Program Elective 1	3
XXXXXX	University Elective 2	3
INT2230	Operating Systems Lab	1
INT2231	Object-Oriented Programming Lab	1
INT2270	Project Based Learning 1	1
	Fourth Semester Credits	**24**

Code	Fifth Semester Course Name	Cr
INT3101	Design and Analysis of Algorithms	4
Int3102	Software Engineering	4
INT3110 / INT3111	Artificial Intelligence / Theory of Computation (Flexi Core 2)	4
	Program Elective 2	3
	Program Elective 3	3
	University Elective 3	3
INT3130	Design and Analysis of Algorithms Lab	1
INT3131	Software Engineering Lab	1
INT3170	Project Based Learning 2	1
	Fifth Semester Credits	**24**

Code	Sixth Semester Course Name	Cr
INT3201	Computer Networks	4
INT3210 / INT 3211	Machine learning / Compiler Design (Flexi Core 3)	4
INTXXXX	Program Elective 4	3
INTXXXX	Program Elective 5	3
XXXXXX	University Elective 4	3
XXXXXX	Technical Writing Clinic 2	1
INT3230	Computer Networks Lab	1
INT3231 / INT 3232	Machine Learning Lab /Compiler Design Lab	1
INT 3270	Research, Innovation & Entrepreneurship	3
	Sixth Semester Credits	**23**

Code	Seventh Semester Course Name	Cr
	University Elective 5	3
	Program Elective 6	3
	Program Elective 7	3
	Program Elec 8 / Univ Elect 6	3
INT4170	Internship (Industry/ Research)	1
	Seventh Semester Credits	**13**

Code	Eighth Semester Course Name	Cr
INT4270	Major Project	12
	Eighth Semester Credits	**12**

Proposed List of Courses offered by the Department of Information Technology

Proposed Department Core Courses

1. INT2101 Computer System Architecture
2. INT2102 Data Structures and Algorithms
3. INT2103 Relational Database Management System
4. INT2201 Operating Systems
5. INT2202 Object-Oriented Programming
6. INT3101 Design and Analysis of Algorithms
7. INT3102 Software Engineering
8. INT3201 Computer Networks

Proposed Flexi- Courses

1. FC1:INT2210 Data Communications
   FC1: INT2211 Computer Organization
2. FC2: INT3110 Artificial Intelligence
   FC2: INT3111 Theory of Computation
3. FC3: INT3210 Machine Learning
   FC3: INT3211 Compiler Design

Proposed Department Program Electives

1. Program Elective I Choices

- INT 2240 Python Programming
- INT 2241 Modern Web Techniques
- INT 2242 Microprocessors and Microcontrollers
- INT 2243 IoT Fundamentals

2. Program Elective II Choices

- INT 3140 Foundations of Data Science
- INT 3141 Cryptography and Network Security
- INT 3142 Distributed Computing
- INT 3143 Middleware Frameworks and ORM

3. Program Elective III Choices

- INT 3144 Digital Image Processing
- INT 3145 Advanced Java Programming
- INT 3146 Advanced Python Programming
- INT 3147 Software Testing Techniques
- INT 3148 Embedded System
- INT 3149 Soft Computing Techniques

4. Program Elective IV Choices

- INT 3240 Data Analytics
- INT 3242 Secure Programming
- INT 3244 Cloud Infrastructure and Services
- INT 3246 NoSQL Database

5. Program Elective V Choices

- INT 3241 Data warehousing and Mining
- INT 3243 Vulnerability Assessment and Ethical Hacking
- INT 3245 Cloud Computing and Virtualization
- INT 3247 Agile Methodologies

6. Program Elective VI Choices

- INT 4140 Data Visualization
- INT 4141 Big Data Analytics
- INT 4142 Digital Forensics and Cyber Crimes
- INT 4143 Block Chain Technologies
- INT 4144 Cloud Application Development
- INT 4145 Cloud Security and Migration
- INT 4146 Mobile Application Development
- INT 4147 DevOps

7. Program Elective VII Choices

- INT 4152 Bio-Inspired Computing
- INT 4153 Fundamentals of Quantum Computing
- INT 4154 Mobile Computing
- INT 4155 Time Series Analysis
- INT 4156 Modern Cellular Technology
- INT 4157 Computer Vision
- INT 4158 Deep Learning
- INT 4159 Theory of Computation
- INT 4160 Artificial Intelligence

8. Program Elective VIII Choices

- INT 4161 Information Retrieval
- INT 4162 Social Network Analysis
- INT 4163 Software Defined Networks
- INT 4164 Natural Language Processing
- INT 4165 Graph Theory and Applications
- INT 4166 Advanced Data Structures
- INT 4167 Recommended Systems
- INT 4168 Compiler Design
- INT 4169 Machine Learning

Focus Areas offered by Department of Information Technology

Focus Area 1: Data Science and Analytics (For FoE Students Only)

1. INT 3140 Foundations of Data Science
2. INT 3240 Data Analytics
3. INT 3241 Data Warehousing and Mining
4. INT 4140 Data Visualization
5. INT 4141 Big Data Analytics

Focus Area 2: Cyber Security (For FoE Students Only)

1. INT 3141 Cryptography and Network Security
2. INT 3242 Secure Programming
3. INT 3243 Vulnerability Assessment and Ethical Hacking
4. INT 4142 Digital Forensics and Cyber Crimes
5. INT 4143 Block Chain Technologies

Focus Area 3: Cloud Computing (FoE Students Only)

1. INT3142 Distributed Computing
2. INT3244 Cloud Infrastructure and Services
3. INT3245 Cloud Computing and Virtualization
4. INT4144 Cloud Application Development
5. INT4145 Cloud Security and Migration

Focus Area 4: Full Stack Development (For FoE Students Only)

1. INT 3143 Middleware Frameworks and ORM
2. INT 3246 NoSQL Database
3. INT 3247 Agile Methodologies
4. INT 4146 Mobile Application Development
5. INT 4147 DevOps

Focus Area 5: Object-Oriented Techniques (For Non- FoE Students Through University Elective Course)

1. INT 2180 Java Basics
2. INT 2280 Object-Oriented Techniques
3. INT 3180 Object-Oriented Analysis and Modelling
4. INT 3280 Object-Oriented Patterns
5. INT 4180 Client Server Architecture

Focus Area 6: Computational Statistical Learning (For Non-FoE Students Through University Elective Course)

1. INT 2181 Computational and Statistical Mathematics
2. INT 2281 Python Programming
3. INT 2282 Python for Data Analytics
4. INT 3183 Python for Data Visualization
5. INT 3281 Advanced Python Programming

Proposed Department University Electives.

These courses are only open to students outside of FOE

1. INT 0080 Java Programming Basics
2. INT 0082 Introduction to AI
3. INT 0083 Linux Fundamentals
4. INT 0084 Basics of Cloud Computing
5. INT 0085 Computational Statistics
6. INT 0086 Introduction to Data Analytics
7. INT 0087 Basics of Computer Networ