FRANCIS XAVIER ®
ENGINEERING COLLEGE
AN AUTONOMOUS INSTITUTION

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11th ACADEMIC COUNCIL MEETING

Date: 15.07.2024

Time: 11.00 AM

Venue : Conference Hall

AGENDA

Prayer	Prof. Friska .J HOD/ECE
Welcome Address	Mrs.Shala F John/Prof.English
Item no: 1 - Previous Academic Council action taken Report	Dr.L.R.Priya Professor Academics-Ex-Officio Member
Item no: 2 - Proceedings of the 10th BOS	BoS Chairman of concern programme

Item no: 3 - Points for Discussion and Approval:
 1. Regulation R 2024
  a. B.E/B.Tech
  b. M.E/M.Tech
  c. M.B.A
  d. M.C.A
 2. New Head of the Department-CSE(AIML)	

Item no: 4 - Any Other Points for Discussion	
Vote of Thanks	Mrs.D.Annie Rose Nirmala HoD/M.B.A

Principal

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11th ACADEMIC COUNCIL MEETING

Date & Time: 15.07.2024 & 11.00 AM   Venue: Conference Hall

The 11thAcademic Council Meeting of Francis Xavier Engineering College was conducted on 15.07.2024 at 11.00 a.m.

Members Present

Sl. No	Name	Designation	Position in Academic Council
1	Dr.V .Velmurugan	Principal, Francis Xavier Engineering College	Chairman
2	Dr.N.Shenbaga Vinayaga Moorthi	Professor and Dean, Anna University Regional Campus-Tirunelveli	University Nominee
3	Dr. T. Sree Renga Raja	Professor, Department of Electrical and Electronics Engineering, University College of Engineering, Konam, Nagercoil.	University Nominee
4	Dr.C.K.Babulal	Professor & Head, Department of Electrical and Electronics Engineering, Thiagarajar College of Engineering, Madurai.	University Nominee
5	Dr. Balaji Venkataraman	President, TVS Sensing Solutions Private Limited, (Formerly ZF Electronics TVS (India) Private Limited), Madurai.	Industrial Expert
6	Dr.K.Jeya Kumar	Professor, Department of Mechanical Engineering, SCAD College of Engineering and Technology	Academic Expert Member
7	Dr.L.R.Priya	Professor Academics & Professor/ECE	Member Secretary
8	Dr.A.Gnana Saravanan	Professor /Placement & Industry Institute Interaction	Member
9	Prof.J.Zaharia Gabriel	Asso. Professor / CSE Department & Campus Manager	Member
10	Dr.G. Rajakumar	COE & Professor /ECE Department	Member
11	Dr.M.Caroline Viola Stella Mary	Professor/IT Department	Member

12	Prof.David Ayling	Asso.Professor / English	Member
13	Prof. J.Samuel Prabaharan	Assistant Professor & Head - Civil	BOS Chairman
14	Dr.G.Aravind Swaminathan	Professor & Head - CSE	
15	Prof. J. Friska	Asso.Professor & Head - ECE	
16	Dr.A. Ravi	Professor & Head - EEE	
17	Dr.R.Samuel Hansen	Professor & Head - MECH	
18	Prof. D.Annie Rose Nirmala	Asso.Professor & Head -MBA	
19	Prof. Shala F John	Assistant Professor & Coordinator S & H	
20	Dr.J.B. Shajilin Loret	Asso.Professor & Head - IT	Member
21	Dr.S. Gomathi	Professor & Head - CSBS	Member
22	Dr.A.Anitha	Professor & Head - AI&DS	Member
23	Prof. D. Angeline Ranjitha Mani	Asso.Professor & Head - MCA	Member
24	Dr.Jainul Fathima	Asso.Professor & Head - CSE(AIML)	Member
25	Mr.Krishnakumar	General Manager (Administration), SCAD Group of Institution	Special Invitee
26	Dr.Lourdes Poobala Rayan	Professor/Entrepreneurship and Development Cell	Special Invitee
27	Dr.Mohanned Sadik	Director,Placement	Special Invitee
28	Dr.J.Jasper Gnana Chandren	Director, IQAC	Special Invitee

FRANCIS XAVIER ENGINEERING COLLEGE
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Member Absent:

Sl. No	Name	Designation	Position in Academic Council
1	Mr.Rajendran	President - Alliance Tyre Group, ATG tyre, Yokohama Rubber Company, Sipcot Industrial Growth, Centre, Gangaikondan, Tirunelveli.	Industrial Expert
2	Dr. K Sivakumar	Dean - PDS ,Sr. Professor, Dept. of Mechanical Engineering, Bannari Amman Institute of Technology, Erode	Academic Expert Member

The above Members were absent due to their unforeseen preoccupation and unavoidable reasons and were granted leave of absence.

Agenda

Item 24.AC/11.1: To confirm the Action taken report of the 10th Academic Council held on 07.07.2023

Item 24.AC/11.2: Compilation of key points from the 11th BOS proceedings & 10th BOS action taken report

Item 24.AC/11.3: Points for Discussion and Approval:

> 11.3.1 New Head of the Department for CSE(AI&ML)
> 11.3.2 Regulation R 2024 (UG & PG)
>> 1. B.E/B.Tech
>> 2. M.E/M.Tech
>> 3. M.B.A
>> 4. M.C.A

Item 24.AC/11.4 : Any Other Points

Opening Protocol

The 11th Academic Council started with the prayer by Prof. J.Friska, HoD, ECE

Mrs. Shala F John, AP/English welcomed the members of the Academic Council.

Dr. L R Priya, Prof. Academics briefed the agenda of the meeting and the deliberations of the standing Committee for 11th Academic Council Meeting.

Item no: 3 - Points for Discussion and Approval:	Action Taken
3.1 Increase in the Intake (60 Seats) for B.E Computer Science and Engineering	• Received AICTE and Anna University Approval
3.2 New Programme – B.E Computer Science and Engineering (AIML)	• Received AICTE & Anna University Approval. The new B.E Computer Science and Engineering (AI&ML) program with 60 seats will be started from 2024-25 Academic year onwards. • Head of the Department is assigned. The Curriculum and the syllabi are drafted for B.E CSE (AI&ML) and the same have been vetted in the 11th BOS on 19.06.2024
3.3 Reduction in Intake in Civil Engineering Programme.	• The intake has been reduced for B.E Civil Engineering by 30 seats.
3.4 New Lab Creation and Upgradation of Existing Laboratories	• Purchased a software (CST Studio) with 30 Academic License for ECE Department for the tune of Rs 6 Lakhs.
3.5 Planning for Regulation 2024	• **Regulation 2024** for undergraduate (UG) and postgraduate (PG) in connection with the National Education Policy (NEP) and Anna University guidelines has been framed. The curriculum for UG programs, including courses for the first and second semesters, has been developed and presented to the Board of Studies (BoS) of the respective programs. Additionally, design thinking projects have been incorporated into the curriculum to foster innovative problem-solving skills among students.

The Council resolved to confirm the Minutes of the 10th Academic Council Meeting held on 13.02.2024.

Item 24.AC/11.2: Compilation of key points from the 11th BOS proceedings & 10th BOS action taken report

1. BoS Conducted on 19.06.2024 for the programmes Computer Science and Engineering, Computer Science and Business System, CSE (AI&ML), Artificial Intelligence and Data Science , Information Technology, Master of Computer Applications Faculty of Civil Engineering conducted on 22.06.2024
2. Faculty of Electrical and Electronics Engineering conducted on 10.06.2024
3. Faculty of Electronics and Communication Engineering conducted on 22.06.2024.
4. Faculty of Mechanical Engineering conducted on 10.06.2024
5. Faculty of Management Studies conducted on 21.06.2024
6. Faculty of Science and Humanities conducted on 5.7.2024

The proceedings of the 11th BOS were presented to the committee as below:

- **List of NPTEL Courses:** The List of NPTEL Courses finalized in the BOS of all the UG Departments under R 2021 was presented to the Council. **(Annexure 1)**

The Council resolved to confirm the above courses and other proceedings as recommended in the BOS of the various departments to be implemented for the students under the Regulation 2021 with regard to the list of NPTEL Courses

- **Skill based Value Added Courses:** The List of Skill Based Value Added Courses finalized in the BOS of all the UG Departments under R 2021 was presented to the Council. **(Annexure 2)**

The Council resolved to confirm the above courses and other proceedings as recommended in the BOS of the various departments to be implemented for the students under the Regulation 2021 with regard to the Skill based Value Added Courses

Item 24.AC/11.3: Points for Discussion and Approval:

Item 24.AC/11.3.1 New Head of the Department for CSE(AI&ML)

11.3.1 New Head of the Department for CSE(AI&ML)

The Council approved the nomination of New Head Dr.Jainul Fathima for the Department of CSE (AI & ML)

Item 24.AC 11.3.2: UG Regulation 2024

- UG Regulation 2024 along with the Curriculum was presented to the council (Annexure 3)

The Council resolved and approved the UG Regulation 2024 along with its curriculum to be followed from the Academic Year 2024-25 onwards

Item 24.AC 11.3.2.1: PG Regulation 2024

- PG Regulation 2024 along with the Curriculum was presented to the council (Annexure 4)

The Council resolved and approved the PG Regulation 2024 along with its curriculum to be followed from the Academic Year 2024-25 onwards

Item 24.AC/11.4 : Any Other Points

- Universities from Taiwan shall be approached for Student Mobility Programmes and for Credit Transfer Options.
- Students shall be motivated to learn the Taiwan Language.
- Manufacturing domain shall be given importance while framing the curriculum.
- Startups based on the Electric Vehicle sector shall be initiated.
- Computer and Computer aligned programme students shall be trained to create applications to support EV Sector.
- More courses based on Automation shall be included in the curriculum.

The meeting came to a close with a vote of thanks by Mrs. Annie Rose Nirmala, Head, MBA

Prepared By

15/7/2024.

L.R Priya,
Prof. Academics

Approved By
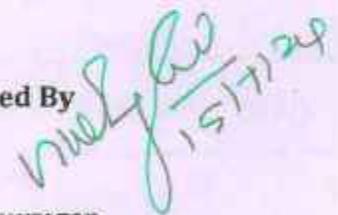
15/7/24

Dr. V. Velmurugan,
Principal
Chairman, Academic Council
Francis Xavier Engineering College

11ᵗʰ ACADEMIC COUNCIL MEETING -ATTENDANCE SHEET

Date & Time: 15.07.2024 & 11.00 a.m   Venue: Conference Hall

Sl. No	Name	Designation	Position in Academic Council	Sign
1	Dr.V.Velmurugan	Principal, Francis Xavier Engineering College	Chairman	
2	Dr.N.Shenbaga Vinayaga Moorthi	Professor and Dean, Anna University Regional Campus-Tirunelveli	University Nominee	
3	Dr. T. Sree Renga Raja	Professor, Department of Electrical and Electronics Engineering, University College of Engineering, Konam, Nagercoil.	University Nominee	
4	Dr.C.K.Babulal	Professor & Head, Department of Electrical and Electronics Engineering, Thiyagarajar College of Engineering, Madurai.	University Nominee	
6	Dr. Balaji Venkataraman	President TVS Sensing Solutions Private Limited (Formerly ZF Electronics TVS (India) Private Limited) Madurai – 625 122,	Industrial Expert	U.Balaji
6	Mr.Rajendran	President - Allience Tyre Group, ATG tyre, Yokohama Rubber Company, Sipcot Industrial Growth, Centre, Gangaikondan, Tirunelveli.	Industrial Expert	Absene-
7	Dr. K Sivakumar	Dean - PDS ,Sr. Professor, Dept. of Mechanical Engineering, Bannari Amman Institute of Technology, Erode	Academic Expert Member	Absene-
8	Dr.K.Jeya Kumar	Professor, Department of Mechanical Engineering, SCAD College of	Academic Expert Member	

Council Meeting on 15.07.2024

		Engineering and Technology		
9	Dr.L.R. Priya	Professor /Academics	Member Secretaryr	
10	Dr.A.Gnana Saravanan	Professor /Placement & Industry Institute Interaction	Member	
11	Prof.J.Zahariya Gabriel	Asso. Professor / CSE Department & Campus Manager	Member	
12	Dr.G.Rajakumar	COE & Professor /ECE Department	Member	
13	Dr.M.Caroline Viola Stella Mary	Professor/IT Department	Member	
14	Prof.David Ayling	Asso.Professor / English	Member	
15	Prof. J.Samuel Prabaharan	Assistant Professor & Head - Civil		
16	Dr.G.Aravind Swaminathan	Professor & Head - CSE		
17	Prof. J. Friska	Asso.Professor & Head - ECE		
18	Dr.A. Ravi	Professor & Head - EEE	BOS Chairman	
19	Dr.R.Samuel Hansen	Professor & Head - MECH		
20	Prof. D.Annie Rose Nirmala	Asso.Professor & Head -MBA		
21	Prof. Shala F John	Assistant Professor & Coordinator S & H		
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23	Dr.S. Gomathi	Professor & Head - CSBS	Member	
24	Dr.A.Anitha	Professor & Head - AI&DS	Member	
25	Dr. A.Jainul Fathima	Professor & Head - AI&ML	Member	

mic Council Meeting on 15.07.2024

26	Prof.D.Angeline Ranjitha Mani	Asso.Professor & Head - MCA	Member	
27	Dr.Lourdes Poobala Rayan	Professor/Entrepreneurship and Development Cell	Special Invitee	
28	Mr.Krishnakumar	General Manager (Administration),SCAD Group of Institution	Special Invitee	
29	Dr.Mohammed Sadik	Director,Placement	Special Invitee	
30	Dr.John Kennedy	Director, Admissions	Special Invitee	
31	Dr.C.K.Ravi Sankar	Director, Placement	Special Invitee	
32	Dr.J.Jasper Gnana Chandren	Director, IQAC	Special Invitee	

11th Academic Council Meeting on 15.07.2024

Annexure I -List of NPTEL Courses -R2021

June -December 2024

Department – Civil Engineering

S. No	Course Code	Course Name	Offered by	Week
1	noc24-ce74	Dynamics of Structures	IIT Bombay	12 weeks
2	noc24-ce97	Engineering Geology	IIT (ISM Dhanbad)	12 weeks
3	noc24-ce64	Geotechnical Earthquake Engineering	IIT Kharagpur	12 weeks
4	noc24-ce94	Ground Improvement	IIT Kharagpur	12 weeks
5	noc24-ce70	Introduction to Engineering Seismology	IISc Bangalore	12 weeks
6	noc24-ce77	Municipal Solid Waste Management	IIT Guwahati	12 weeks
7	noc24-ce66	Pavement Materials (Under Pavement Engineering)	IIT Roorkee	12 weeks
8	noc24-ce81	Railway Engineering	IIT Roorkee	12 weeks
9	noc24-ce71	Remote Sensing: Principles and Applications	IIT Bombay	12 weeks

Department –Computer Science and Engineering

S.No	Course Code	Course Name	Offered by	No. of Weeks
1.	noc24-cs99	Advanced Distributed Systems	IIT Delhi	12 Weeks
2.	noc24-cs102	Reinforcement Learning	IIT Madras	12 Weeks
3.	noc24-cs89	Deep Learning for Computer Vision	IIT Hyderabad	12 Weeks
4.	noc24-cs103	Getting Started with Competitive Programming	IIT Gandhinagar	12 Weeks
5.	noc24-cs90	Social Network Analysis	IIT Delhi	12 Weeks
6.	noc24-cs120	Social Networks	IIT Ropar	12 Weeks

S.No	Course Code	Course Name	Offered by	No. of Weeks
7.	noc24-cs114	Deep Learning - IIT Ropar	IIT Ropar	12 Weeks
8.	noc24-cs121	Cyber Security and Privacy	IIT Madras	12 Weeks
9.	noc24-cs93	Multi-Core Computer Architecture	IIT Guwahati	12 Weeks
10.	noc24-cs94	Ethical Hacking	IIT Kharagpur	12 Weeks
11.	noc24-cs12	Computer Vision	IIT Kharagpur	12 Weeks
12.	noc24-cs95	Introduction to Industry 4.0 and Industrial Internet of Things	IIT Kharagpur	12 Weeks
13.	noc24-cs11	Introduction to Internet of Things	IIT Kharagpur	12 Weeks
14.	noc24-cs12	Design & Implementation of Human-Computer Interfaces	IIT Guwahati	12 Weeks
15.	noc24-cs10	Algorithmic Game Theory	IIT Kharagpur	12 Weeks

Department – Electronics and Communication Engineering

S.No	Course Code	Course Name	Offered by	Week
1	noc24-cs88	Artificial Intelligence : Search Methods For Problem solving	IIT Madras	12 Weeks
2	noc24-cs118	Cloud Computing	IIT Kharagpur	12 Weeks
3	noc24-cs121	Cyber Security and Privacy	IIT Madras	12 Weeks
4	noc24-cs94	Ethical Hacking	IIT Madras	12 Weeks
5	noc24-cs95	Introduction to Industry 4.0 and Industrial Internet of Things	IIT Madras	12 Weeks
6	noc24-ee152	5G Wireless Standard Design	IIT Kharagpur	12 Weeks
7	noc24-ee111	Analog VLSI Design	IIT Kharagpur	12 Weeks
8	noc24-ee117	Electrical Measurement and Electronic Instruments	IIT Kharagpur	12 Weeks

S.No	Course Code	Course Name	Offered by	Week
9	noc24-ee146	Machine Learning and Deep Learning - Fundamentals and Applications	IIT Kharagpur	12 Weeks
10	noc24-ee104	Principles and Techniques of Modern Radar Systems	IIT Kharagpur	12 Weeks
11	noc24-ee114	Fundamentals of Nano and Quantum Photonics	IIT Kharagpur	12 Weeks
12	noc24-ee108	Fabrication Techniques for MEMs-Based Sensors : Clinical Perspective	IIT Kharagpur	12 Weeks
13	cec24_cs12	Data Mining	IIT Madras	12 Weeks

Department -Electrical and Electronics Engineering

Regulation-2021

S.No	Course Code	Course Name	Offered by	Week
1	noc24-ee109	Design of Photovoltaic Systems	IISc Bangalore	12 Weeks
2	noc24-ee110	Enclosure Design of Electronics Equipment	IISc Bangalore	12 Weeks
3	noc24-ee131	Fiber Optic Communication Technology	IIT Madras	12 Weeks
4	noc24-ee114	Fundamentals of Nano and Quantum Photonics	IIT Hyderabad	12 Weeks
5	noc24-ee145	Optical Engineering	IIT Madras	12 Weeks
6	noc24-ee102	VLSI Design Flow: RTL to GDS	IIIT Delhi	12 Weeks
7	noc24-ee115	Microwave Engineering	IIT Guwahati	12 Weeks
8	noc24-ee133	Digital Image Processing	IIT Kharagpur	12 Weeks
9	noc24-ee104	Principles and Techniques of Modern Radar Systems	IIT Kharagpur	12 Weeks
10	noc24-ee119	Modern Digital Communication Techniques	IIT Kharagpur	12 Weeks
11	noc24-ee148	Smart Grid: Basics to Advanced Technologies	IIT Roorkee	12 Weeks
12	noc24-ee136	Real-Time Digital Signal Processing	IISc Bangalore	12 Weeks

S.No	Course Code	Course Name	Offered by	Week
13	noc24-ee139	Microelectronics: Devices to Circuits	IIT Roorkee	12 Weeks
14	noc24-ee121	Modeling, Analysis and Estimation of Three Phase Unbalanced Power Network	IIT Roorkee	12 Weeks
15	noc24-ee127	Electronic Systems Design: Hands-on Circuits and PCB Design with CAD Software	IIT Delhi	12 Weeks

Department – Information Technology

S.No	Course Code	Course Name	Offered by	Week
1	noc24-cs86	Distributed Optimization and Machine Learning	IT	12 Weeks
2	noc24-cs85	Practical Cyber Security for Cyber Security Practitioners	IT	12 Weeks
3	noc24-cs88	Artificial Intelligence : Search Methods For Problem solving	IT	12 Weeks
4	noc24-cs103	Getting Started with Competitive Programming	IT	12 Weeks
5	noc24-cs113	The Joy of Computing using Python	IT	12 Weeks
6	noc24-cs107	Statistical Learning for Reliability Analysis	IT	12 Weeks
7	noc24-cs95	Introduction to Industry 4.0 and Industrial Internet of Things	IT	12 Weeks
8	noc24-cs96	Data Structure and Algorithms using Java	IT	12 Weeks
9	noc24-cs109	Algorithmic Game Theory	IT	12 Weeks
10	noc24-cs126	Design & Implementation of Human-Computer Interfaces	IT	12 Weeks
11	noc24-cs76	Artificial Intelligence for Economics	IT	12 Weeks
12	noc24-cs97	Approximation Algorithm	IT	12 Weeks

Department – Mechanical Engineering

S.No	Course Code	Course Name	Offered by	Week
1	noc24-cs95	Introduction to Industry 4.0 and Industrial Internet of Things	IIT Kharagpur	12 Weeks
2	noc24-mg93	Entrepreneurship	IIT Madras	12 Weeks
3	noc24-me139	Automation in Manufacturing	IIT Guwahati	12 Weeks
4	noc24-mg106	Operations and Supply chain Management	IIT Madras	12 Weeks
5	noc24-mg110	Industrial Safety Engineering	IIT Kharagpur	12 Weeks
6	noc24-me141	Computational Fluid Dynamics	IIT Kharagpur	12 Weeks
7	noc24-mg92	E-Business	IIT Kharagpur	12 Weeks
8	noc24-me115	Rapid Manufacturing	IIT Kanpur	12 Weeks
9	noc24-me117	Industrial Robotics : Theories for Implementation	IIT Kharagpur	12 Weeks
10	noc24-me138	Fundamentals of Additive Manufacturing Technologies	IIT Guwahati	12 Weeks
11	noc24-mm34	Powder Metallurgy	IIT Madras	12 Weeks
12	noc24-ch65	Introduction to Polymer Physics	IIT Roorkhe	12 Weeks
13	noc24-ce107	Artificial Intelligence and Machine Learning in Materials Engineering	IIT Kanpur	12 Weeks
14	noc24-me142	Energy Conservation and Waste Heat Recovery	IIT Kharagpur	12 Weeks
15	noc24-ge47	Fundamentals of Artificial Intelligence	IIT Guwahati	12 Weeks

Department – Artificial Intelligence and Data Science

S.No	Course Code	Course Name	Offered by	Week
1.	noc24-cs90	Social Network Analysis	IIT-DELHI	12 Weeks
2.	noc24-cs113	The Joy of Computing using Python	IIT-ROPAR	12 Weeks
3.	noc24-cs112	Secure Computation: Part II	IIT-BANGALORE	12weeks
4.	noc24-cs99	Advanced Distributed Systems	IIT-DELHI	12weeks
5.	noc24-cs85	Practical Cyber Security for Cyber Security Practitioners	IIT-KANPUR	12 Weeks
6.	noc24-cs127	Software Conceptual Design	IIT-BOMBAY	4 Weeks
7.	noc24-cs70	Introduction to Graph Algorithms	IISc-BANGALORE	8 Weeks
8.	noc24-cs69	Demystifying Networking	IIT-BOMBAY	4 Weeks
9.	noc24-cs71	Theory of Computation	IIT-KANPUR	8 Weeks
10.	noc24-cs107	Statistical Learning for	IIT-KHARAGPUR	12 Weeks

S.No	Course Code	Course Name	Offered by	Week
		Reliability Analysis		
11.	noc24-cs131	Google Cloud Computing Foundations	IIT-KHARAGPUR	8 Weeks
12.	noc24-cs94	Ethical Hacking	IIT-KHARAGPUR	12 Weeks
13.	noc24-cs132	Responsible & Safe AI Systems	IIT-HYDERABAD,IIT-MADRAS	12 weeks
14.	noc24-mg78	Project Management: Planning, Execution, Evaluation and Control	IIT-KHARAGPUR	8 Weeks
15.	noc24-mg79	Business Analytics & Text Mining Modeling using Python	IIT-ROORKEE	8 Weeks
16.	noc24-mg90	Decision Making with Spreadsheet	IIT-ROORKEE	8 Weeks
17.	noc24-mg96	Management Information System	IIT-KHARAGPUR	12 Weeks
18.	noc24-me126	Social Innovation in Industry 4.0	IIT-KANPUR	12 Weeks
19.	noc24-me117	Industrial Robotics : Theories for Implementation	IIT-ISM-DHANBAD	12 Weeks

Department – Computer Science and Business Systems

S.No	Course Code	Course Name	Offered by	Week
1.	noc24-hs126	HR Analytics	IIT Roorkee	12 Weeks
2.	noc24-hs117	Psychology of Learning	IIT Kharagpur	12 Weeks
3.	noc24-cs102	Reinforcement Learning	IIT Madras	12 Weeks
4.	noc24-cs89	Deep Learning for Computer Vision	IIT Hyderabad	12 Weeks
5.	noc24-cs90	Social Network Analysis	IIT Delhi	12 Weeks
6.	noc24-cs118	Cloud Computing	IIT Kharagpur	12 Weeks
7.	noc24-cs120	Social Networks	IIT Ropar	12 Weeks
8.	noc24-cs114	Deep Learning	IIT Ropar	12 Weeks
9.	noc24-cs121	Cyber Security and Privacy	IIT Madras	12 Weeks
10.	noc24-cs115	Introduction to Internet of Things	IIT Kharagpur	12 Weeks

PG

Department – Master of Business Administration

S.No	Course Code	Course Name	Offered by	Week
1	noc24-mg115	Commodity Derivatives & Risk Management	IIT Kharagpur	12 Weeks
2	noc24-mg101	Quantitative Investment Management	IIT Roorkee	12 Weeks
3	noc24-mg89	Product and Brand Management	IIT Roorkee	12 Weeks
4	noc24-mg91	Business to Business Marketing (B2B)	IIT Roorkee	12 Weeks
5	noc24-mg111	Service Management: Integrating Strategy, Operations, and Technology	IIT Kharagpur	12 Weeks
6	noc24-mg116	Project Management for Managers	IIT Roorkee	12 Weeks
7	noc24-mg117	Automation In Production Systems and Management	IIT Kharagpur	12 Weeks
8	noc24-mg110	Industrial Safety Engineering	IIT Kharagpur	12 Weeks
9	noc24-mg108	Human Factors Engineering	IIT Kharagpur	12 Weeks
10	noc24-mg107	Advanced Business Decision Support Systems	IIT Kanpur	12 Weeks
11	noc24-mg96	Management Information System	IIT Kharagpur	12 Weeks

Department – Master of Computer Application

S.No	Course Code	Course Name	Offered by	Week
1	noc24-cs88	Artificial Intelligence : Search Methods For Problem solving	IIT	12 Weeks

S.No	Course Code	Course Name	Offered by	Week
2	noc24-cs121	Cyber Security and Privacy	IIT	12 Weeks
3	noc24-cs101	Introduction to Machine Learning	IIT	12 Weeks
4	noc24-cs102	Reinforcement Learning	IIT	12 Weeks
5	noc24-cs89	Deep Learning for Computer Vision	IIT	12 Weeks
6	noc24-cs117	Parameterized Algorithms	IITK	12 Weeks
7	noc24-cs103	Getting Started with Competitive Programming	IITG	12 Weeks
8	noc24-cs104	Applied Accelerated Artificial Intelligence	IIT	12 Weeks
9	noc24-cs90	Social Network Analysis	IIT	12 Weeks
10	noc24-cs118	Cloud Computing	IIT	12 Weeks
11	noc24-cs119	Software Engineering	IIT	12 Weeks
12	noc24-cs91	Software Testing	IIIT	12 Weeks
13	noc24-cs120	Social Networks	IIT	12 Weeks
14	noc24-cs106	Computational Complexity	IIT	12 Weeks

S.No	Course Code	Course Name	Offered by	Week
15	noc24-cs114	Deep Learning - IIT Ropar	IITR	12 Weeks
16	noc24-cs121	Cyber Security and Privacy	IIT	12 Weeks
17	noc24-cs93	Multi-Core Computer Architecture	IIT	12 Weeks
18	noc24-cs122	C-Based VLSI Design	IIT	12 Weeks
19	noc24-cs107	Statistical Learning for Reliability Analysis	IITK	12 Weeks
20	noc24-cs94	Ethical Hacking	IIT	12 Weeks
21	noc24-cs124	Computer Vision	IIT	12 Weeks
22	noc24-cs96	Data Structure and Algorithms using Java	IIT	12 Weeks
23	noc24-cs116	Introduction To Algorithms and Analysis	IITK	12 Weeks
24	noc24-cs109	Algorithmic Game Theory	IITK	12 Weeks
25	noc24-cs126	Design & Implementation of Human-Computer Interfaces	IIT	12 Weeks
26	noc24-cs132	Responsible & Safe AI Systems	IIIT Hyderabad, IIT Madras	12 Weeks

S.No	Course Code	Course Name	Offered by	Week

Annexure II -List of Skill Based Value Added Courses

Department: Information Technology

Regulation: 2021

Stream I

S.No	Sem/Year	Course code	Course Name	L	T	P	C
1	1	24FCIT01	Computer Hardware Mantling and Dismantling	0	0	2	-
2	1	24FCIT02	Animation Tool : CANVA, FIGMA	0	0	2	-
3	2	24MSIT03	Boot Camp on Data Analysis Tools	0	0	4	2
4	3	24MSIT05	Programming Boot Camp in Linux Environment	0	0	4	2
5	4	24MSIT07	Programming Boot Camp in Advanced Algorithms	0	0	4	2
6	5	24MSIT08	Full Stack Development	0	0	4	2
7	6	24MSIT10	Placement Fit Training – Level 1	0	0	4	2
8	7	24MSIT11	Placement Fit Training – Level 2	0	0	4	2

Stream II

S.No	Sem/Year	Course code	Course Name	L	T	P	C
1	1	24FCIT01	Computer Hardware Mantling and Dismantling	0	0	4	2
2	1	24FCIT02	Animation Tool : CANVA, FIGMA	0	0	4	2
3	2	24MSIT04	Mathematical Foundations for IT Engineers	0	0	4	2
4	3	24MSIT06	Digital Foundation: Exploring Logics and Architecture Organization	0	0	4	2
5	4	24MSIT07	Programming Boot-camp on Advanced Algorithms	0	0	4	2

6	5	24MSIT09	Mastering in Network and System Foundations	0	0	4	2
7	6	24MSIT10	Placement Fit Training – Level 1	0	0	4	2
8	7	24MSIT11	Placement Fit Training – Level 2	0	0	4	2

Department: Computer Science and Business Systems

Regulation: 2021

S.No	Sem/Year	Course code	Course Name	L	T	P	C
1	01	24CB1SK01	Foundation Course	0	0	4	2
2	02	24CB2SK01	Front End Web Development (HTML, CSS, Angular)	0	0	4	2
3	03	24CB3SK01	Data Visualization Using Power BI and Tableau	0	0	4	2
4	04	24CB4SK01	Back – End Technologies (Node.js, Django, Flask)	0	0	4	2
5	05	24CB5SK01	Mobile Application Development using Flutter	0	0	4	2

FRANCIS XAVIER ENGINEERING COLLEGE
B.E. –CSE [ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING]

REGULATIONS 2024
Choice Based Credit System and Outcome Based Education

I-VIII Semester Curriculum and Syllabi

SEMESTER I

S. No	Course Code	Course Name	Category	Contact Periods	L	T	P	C
Theory Courses								
1	24MA1201	Matrices and Multivariable Calculus	BS	4	3	1	0	4
2	24PH1301	Applied Physics	BS	2	2	0	0	2
3	24CY1401	Applied Chemistry	BS	2	2	0	0	2
4	24CS1501	Introduction To Programming With C	ES	3	3	0	0	3
5	24AM1601	Artificial Intelligence Essentials	ES	2	2	0	0	2
6	24HS1103	Tamil Heritage/தமிழர் மரபு	HSSM	2	2	0	0	1
Theory cum Practical Courses								
1	24HS1101	Professional Communication Skills	HSSM	4	2	0	2	3
Practical Courses								
1	24PC1311	Applied Physics and Chemistry Laboratory	BS	4	0	0	4	2
2	24CS1511	Programming Practice Laboratory using C	ES	4	0	0	4	2
3	24GE1511	Engineering Practices Laboratory	ES	4	0	0	4	2
			Total	31	16	1	14	23

SEMESTER II

S.No	Course Code	Course Name	Category	Contact Periods	L	T	P	C
Theory Courses								
1	24HS2101	Technical Communication Skills	HSSM	2	2	0	0	2
2	24MA2201	Complex Analysis and Fourier Series	BS	4	3	1	0	4
3	24CS2501	Introduction to Computing using Python	ES	3	3	0	0	3
4	24EE2501	Fundamentals of Electrical and Electronics Engineering	ES	3	3	0	0	3
5	24ME1501	Engineering Graphics	ES	4	2	0	4	4
6	24GE2901	Design Thinking	EEC	1	1	0	0	1
7	24HS2103	Technology in Tamil Culture/தமிழரும் தததொழில் நுட்பழும்	HSSM	1	1	0	0	1
Practical Courses								
1	24CS2511	Python Programming Laboratory	ES	4	0	0	4	2
			Total	22	15	1	8	20

SEMESTER V

S.No	Course Code	Course Name	Category	Contact Periods	L	T	P	C
Theory Courses								
1	24AM5601	Machine Learning	PC	3	3	0	0	3
2	24IT5602	Virtualization and Cloud Computing	PC	3	3	0	0	3
3	24AM5603	Cryptography and Security	PC	3	3	0	0	3
4	24AM5604	Natural Language Processing	PC	3	3	0	0	3
5		Professional Elective I (CV/ information processing)	PE	3	3	0	0	3
6		Open Elective –III (Embedded Systems and IoT)	OE	3	3	0	0	3
Practical Courses								
1	24AM5611	Machine Learning Laboratory	PC	4	0	0	4	2
2	24HS5911	Communication and Soft skills Laboratory	EEC	1	0	0	2	1
3	24PT4901	Soft skills-Aptitude II	EEC	1	0	0	2	1
			Total	24	18	0	8	22

SEMESTER VI

S.No	Course Code	Course Name	Category	Contact Periods	L	T	P	C
Theory Courses								
1	24AM6601	Neural Networks and Deep Learning	PC	3	3	0	0	3
2	24AM6602	AI and Expert Systems	PC	3	3	0	0	3
3	24AM6603	Data Mining and Big Data Analytics	PC	3	3	0	0	3
4		Professional Elective II : Robotics and Automation	PE	3	3	0	0	3
5		Professional Elective III :Optimization Techniques /Reinforcement Learning	PE	3	3	0	0	3
6		Open Elective –IV Cyber security	OE	3	3	0	0	3
7	24GE2M01	Environmental and Sustainable Engineering	MC	2	2	0	0	0
Practical Courses								
1	24AM6911	Data Mining and Big data analytics laboratory	PC	4	0	0	4	2
2	24PT4902	Soft skills-Reasoning	EEC	1	0	0	2	1
3	24CS6912	Internship	EEC	2	0	0	4	2
			Total	27	20	0	10	23

SEMESTER VII

S.No	Course Code	Course Name	Category	Contact Periods	L	T	P	C
Theory Courses								
1	24HS7101	Principles of Quality and Management	HSSM	3	3	0	0	3
2	24AM7601	Advanced Machine Learning	PC	3	3	0	0	3
3		Professional Elective IV : AI for Cyber security	PE	3	3	0	0	3
4		Professional Elective V : AI for Health care	PE	3	3	0	0	3
5		Professional Elective VI : Advanced AI (gen, Neuro symbolic AI)	PE	3	3	0	0	3
Practical Courses								
1	24CS7611	Advanced Machine Learning Laboratory	PC	4	0	0	4	2
2	24CS7612	Mobile Application Development Laboratory	PC	4	0	0	4	2
3	24CS7911	Creative and Innovative Project	EEC	1	0	0	2	2
			Total	24	15	0	8	20

SEMESTER VIII

S.No	Course Code	Course Name	Category	Contact Periods	L	T	P	C
Practical Courses								
1	24CS8911	Project Work	EEC	20	0	0	18	9
			Total	20	0	0	18	9

Total Credits: 164

List of Humanities and Social Sciences Including Management (HSSM) Courses

S.No	Course Code	Course Name	Category	Contact Periods	L	T	P	C
Theory Courses								
1	24HS1103	Tamil Heritage/ தமிழர் மரபு	HSSM	2	2	0	0	1
2	24HS2101	Technical Communication Skills	HSSM	2	2	0	0	2
3	24HS2103	Technology in Tamil Culture/ தமிழரும் ச தொழில் நுட்பமும்	HSSM	2	2	0	0	1
4	24HS4101	Rrofessional Ethics and Human Values	HSSM	2	2	0	0	2
5	24HS7101	Principles of Quality and Management	HSSM	3	3	0	0	3
Theory cum Practical Courses								
6	24HS1101	Professional Communication Skills	HSSM	4	2	0	2	3

List of Basic Science Courses

S.No	Course Code	Course Name	Category	Contact Periods	L	T	P	C
Theory Courses								
1	24MA1201	Matrices and Multivariable Calculus	BS	4	3	1	0	4
2	24PH1301	Applied Physics	BS	2	2	0	0	2
3	24CY1401	Applied Chemistry	BS	2	2	0	0	2
4	24MA2201	Complex Analysis and Fourier Series	BS	4	3	1	0	4
5	24MA3201	Mathematical Foundation for Data Science	BS	4	3	1	0	4
6	24MA4201	Discrete Mathematics	BS	4	3	1	0	4
Practical Courses								
1	24PC1311	Applied Physics and Chemistry Laboratory	BS	4	0	0	4	2

List of Engineering Science Courses

S.No	Course Code	Course Name	Category	Contact Periods	L	T	P	C
Theory Courses								
1	24CS1501	Introduction To Programming With C	ES	3	3	0	0	3
2	24AM1601	Artificial Intelligence Essentials	ES	3	3	0	0	3
3	24CS2501	Introduction to Computing using Python	ES	3	3	0	0	3
4	24EE2501	Fundamentals of Electrical and Electronics Engineering	ES	3	3	0	0	3
5	24ME1501	Engineering Graphics	ES	4	2	0	4	4
6	24IT3501	Digital Principles and System Design	ES	4	2	0	2	3
Practical Courses								
1	24CS1511	Programming Practice Laboratory using C	ES	4	0	0	4	2
2	24GE1511	Engineering Practices Laboratory	ES	4	0	0	4	2
3	24CS2511	Python Programming Laboratory	ES	4	0	0	4	2

List of Employability Enhancement Course

S.No	Course Code	Course Name	Category	Contact Periods	L	T	P	C
Practical Courses								
1	24GE2901	Design Thinking	EEC	1	1	0	0	1
2	24PT3902	Soft skills-Verbal Ability	EEC	1	0	0	2	1
3	24PT3901	Soft skills-Aptitude - I	EEC	1	0	0	2	1
4	24GE4911	Design Thinking Project	EEC	1	0	0	2	1
5	24HS5101	Communication and Soft skills Laboratory	EEC	1	0	0	2	1
6	24PT4902	Soft skills-Reasoning	EEC	1	0	0	2	1
7	24PT4901	Soft skills-Aptitude II	EEC	1	0	0	2	1
8	24CS6912	Internship	EEC	2	0	0	4	2
Practical Courses								
1	24CS7911	Creative and Innovative Project	EEC	4	0	0	4	2
2	24CS8911	Project Work	EEC	20	0	0	18	9

List of Professional Electives Courses

S.No	Course Code	Course Name	Semester	L	T	P	C	Stream/ Domain
Professional Elective I								
1	24AM5701	Advanced Computer Vision and Information Processing Techniques	5	3	0	0	3	Advanced Machine Learning and Deep Learning
2	24AM5702	Big Data Technologies	5	3	0	0	3	Data Science and Analytics
3	24AM5703	AI for Healthcare	5	3	0	0	3	AI in Industry and Applications
4	24AM5704	Ethical AI and Responsible AI Practices	5	3	0	0	3	Ethics, Policy, and Societal Impact
5	24AM5705	Graphics and Multimedia	5	3	0	0	3	Creative Media
6	24AM5706	Robotics Fundamentals and Design	5	3	0	0	3	Robotics and Intelligent Systems
Professional Elective II								
1	24AM6701	Robotics and Automation	6	3	0	0	3	Advanced Machine Learning and Deep Learning
2	24AM6702	Data Mining and Warehousing	6	3	0	0	3	Data Science and Analytics
3	24AM6703	Autonomous Systems and Robotics	6	3	0	0	3	AI in Industry and Applications
4	24AM6704	AI and Privacy	6	3	0	0	3	Ethics, Policy, and Societal Impact
5	24AM6705	Virtual Reality	6	3	0	0	3	Creative Media
6	24AM6706	Autonomous Systems and Navigation	6	3	0	0	3	Robotics and Intelligent Systems

Professional Elective III

1	24AM6706	Optimization Techniques and Reinforcement Learning	6	3	0	0	3	Advanced Machine Learning and Deep Learning
2	24AM6707	Statistical Methods for Data Science	6	3	0	0	3	Data Science and Analytics
3	24AM6708	Computer Forensic Analysis and Investigation	6	3	0	0	3	AI in Industry and Applications
4	24AM6709	Regulatory Frameworks for AI and Emerging Technologies	6	3	0	0	3	Ethics, Policy, and Societal Impact
5	24AM6710	Visual Effects	6	3	0	0	3	Creative Media
6	24AM6711	Human-Robot Interaction	6	3	0	0	3	Robotics and Intelligent Systems

Professional Elective IV

1	24AM7701	Generative Adversarial Networks (GANs)	7	3	0	0	3	Advanced Machine Learning and Deep Learning
2	24AM7702	Predictive Analytics	7	3	0	0	3	Data Science and Analytics
3	24AM7703	Prompt Engineering	7	3	0	0	3	AI in Industry and Applications
4	24AM7704	Ethics and Artificial Intelligence	7	3	0	0	3	Ethics, Policy, and Societal Impact
5	24AM7705	Video Creation and Editing	7	3	0	0	3	Creative Media
6	24AM7706	Intelligent Control Systems	7	3	0	0	3	Robotics and Intelligent Systems

Professional Elective V

1	24AM7706	Transfer Learning and Domain Adaptation	7	3	0	0	3	Advanced Machine Learning and Deep Learning
2	24AM7707	Business Intelligence and Data Warehousing	7	3	0	0	3	Data Science and Analytics
3	24AM7708	Ethical Hacking and Cyber Forensics	7	3	0	0	3	AI in Industry and Applications
4	24AM7709	Privacy, Security, and AI	7	3	0	0	3	Ethics, Policy, and Societal Impact
5	24 AM7710	Game Development	7	3	0	0	3	Creative Media
6	24AM7711	Swarm Robotics and Multi-Agent Systems	7	3	0	0	3	Robotics and Intelligent Systems

Professional Elective VI

S.No	Course Code	Course Name	Sem	L	T	P	C	Offered from
1	24AM7711	Prompt Engineering	7	3	0	0	3	Advanced Machine Learning and Deep Learning
2	24AM 7712	Business Intelligence	7	3	0	0	3	Data Science and Analytics
3	24AM7713	Intrusion Detection and Prevention System	7	3	0	0	3	AI in Industry and Applications
4	24AM7714	Responsible AI: Bias, Fairness, and Transparency	7	3	0	0	3	Ethics, Policy, and Societal Impact
5	24AM7715	Multimedia Data Compression and Storage	7	3	0	0	3	Creative Media
6	24AM7716	Machine Learning for Robotics	7	3	0	0	3	Robotics and Intelligent Systems

List of Open Electives Courses

Offered to Departments - Civil, EEE & Mech

S.No	Course Code	Course Name	Sem	L	T	P	C	Offered from
Open Elective I								
1	24AM3801	Fundamentals of Data Structures and Algorithms	3	3	0	0	3	AI ML
2	24AM3802	Core Concepts in Operating Systems	3	3	0	0	3	AI ML
3	24 AM3804	Object Oriented Programming in C++	3	3	0	0	3	AI ML
4	24AM3805	Best Practices in Software Engineering	3	3	0	0	3	AI ML
Open Elective II								
1	24AM4801	Web Design and Management	4	3	0	0	3	AI ML
2	24AM4802	Foundations of Mobile Game Design	4	3	0	0	3	AI ML
3	24AM4803	Fundamentals of Multimedia Principles	4	3	0	0	3	AI ML
4	24AM4805	SQL Programming	4	3	0	0	3	AI ML
Open Elective III								
1	24AM5801	Essentials of Cloud Computing	5	3	0	0	3	AI ML
2	24AM5802	Foundations of Virtual Reality and Augmented Reality	5	3	0	0	3	AI ML

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I-VIII Semester Curriculum and Syllabi
SEMESTER I

S. No	Course Code	Course Name	Category	Contact Periods	L	T	P	C
Theory Courses								
1	24MA1201	Matrices and Multivariable Calculus	BS	4	3	1	0	4
2	24PH1301	Applied Physics	BS	2	2	0	0	2
3	24CY1401	Applied Chemistry	BS	2	2	0	0	2
4	24CS1501	Introduction To Programming With C	ES	3	3	0	0	3
5	24AM1601	Artificial Intelligence Essentials	ES	2	2	0	0	2
6	24HS1103	Tamil Heritage/தமிழர் மரபு	HSSM	2	2	0	0	1
Theory cum Practical Courses								
1	24HS1101	Professional Communication Skills	HSSM	4	2	0	2	3
Practical Courses								
1	24PC1311	Applied Physics and Chemistry Laboratory	BS	4	0	0	4	2
2	24CS1511	Programming Practice Laboratory using C	ES	4	0	0	4	2
3	24GE1511	Engineering Practices Laboratory	ES	4	0	0	4	2
			Total	31	16	1	14	23

SEMESTER II

S.No	Course Code	Course Name	Category	Contact Periods	L	T	P	C
Theory Courses								
1	24HS2101	Technical Communication Skills	HSSM	2	2	0	0	2
2	24MA2201	Complex Analysis and Fourier Series	BS	4	3	1	0	4
3	24CS2501	Introduction to Computing using Python	ES	3	3	0	0	3
4	24EE2501	Fundamentals of Electrical and Electronics Engineering	ES	3	3	0	0	3
5	24ME1501	Engineering Graphics	ES	4	2	0	4	4
6	24GE2901	Design Thinking	EEC	1	1	0	0	1
7	24HS2103	Technology in Tamil Culture/தமிழரும் ததொழில் நுட்பமும்	HSSM	1	1	0	0	1
Practical Courses								
1	24CS2511	Python Programming Laboratory	ES	4	0	0	4	2
			Total	22	15	1	8	20

3	24AM5803	Fundamentals of Android Application Development	5	3	0	0	3	AI ML
4	24AM5804	Artificial Intelligence Essentials	5	3	0	0	3	AI ML
Open Elective IV								
1	24AM6801	Blockchain Technologies	6	3	0	0	3	AI ML
2	24AM6802	Machine Learning Techniques	6	3	0	0	3	AI ML
3	24AM6803	Animation Designing	6	3	0	0	3	AI ML
4	24AM6804	Ethical hacking and its practices	6	3	0	0	3	AI ML

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Choice Based Credit System and Outcome Based Education

SUMMARY OF CREDIT DISTRIBUTION

S. No	Category	Credits Per Semester								Total Credits	Credits in %
		I	II	III	IV	V	VI	VII	VIII		
1	HSSM	4	3		2			3		12	7.27%
2	BS	10	4	4	4					22	13.33%
3	ES	9	12							21	14.54%
4	PC		2	16	11	14	11	7		57	34.54%
5	PE					3	6	9		18	10.90%
6	OE			3	3	3	3	—		12	7.27%
7	EEC		. 1	1	2	2	3	2	9	20	12.12%
Total		23	20	24	22	22	23	21	9	164	100%

Total Credits: 164

HSSM- Humanities and Social Sciences including Management

BS - Basic Science

ES - Engineering Sciences

PC - Professional Core

PE - Professional Elective

OE - Open Elective/Programme Specific Elective for Expandable Scope

EEC - Employability Enhancement Course

FRANCIS XAVIER ENGINEERING COLLEGE

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I-VIII Semester Curriculum and Syllabi

SEMESTER I

S.No	Course Code	Course Name	Category	Contact Periods	L	T	P	C
Theory Courses								
1	24HS1103	Tamil Heritage	HSSM	4	1	0	0	1
2	24MA1201	Matrices and Multivariable calculus	BS	5	3	1	0	4
3	24PH1301	Applied Physics	BS	3	2	0	0	2
4	24CY1401	Applied chemistry	BS	3	2	0	0	2
5	24CS1501	Introduction to programming with C	ES	4	3	0	0	3
Theory cum Practical Course								
1	24HS1101	Professional Communication skills	HSSM	4	2	0	2	3
Practical Courses								
1	24PC1311	Applied physics and chemistry laboratory	BS	4	0	0	4	2
2	24CS1511	Programming Practice Laboratory using C	ES	4	0	0	4	2
3	24GE1511	Engineering Practices laboratory	ES	4	0	0	4	2
		Total		35	13	1	14	21

SEMESTER II

S.No	Course Code	Course Name	Category	Contact Periods	L	T	P	C
Theory Courses								
1	24HS2103	Technology in Tamil Culture	HSSM	2	1	0	0	1
2	24HS2101	Technical Communication skills	HSSM	3	2	0	0	2
3	24MA2201	Fourier series and Laplace transform	BS	5	3	1	0	4
4	24EE2501	Fundamentals of Electrical and Electronics Engineering	ES	4	3	0	0	3
4	24ME1501	Engineering Graphics	ES	6	2	0	4	4
5	24CS2501	Introduction to Computing Using Python	ES	4	3	0	0	3
6	24CE2501	Strength of Materials	ES	4	3	0	0	3
Practical Courses								
1	24CS2511	Python Programming laboratory	ES	4	0	0	4	2
		Total		32	17	1	8	22

SEMESTER III

S.No	Course Code	Course Name	Category	Contact Periods	L	T	P	C
Theory Courses								
1	24MA3201	Statistical computing and Numerical Techniques	BS	5	3	1	0	4
2	24CE3601	Surveying	PC	3	3	0	0	3
3	24CE3602	Mechanics of Solids	PC	3	3	0	0	3
4	24CE3603	Construction Materials and Technology	PC	3	3	0	0	3
5		Open Elective-I	OE	3	3	0	0	3
Practical Courses								
1	24CE3611	Computer Aided building Drawing Laboratory	PC	4	0	0	4	2
2	24CE3612	Surveying Laboratory	PC	4	0	0	4	2
3	24CE3613	Strength of Materials Laboratory	PC	4	0	0	4	2
Employability Enhancement Course								
1	24PT3901	Soft Skills- Aptitude I	EEC	2	0	0	2	1
			Total	**31**	**15**	**1**	**14**	**23**

SEMESTER IV

S.No	Course Code	Course Name	Category	Contact Periods	L	T	P	C
Theory Courses								
1	24HS4101	Professional Ethics and Human values	HSSM	2	2	0	0	2
2	24CE4601	Structural Analysis	PC	3	3	0	0	3
3	24CE4602	Concrete Technology	PC	3	3	0	0	3
4	24CE4603	Fluid Mechanic and Hydraulics Machines	PC	3	3	0	0	3
5		Open Elective-II	OE	3	3	0	0	3
Theory cum Practical Course								
1	24CE4604	Highway and Traffic Engineering	PC	5	3	0	2	4
Practical Courses								
1	24CE4611	Construction Materials Laboratory	PC	4	0	0	4	2
2	24CE4612	Hydraulics Engineering Laboratory	PC	4	0	0	4	2
Employability Enhancement Course								
1	24PT3902	Soft Skills-Verbal Ability	EEC	2	0	0	2	1
2	24GE2901	Design Thinking	EEC	2	1	0	0	1
			Total	**31**	**18**	**0**	**12**	**24**

SEMESTER V

S.No	Course Code	Course Name	Category	Contact Periods	L	T	P	C
Theory Courses								
1	24CE5601	Design of Masonry and RC Elements	PC	3	3	0	0	3
2	24CE5602	Water and waste water Engineering	PC	3	3	0	0	3
3	24CE5603	Hydrology and Irrigation Engineering	PC	3	3	0	0	3
4		Professional Elective – I	PE	3	3	0	0	3
5		Open Elective – III	OE	3	3	0	0	3
Theory cum Practical Course								
1	24CE5604	Geotechnical Engineering -I	PC	5	3	0	2	4
Practical Courses								
1	24CE5611	Structural Analysis and Design laboratory	PC	4	0	0	4	2
2	24CE5612	Water and waste water Engineering Laboratory	PC	4	0	0	4	2
Employability Enhancement Course								
1	24PT5901	Soft Skills- Aptitude II	EEC	2	0	0	2	1
			Total	30	18	0	12	24

SEMESTER VI

S.No	Course Code	Course Name	Category	Contact Periods	L	T	P	C
Theory Courses								
1	24CE6601	Design of RC Structures	PC	3	3	0	0	3
2	24CE6602	Design of Steel Structural Elements	PC	3	3	0	0	3
3	24CE6603	Geotechnical Engineering -II	PC	3	3	0	0	3
4		Professional Elective – II	PE	3	3	0	0	3
5		Professional Elective – III	PE	3	3	0	0	3
6		Open Elective – IV	OE	3	3	0	0	3
Employability Enhancement Course								
1	24PT5902	Soft Skills-Reasoning	EEC	4	0	0	2	1
2	24HS5911	Communication and Soft Skills Laboratory	EEC	2	0	0	2	1
3	24CE6911	Internship	EEC	2	0	0	4	2
4	24GE4911	Design Thinking Project	EEC	2	0	0	2	1
Mandatory Courses								
1	21GE6M01	Environmental and Sustainable Engineering	MC	2	2	0	0	0
			Total	30	20	0	10	23

SEMESTER VII

S.No	Course Code	Course Name	Category	Contact Periods	L	T	P	C
Theory Courses								
1	24HS7101	Principles of Quality and Management	HSSM	3	3	0	0	3
2	24CE7601	Estimation, Costing and Valuation Engineering	PC	3	3	0	0	3
3		Professional Elective-IV	PE	3	3	0	0	3
4		Professional Elective-V	PE	3	3	0	0	3
5		Professional Elective-VI	PE	3	3	0	0	3
Practical Courses								
1	24CE7911	Innovative Design Project	EEC	4	0	0	4	2
			Total	23	15	0	4	17

SEMESTER VIII

S.No	Course Code	Course Name	Category	Contact Periods	L	T	P	C
1	24CE8911	Project Work-	EEC	18	0	0	18	9
			Total	18	0	0	18	9

Minimum Number of Credits to be Acquired: 163(Regular) / 120 (Lateral)

FRANCIS XAVIER ENGINEERING COLLEGE
B.E. -COMPUTER SCIENCE AND ENGINEERING
REGULATIONS 2024
Choice Based Credit System and Outcome Based Education
I-VIII Semester Curricula and Syllabi

SEMESTER I

S. No	Course Code	Course Name	Category	Contact Periods	L	T	P	C
Theory Courses								
1	24MA1201	Matrices and Multivariable Calculus	BS	4	3	1	0	4
2	24PH1301	Applied Physics	BS	2	2	0	0	2
3	24CY1401	Applied Chemistry	BS	2	2	0	0	2
4	24CS1501	Introduction To Programming With C	ES	3	3	0	0	3
5	24IT1502	Information Technology Essentials	ES	2	2	0	0	1
6	24HS1103	Tamil Heritage/தமிழர் மரபு	HSSM	2	2	0	0	1
Theory cum Practical Courses								
1	24HS1101	Professional Communication Skills	HSSM	4	2	0	2	3
Practical Courses								
1	24PC1311	Applied Physics and Chemistry Laboratory	BS	4	0	0	4	2
2	24CS1511	Programming Practice Laboratory using C	ES	4	0	0	4	2
3	24GE1511	Engineering Practices Laboratory	ES	4	0	0	4	2
			Total	31	16	1	14	22

SEMESTER II

S.No	Course Code	Course Name	Category	Contact Periods	L	T	P	C
Theory Courses								
1	24HS2101	Technical Communication Skills	HSSM	2	2	0	0	2
2	24MA2201	Complex Analysis and Fourier Series	BS	4	3	1	0	4
3	24CS2501	Introduction to Computing using Python	ES	3	3	0	0	3
4	24EE2501	Fundamentals of Electrical and Electronics Engineering	ES	3	3	0	0	3
5	24ME1501	Engineering Graphics	ES	4	2	0	4	4
6	24GE2901	Design Thinking	EEC	1	1	0	0	1
7	24HS2103	Technology in Tamil Culture/ தமிழரும் தொழில்நுட்பமும்	HSSM	2	2	0	0	1
Practical Courses								
1	24AI2611	Artificial Intelligence Tools Laboratory	PC	4	0	0	4	2
2	24CS2511	Python Programming Laboratory	ES	4	0	0	4	2
			Total	27	16	1	12	22

SEMESTER III

S.No	Course Code	Course Name	Category	Contact Periods	L	T	P	C
Theory Courses								
1	24MA3202	Probability and Statistics	BS	4	3	1	0	4
2	24IT3601	Computer Organization and Architecture	PC	3	3	0	0	3
3	24IT3501	Digital Principles and System Design	ES	3	3	0	0	3
4	24CS3601	Data Structures	PC	3	3	0	0	3
5	24CS3602	Object Oriented Programming Using Java	PC	3	3	0	0	3
6		Open Elective –I (IOT)	OE	3	3	0	0	3
Practical Courses								
1	24CS3611	Data Structures Laboratory	PC	4	0	0	4	2
2	24CS3612	Object Oriented Programming Laboratory Using Java	PC	4	0	0	4	2
3	24PT3902	Soft skills-Verbal Ability	EEC	1	0	0	2	1
			Total	28	18	1	10	24

SEMESTER IV

S.No	Course Code	Course Name	Category	Contact Periods	L	T	P	C
Theory Courses								
1	24HS4101	Professional Ethics and Human Values	HSSM	2	2	0	0	2
2	24MA4201	Discrete Mathematics	BS	4	3	1	0	4
3	24CS4601	Database and SQL Programming	PC	3	3	0	0	3
4	24IT4601	Design and Analysis of Algorithms	PC	3	3	0	0	3
5		Open Elective –II (AI)	OE	3	3	0	0	3
Theory cum Practical Courses								
1	24IT4603	Operating Systems	PC	4	2	0	2	3
Practical Courses								
1	24CS4611	Database and SQL Programming Laboratory	PC	4	0	0	4	2
2	24PT3901	Soft skills-Aptitude - I	EEC	1	0	0	2	1
3	24GE4911	Design Thinking Project	EEC	1	0	0	2	1
			Total	27	18	1	10	22

SEMESTER V

S.No	Course Code	Course Name	Category	Contact Periods	L	T	P	C
Theory Courses								
1	24CS5601	Theory of Computation	PC	3	3	0	0	3
2	24IT5601	Data communication and Networks	PC	3	3	0	0	3
3		Professional Elective I	PE	3	3	0	0	3
4		Open Elective –III (Embedded)	OE	3	3	0	0	3
Theory cum Practical Courses								
1	24CS5602	Artificial Intelligence Practices	PC	4	2	0	2	3
2	24IT5603	Software Engineering and Testing	PC	4	2	0	2	3
Practical Courses								
1	24IT5611	Networks Laboratory	PC	4	0	0	4	2
2	24HS5911	Communication and Soft skills Laboratory	EEC	1	0	0	2	1
3	24PT4901	Soft skills- Aptitude II	EEC	1	0	0	2	1
			Total	26	16	0	12	**22**

SEMESTER VI

S.No	Course Code	Course Name	Category	Contact Periods	L	T	P	C
Theory Courses								
1	24CS6601	Compiler Design	PC	3	3	0	0	3
2		Professional Elective II	PE	3	3	0	0	3
3		Professional Elective III	PE	3	3	0	0	3
4		Open Elective –IV	OE	3	3	0	0	3
5	24GE6M01	Environmental and Sustainable Engineering	MC	2	2	0	0	0
Theory cum Practical Courses								
1	24CS6603	Internet Programming	PC	4	3	0	2	4
Practical Courses								
1	24CS6611	Mobile Application Development Laboratory	PC	4	0	0	4	2
2	24PT4902	Soft skills-Reasoning	EEC	1	0	0	2	1
3	24CS6912	Internship	EEC	2	0	0	4	2
			Total	25	17	0	12	**21**

SEMESTER VII

S.No	Course Code	Course Name	Category	Contact Periods	L	T	P	C
Theory Courses								
1	24HS7101	Principles of Quality and Management	HSSM	3	3	0	0	3
2	24CS7601	Cryptography and Network Security	PC	3	3	0	0	3
3	24CS7602	Cloud Computing	PC	3	3	0	0	3
4		Professional Elective IV	PE	3	3	0	0	3
5		Professional Elective V	PE	3	3	0	0	3
6		Professional Elective VI	PE	3	3	0	0	3
Practical Courses								
1	24CS7611	Cloud Computing Laboratory	PC	4	0	0	4	2
2	24CS7911	Creative and Innovative Project	EEC	4	0	0	4	2
			Total	26	18	0	8	22

SEMESTER VIII

S.No	Course Code	Course Name	Category	Contact Periods	L	T	P	C
Practical Courses								
1	24CS8911	Project Work	EEC	20	0	0	18	9
			Total	20	0	0	18	9

Total Credits: 164

List of Humanities and Social Sciences Including Management (HSSM) Courses

S.No	Course Code	Course Name	Category	Contact Periods	L	T	P	C
Theory Courses								
1	24HS1103	Tamil Heritage/தமிழர் மரபு	HSSM	2	2	0	0	1
2	24HS2101	Technical Communication Skills	HSSM	2	2	0	0	2
3	24HS2103	Technology in Tamil Culture/ தமிழரும் தொழில்நுட்பமும்	HSSM	2	2	0	0	1
4	24HS4101	Professional Ethics and Human Values	HSSM	2	2	0	0	2
5	24HS7101	Principles of Quality and Management	HSSM	3	3	0	0	3
Theory cum Practical Courses								
6	24HS1101	Professional Communication Skills	HSSM	4	2	0	2	3

List of Basic Science Courses

S.No	Course Code	Course Name	Category	Contact Periods	L	T	P	C
Theory Courses								
1	24MA1201	Matrices and Multivariable Calculus	BS	4	3	1	0	4
2	24PH1301	Applied Physics	BS	2	2	0	0	2
3	24CY1401	Applied Chemistry	BS	2	2	0	0	2
4	24MA2201	Complex Analysis and Fourier Series	BS	4	3	1	0	4
5	24MA3202	Probability and Statistics	BS	4	3	1	0	4
6	24MA4201	Discrete Mathematics	BS	4	3	1	0	4
Practical Courses								
1	24PC1311	Applied Physics and Chemistry Laboratory	BS	4	0	0	4	2

List of Engineering Science Courses

S.No	Course Code	Course Name	Category	Contact Periods	L	T	P	C
Theory Courses								
1	24CS1501	Introduction To Programming With C	ES	3	3	0	0	3
2	24IT1502	Information Technology Essentials	ES	2	2	0	0	1
3	24CS2501	Introduction to Computing using Python	ES	3	3	0	0	3
4	24EE2501	Fundamentals of Electrical and Electronics Engineering	ES	3	3	0	0	3
5	24ME1501	Engineering Graphics	ES	4	2	0	4	4
6	24IT3501	Digital Principles and System Design	ES	4	2	0	2	3
Practical Courses								
1	24CS1511	Programming Practice Laboratory using C	ES	4	0	0	4	2

		Professional Elective III						
1	24CS6706	UI and UX Design	6	3	0	0	3	Full Stack Development
2	24CS6707	Storage Technologies	6	3	0	0	3	Cloud Computing
3	24CS6708	Computer Forensic Analysis and Investigation	6	3	0	0	3	Cyber Security and Data Privacy
4	24CS6709	Machine Intelligence for Medical Image Analysis	6	3	0	0	3	Artificial Intelligence and Machine Learning
5	24CS6710	Visual Effects	6	3	0	0	3	Creative Media
		Professional Elective IV						
1	24CS7701	Cloud Services Management	7	3	0	0	3	Full Stack Development
2	24CS7702	Cloud Security	7	3	0	0	3	Cloud Computing
3	24CS7703	Cyber Defense	7	3	0	0	3	Cyber Security and Data Privacy
4	24CS7704	Ethics and Artificial Intelligence	7	3	0	0	3	Artificial Intelligence and Machine Learning
5	24CS7705	Video Creation and Editing	7	3	0	0	3	Creative Media
		Professional Elective V						
1	24CS7706	Relational Database Management System	7	3	0	0	3	Full Stack Development
2	24CS7707	Business Intelligence and Data Warehousing	7	3	0	0	3	Cloud Computing
3	24CS7708	Ethical Hacking and Cyber Forensics	7	3	0	0	3	Cyber Security and Data Privacy
4	24CS7709	Neural Networks and Deep Learning	7	3	0	0	3	Artificial Intelligence and Machine Learning
5	24CS7710	Game Development	7	3	0	0	3	Creative Media
		Professional Elective VI						
1	24CS7711	Web Technologies	7	3	0	0	3	Full Stack Development
2	24CS7712	Cloud Networking and Software Defined Networking	7	3	0	0	3	Cloud Computing
3	24CS7713	Intrusion Detection and Prevention System	7	3	0	0	3	Cyber Security and Data Privacy
4	24CS7714	Prompt Engineering	7	3	0	0	3	Artificial Intelligence and Machine Learning

	24CS7715	Multimedia Data Compression and Storage	7	3	0	0	3	Creative Media

List of Open Electives Courses

Offered to Departments - Civil, EEE & Mech

S.No	Course Code	Course Name	Sem	L	T	P	C	Offered from
Open Elective I								
1	24CS3801	User Interface Design	3	3	0	0	3	CSE
2.	24CS3802	Introduction to Data structures	3	3	0	0	3	CSE
3	24CS3803	Principles of Operating Systems	3	3	0	0	3	CSE
4	24CS3804	Object Oriented Programming	3	3	0	0	3	CSE
5	24CS3805	Software Engineering Practices	3	3	0	0	3	CSE
Open Elective II								
1	24CS4801	Enterprise Application Development Using Java	4	3	0	0	3	CSE
2	24CS4802	Introduction to Mobile Game Design	4	3	0	0	3	CSE
3	24CS4803	Principles of Multimedia	4	3	0	0	3	CSE
4	24CS4804	Design Thinking for Engineers	4	3	0	0	3	CSE
5	24CS4805	Database Technology	4	3	0	0	3	CSE
Open Elective III								
1	24CS5801	Cloud Computing Technologies	5	3	0	0	3	CSE
2	24CS5802	Virtual Reality and Augmented Reality	5	3	0	0	3	CSE
3	24CS5803	Android Application Development	5	3	0	0	3	CSE
4	24CS5804	Artificial Intelligence	5	3	0	0	3	CSE
5	24CS5805	Cyber Security Essentials	5	3	0	0	3	CSE
Open Elective IV								
1	24CS6801	Green Computing	6	3	0	0	3	CSE
2	24CS6802	Web Design and Management	6	3	0	0	3	CSE
3	24CS6803	Animation Design principles	6	3	0	0	3	CSE
4	24CS6804	Ethical hacking	6	3	0	0	3	CSE
5	24CS6805	Cyber Forensics	6	3	0	0	3	CSE

FRANCIS XAVIER ENGINEERING COLLEGE
B.Tech – COMPUTER SCIENCE AND BUSINESS SYSTEMS REGULATIONS 2024
Choice Based Credit System and Outcome Based Education
I-VIII Semester Curriculum and Syllabi

SEMESTER I

S.No	Course Code	Course Name	Category	Contact Periods	L	T	P	C
		Theory Courses						
1	24MA1202	Linear Algebra and Calculus	BS	4	3	1	0	4
2	24CS1501	Introduction to Programming with C	ES	3	3	0	0	3
3	24PH1301	Applied Physics	BS	2	2	0	0	2
4	24CY1401	Applied Chemistry	BS	2	2	0	0	2
		Theory cum Practical Courses						
1	24HS1102	Business Communication and Value Science-I	HSSM	4	2	0	2	3
		Practical						
1	24PC1311	Applied Physics and Chemistry Laboratory	BS	4	0	0	4	2
2	24GE1511	Engineering Practices Laboratory	ES	2	0	0	2	2
3	24CS1511	Programming Practice Laboratory Using C	ES	4	0	0	4	2
		Mandatory Course						
1	24HS1103	Tamil Heritage/தமிழர் மரபு	HSSM	1	1	0	0	1
		Total		26	13	1	12	21

SEMESTER II

S.No	Course Code	Course Name	Category	Contact Periods	L	T	P	C
		Theory Courses						
1	24HS2101	Business Communication and Value Science – II	HSSM	2	2	0	0	2
2	24CB2601	Fundamentals of Economics	PC	2	2	0	0	2
3	24EE2501	Fundamentals of Electrical and Electronics Engineering	ES	3	3	0	0	3
4	24ME1501	Engineering Graphics	ES	6	2	0	4	4
5	24CS2501	Introduction to Computing Using Python	ES	3	3	0	0	3
6	24GE2901	Design Thinking	EEC	1	1	0	0	1
		Theory cum Practical Courses						

| 1 | 24CB2602 | Digital principles and Computer Organization | PC | 5 | 3 | 0 | 2 | 4 |

Practical Courses

| 1 | 24AI2611 | Artificial Intelligence Tools Laboratory | PC | 4 | 0 | 0 | 4 | 2 |
| 2 | 24CS2511 | Python Programming Laboratory | ES | 4 | 0 | 0 | 4 | 2 |

Mandatory Courses

| 1 | 24HS2103 | Technology In Tamil Culture/ தமிழரும் தொழில்நுட்பமும் | HSSM | 1 | 1 | 0 | 0 | 1 |
| | | **Total** | | 31 | 17 | 0 | 14 | 2 4 |

SEMESTER III

S.No	Course Code	Course Name	Category	Contact Periods	L	T	P	C

Theory

1	24MA3205	Probability and Statistical Techniques	BS	4	3	1	0	4
2	24CS3602	Object Oriented Programming using Java	PC	3	3	0	0	3
3	24AI3601	Data Structures and Algorithm Analysis	PC	3	3	0	0	3
4	24OEXXX	Open Elective – I	OE	3	3	0	0	3
5	24HS3101	Introduction to Business Systems	HSSM	3	3	0	0	3
6	24CB3602	Entrepreneurship and Innovation	PC	3	3	0	0	3

Practical Courses

1	24CS3612	Object Oriented Programming Laboratory using Java	PC	4	0	0	4	2
2	24AI3611	Data Structures and Algorithm Analysis Laboratory	PC	4	0	0	4	2
3	24PT3902	Soft skills –Verbal Ability	EEC	1	0	0	2	1
		Total		28	18	1	10	2 4

SEMESTER IV

S.No	Course Code	Course Name	Category	Contact Periods	L	T	P	C

Theory Courses

1	24IT4602	Automata Theory and Compiler Design	PC	4	3	1	0	4
2	24CS4601	Database and SQL Programming	PC	3	3	0	0	3
3	24MA4201	Mathematical Structure for Engineers	BS	4	3	1	0	4
4	24HS4101	Professional Ethics and Human values	HSSM	2	2	0	0	2

~~5~~	24OE4XXX	Open Elective – II	OE	3	3	0	0	3
Theory cum Lab courses								
1	24IT4603	Operating Systems	PC	4	2	0	2	3
Practical Courses								
1	24CS4611	Database and SQL Programming Laboratory	PC	4	0	0	4	2
2	24CB4911	Design Thinking Project	EEC	2	0	0	2	1
3	24PT3901	Soft skills –Aptitude I	EEC	1	0	0	2	1
Total				27	16	2	10	2 3

SEMESTER V

S.No	Course Code	Course Name	Category	Contact Periods	L	T	P	C
Theory Courses								
1	24IT5601	Data Communication and Computer Networks	PC	3	3	0	0	3
2	24CB57XX	Professional Elective I	PE	3	3	0	0	3
3	24CB57XX	Professional Elective II	PE	3	3	0	0	3
4	24OE5XXX	Open Elective III	OE	3	3	0	0	3
Theory cum Practical								
1	24IT5603	Software Engineering and Testing	PC	4	2	0	2	3
1	24CB5601	Legal Aspects of Information Security	PC	4	2	0	2	3
Practical Courses								
1	24IT5611	Networks Laboratory	PC	4	0	0	4	2
2	24HS5911	Communication and Soft Skills Laboratory	EEC	2	0	0	2	1
3	24PT5901	Soft skills –Reasoning	EEC	1	0	0	2	1
Total				27	16	0	12	2 2

SEMESTER VI

S.No	Course Code	Course Name	Category	Contact Periods	L	T	P	C
Theory Courses								
1	24CB6601	Business Strategy	PC	2	2	0	0	2
2	24CB6602	Artificial Intelligence and Logical Thinking	PC	3	3	0	0	3
3	24CB67XX	Professional Elective III	PE	3	3	0	0	3
4	24CB67XX	Professional Elective IV	PE	3	3	0	0	3
5	24OE6XXX	Open Elective IV	OE	3	3	0	0	3
Theory cum Practical Courses								
1	24CB6603	Computational Statistics	BS	5	3	0	2	4

Practical Course

1	24CB6611	Generative Artificial Intelligence Lab	PC	4	0	0	4	2
2	24CB6911	Internship	EEC	4	0	0	4	2
3	24PT5901	Soft skills –Aptitude II	EEC	1	0	0	2	1

Mandatory Courses

1	24GE6M01	Environmental and Sustainable Engineering	MC	2	2	0	0	0
		Total		30	17	0	14	23

SEMESTER VII

S.No	Course Code	Course Name	Category	Contact Periods	L	T	P	C
Theory Courses								
1	24CB7601	Financial Management	PC	3	3	0	0	3
2	24CB77XX	Professional Elective V	PE	3	3	0	0	3
3	24CB77XX	Professional Elective VI	PE	3	3	0	0	3
Theory cum Practical Courses								
1	24CB7602	Statistical Modelling	PC	5	3	0	2	4
2	24CB7603	Machine Learning for Financial Applications	PC	5	3	0	2	4
Practical Courses								
1	24CB7911	Creative and Innovative Project	EEC	4	0	0	4	2
		Total		23	15	0	8	19

SEMESTER VIII

S.No	Course Code	Course Name	Category	Contact Periods	L	T	P	C
1	24CB8911	Project Work	EEC	18	0	0	18	9
		Total		18	0	0	18	9

Total Credits = 165

FRANCIS XAVIER ENGINEERING COLLEGE

B. TECH – INFORMATION TECHNOLOGY

REGULATION 2024

CHOICE BASED CREDIT SYSTEM AND OUTCOME BASED EDUCATION

I – VIII SEMESTER CURRICULUM AND SYLLABI

SEMESTER I

S.No	Course Code	Course Name	Category	Contact Periods	L	T	P	C
Theory Courses								
1	24MA1202	Linear Algebra and Calculus	BS	4	3	1	0	4
2	24PH1301	Applied Physics	BS	2	2	0	0	2
3	24CY1401	Applied Chemistry	BS	2	2	0	0	2
4	24IT1501	Information Technology Essentials	ES	1	1	0	0	1
5	24CS1501	Introduction to Programming with C	ES	3	3	0	0	3
6	24HS1103	Tamil Heritage	HSSM	1	1	0	0	1
Theory cum Practical Courses								
1	24HS1101	Professional Communication Skills	HSSM	4	2	0	2	3
Practical Courses								
1	24PY1311	Applied Physics and Chemistry Laboratory	BS	4	0	0	4	2
2	24CS1511	Programming Practice Laboratory using C	ES	4	0	0	4	2
3	24GE1511	Engineering Practices Laboratory	ES	4	0	0	4	2
		Total		29	14	1	14	22

SEMESTER II

S.No	Course Code	Course Name	Category	Contact Periods	L	T	P	C
Theory Courses								
1	24HS2101	Technical Communication Skills	HSSM	2	2	0	0	2
2	24MA2201	Complex Analysis with Fourier Series and Laplace Transform	BS	4	3	1	0	4
3	24CS2501	Introduction to Computing using Python	ES	3	3	0	0	3
4	24EE2501	Fundamentals of Electrical and Electronics Engineering	ES	3	3	0	0	3
5	24HS2103	Technology in Tamil Culture	HSSM	1	1	0	0	1
Theory cum Practical Courses								
1	24IT2501	OOPS Using C++	ES	3	2	0	2	3
2	24ME1501	Engineering Graphics	ES	6	2	0	4	4
Practical Courses								
1	24CS2511	Python Programming Laboratory	ES	4	0	0	4	2
Employability Enhancement Course								
1	24GE2901	Design Thinking	EEC	1	1	0	0	1
Total				27	17	1	10	23

SEMESTER III

S.No	Course Code	Course Name	Category	Contact Periods	L	T	P	C
Theory Courses								
1	24MA3205	Probability and Statistics	BS	4	3	1	0	4
2	24IT3501	Digital Principles and System Design	ES	3	3	0	0	3
3	24CS3601	Data Structures	PC	3	3	0	0	3

4	24IT3601	Computer Organization and Architecture	PC	3	3	0	0	3
5		Open Elective I	OE	3	3	0	0	3

Theory cum Practical Courses

1	24IT3602	Java Programming	PC	5	3	0	2	4

Practical Courses

1	24CS3611	Data Structures Laboratory	PC	4	0	0	4	2

Employability Enhancement Course

1	24PT3902	Soft Skills - Verbal Ability	EEC	1	1	0	0	1
		Total		**26**	**19**	**1**	**6**	**23**

SEMESTER IV

S.No	Course Code	Course Name	Category	Contact Periods	L	T	P	C
Theory Courses								
1	24HS4101	Professional Ethics and Human Values	HSSM	2	2	0	0	2
2	24IT4601	Design and Analysis of Algorithms	PC	3	3	0	0	3
3	24CS4601	Database and SQL Programming	PC	3	3	0	0	3
4	24IT4602	Automata Theory and Compiler Design	PC	4	3	1	0	4
5		Open Elective II	OE	3	3	0	0	3
Theory cum Practical Courses								
1	24IT4603	Operating Systems	PC	4	2	0	2	3
2	24IT4604	Foundations of Data Science	PC	4	2	0	2	3
Practical Courses								
1	24CS4611	Database and SQL Programming Laboratory	PC	4	0	0	4	2

1	24PT3901	Soft Skills - Aptitude I	EEC	1	1	0	0	1
2	24GE4911	Design Thinking Project	EEC	2	0	0	2	1
		Total		30	19	1	10	25

SEMESTER V

S.No	Course Code	Course Name	Category	Contact Periods	L	T	P	C
Theory Courses								
1	24IT5601	Data Communication and Computer Networks	PC	3	3	0	0	3
2	24IT5602	Mobile App Development and Front-end Development	PC	3	3	0	0	3
3		Professional Elective – I	PE	3	3	0	0	3
4		Open Elective III	OE	3	3	0	0	3
Theory cum Practical Courses								
1	24IT5603	Software Engineering and Testing	PC	4	2	0	2	3
2	24IT5604	Web Technology and its Applications	PC	4	2	0	2	3
Practical Courses								
1	24IT5611	Networks Laboratory	PC	4	0	0	4	2
2	24IT5612	Mobile Application Development Laboratory	PC	4	0	0	4	2
Employability Enhancement Courses								
1	24PT5902	Soft Skills – Reasoning	EEC	1	1	0	0	1
2	24HS5911	Communication and Soft Skills Laboratory	EEC	2	0	0	2	1
		Total		31	17	0	14	24

SEMESTER VI

S.No	Course Code	Course Name	Category	Contact Periods	L	T	P	C
Theory Courses								
1	24IT6601	Network and Information Security	PC	3	3	0	0	3
2		Professional Elective – II	PE	3	3	0	0	3
3		Professional Elective – III	PE	3	3	0	0	3
4		Open Elective – IV	OE	3	3	0	0	3
Theory cum Practical Courses								
1	24IT6602	Internet Of Things	PC	4	2	0	2	3
2	24IT6603	Virtualization and Cloud Computing	PC	4	2	0	2	3
Employability Enhancement Courses								
1	24PT5901	Soft Skills - Aptitude II	EEC	1	1	0	0	1
2	24IT6911	Internship	EEC	4	0	0	4	2
Mandatory Courses								
1	24GE6M01	Environmental and Sustainable Engineering	MC	2	2	0	0	0
			Total	27	19	0	8	21

SEMESTER VII

S.No	Course Code	Course Name	Category	Contact Periods	L	T	P	C
Theory Courses								
1	24HS7101	Principles of Quality Management	HSSM	3	3	0	0	3
2		Professional Elective – IV	PE	3	3	0	0	3
3		Professional Elective – V	PE	3	3	0	0	3
4		Professional Elective – VI	PE	3	3	0	0	3

		Theory cum Practical Courses						
1	24IT7601	Machine Learning	PC	5	3	0	2	4
		Employability Enhancement Courses						
1	24IT7901	Creative and Innovative Project	EEC	4	0	0	4	2
		Total		**21**	**15**	**0**	**6**	**18**

SEMESTER VIII

S.No	Course Code	Course Name	Category	Contact Periods	L	T	P	C
		Practical Courses						
1	24IT8911	Project Work	EEC	18	0	0	18	9
		Total		**18**	**0**	**0**	**18**	**9**

B.E ELECTRONICS AND COMMUNICATION ENGINEERING
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SEMESTER I

S.No	Course Code	Course Name	Category	Contact Periods	L	T	P	C
Theory Courses								
1	24MA1201	Matrices and Multivariable Calculus	BS	4	3	1	0	4
2	24PH1301	Applied Physics	BS	2	2	0	0	2
3	24CY1401	Applied Chemistry	BS	2	2	0	0	2
4	24CS1501	Problem Solving and Logical Thinking Using C Program	ES	3	3	0	0	3
5	24HS1103	Tamil Heritage	HSSM	2	2	0	0	1
Theory cum Practical Courses								
1	24HS1101	Professional Communication Skills	HSSM	4	2	0	2	3
2	24ME1501	Engineering Graphics	ES	6	2	0	4	4
Practical Courses								
1	24PC1311	Applied Physics and Chemistry Lab	BS	4	0	0	4	2
2	24CS1511	Programming Practice Laboratory using C	ES	4	0	0	4	2
3	24GE1511	Engineering Practices Laboratory	ES	4	0	0	4	2
			Total	**34**	**16**	**1**	**17**	**25**

SEMESTER II

S.No	Course Code	Course Name	Category	Contact Periods	L	T	P	C
Theory Courses								
1	24HS2101	Technical Communication Skills	HSSM	2	2	0	0	2
2	24MA2201	Complex Analysis and Fourier Series	BS	4	3	1	0	4
3	24EC2601	Semiconductor Devices and Circuits	ES	3	3	0	0	3
4	24CS2501	Introduction Using Python	ES	3	3	0	0	3
5	24HS2103	Technology in Tamil Culture	HSSM	2	2	0	0	1
Practical Courses								
1	24EC2611	Semiconductor Devices and Circuits Laboratory	ES	4	0	0	4	2
2	24CS2511	Python Programming Laboratory	ES	4	0	0	4	2
			Total	**22**	**13**	**1**	**8**	**17**

SEMESTER III

S.No	Course Code	Course Name	Category	Contact Periods	L	T	P	C
Theory Courses								
1	24MA3203	Probability and Numerical Techniques	BS	4	3	1	0	4
2	24EC3501	Object Oriented Programming and Data Structures	ES	3	3	0	0	3
3	24EC3601	Analog Electronics	PC	3	3	0	0	3
4	24EC3602	Signals and Systems	PC	3	3	0	0	3
5	24EC3603	Digital Logic Design	PC	3	3	0	0	3
6		Open Elective I	OE	3	3	0	0	3
Practical Courses								
1	24EC3511	Object Oriented Programming and Data Structures Laboratory	ES	4	0	0	4	2
2	24EC3611	Analog and Digital Electronics Laboratory	PC	4	0	0	4	2
3	24PT3901	Soft skill: Aptitude I	EEC	2	0	0	2	1
			TOTAL	**29**	**18**	**1**	**10**	**24**

SEMESTER IV

S.No	Course Code	Course Name	Category	Contact Periods	L	T	P	C
Theory Courses								
1	24EC4601	Analog and Digital Communication	PC	3	3	0	0	3
2	24EC4602	Applied Electromagnetics	PC	3	3	0	0	3
3	24HS4101	Professional Ethics and Human Values	HSSM	2	2	0	0	2
4		Open Elective II	OE	3	3	0	0	3
5	24GE2901	Design Thinking	EEC	1	1	0	0	1
Theory cum Practical Courses								
1	24EC4604	Linear Integrated Circuits	PC	5	3	0	2	4
2	24EC4605	Principles of Computer Networks	PC	5	3	0	2	4
Practical Courses								
1	24EC4611	Analog and Digital Communication Laboratory	PC	4	0	0	4	2
2	24PT4901	Soft skill:Verbal Ability	EEC	2	0	0	2	1
			Total	**28**	**18**	**0**	**10**	**23**

SEMESTER V

S.No	Course Code	Course Name	Category	Contact Periods	L	T	P	C
Theory Courses								
1	24EC5601	Control Systems	PC	3	3	0	0	3
2	24EC5602	VLSI Design	PC	3	3	0	0	3
3		Open Elective III	OE	3	3	0	0	3
4		Professional Elective I	PE	3	3	0	0	3
		Theory cum Practical Courses						
1	24EC5603	Discrete Time Signal Processing	PC	5	3	0	2	4
2	24EC5604	Transmission lines and Radiation Systems	PC	5	3	0	2	4
		Practical Courses						
1	24EC5611	VLSI Design Laboratory	PC	4	0	0	4	2
2	24PT5901	Soft skill:Aptitude - II	EEC	2	0	0	2	1
			Total	**28**	**18**	**0**	**10**	**23**

SEMESTER VI

S.No	Course Code	Course Name	Category	Contact Periods	L	T	P	C
1	24EC6601	Microprocessor and Embedded system Design	PC	3	3	0	0	3
2	24EC6602	Wireless Communication Systems	PC	3	3	0	0	3
3		Professional Elective – II	PE	3	3	0	0	3
4		Professional Elective – III	PE	3	3	0	0	3
5		Open Elective – IV	OE	3	3	0	0	3
Mandatory Course								
1	24GE6101	Environmental & Sustainble Engineering	MC	2	2	0	0	0
Practical Courses								
1	24EC6611	Microprocessor and Embedded system Design Laboratory	PC	4	0	0	4	2
2	24PT6904	Soft skill Reasoning	EEC	2	0	0	2	1
3	24EC6911	Internship	EEC	4	0	0	4	2
4	24PT5911	Communication & Softskills Laboratory	EEC	4	0	0	4	1
5	24GE4911	Design Thinking Projects	EEC	2	0	0	2	1
			Total	**33**	**17**	**0**	**16**	**22**

SEMESTER VII

S.No	Course Code	Course Name	Category	Contact Periods	L	T	P	C
Theory Courses								
1	24EC7601	Microwave and Optical Communication	PC	3	3	0	0	3
2	24HS7101	Principles of Quality and Management	HSSM	3	3	0	0	3
3		Professional Elective - IV	PE	3	3	0	0	3
4		Professional Elective - V	PE	3	3	0	0	3
5		Professional Elective - VI	PE	3	3	0	0	3
Practical Courses								
1	24EC7611	Advanced Communication Laboratory	PC	4	0	0	4	2
2	24EC7612	Project Work I	EEC	4	0	0	4	2
			Total	23	15	0	8	19

SEMESTER VIII

S.No	Course Code	Course Name	Category	Contact Periods	L	T	P	C
Practical Courses								
1	24EC8911	Project Work - II/Startup	EEC	20	0	0	20	9
			Total	20	0	0	20	9

TOTAL NO. OF CREDITS: 162(Regular) / 120(Lateral)

Humanities and Social Sciences Including Management (HSSM)

S.No	Course Code	Course Name	Category	Contact Periods	L	T	P	C
Theory Courses								
1	24HS1103	Tamil Heritage	HSSM	2	2	0	0	1
2	24HS2101	Technical Communication Skills	HSSM	2	2	0	0	2
3	24HS2103	Technology in Tamil Culture	HSSM	2	2	0	0	1
4	24HS4101	Professional Ethics and Human Values	HSSM	2	2	0	0	2
5	24MG7101	Principles of Quality and Management	HSSM	3	3	0	0	3
Theory cum Practical Courses								
1	24HS1101	Professional Communication Skills	HSSM	4	2	0	2	3

List of Basic Science Courses

S.No	Course Code	Course Name	Category	Contact Periods	L	T	P	C
Theory Courses								
1	24MA1201	Matrices and Multivariable Calculus	BS	4	3	1	0	4
2	24PH1301	Applied Physics	BS	2	2	0	0	2
3	24CY1401	Applied Chemistry	BS	2	2	0	0	2
4	24MA2201	Complex Analysis and Fourier Series	BS	4	3	1	0	4
5	24MA3203	Probability and Numerical Techniques	BS	4	3	1	0	4
Practical Courses								
1	24PC1311	Applied Physics and Chemistry Lab	BS	4	0	0	4	2

List of Engineering Science Courses

S.No	Course Code	Course Name	Category	Contact Periods	L	T	P	C
Theory Courses								
1	24CS1501	Problem Solving and Logical Thinking Using C Program	ES	3	3	0	0	3
2	24EC2601	Semiconductor Devices and Circuits	ES	3	3	0	0	3
3	24CS2501	Introduction Using Python	ES	3	3	0	0	3
4	24EC3501	Object Oriented Programming and Data Structures	ES	3	3	0	0	3
Theory cum Practical Courses								
1	24ME1513	Engineering Graphics	ES	6	2	0	4	4
Practical Courses								
1	24CS1511	Programming Practice Laboratory using C	ES	4	0	0	4	2
2	24GE1511	Engineering Pratices Laboratory	ES	4	0	0	4	2

	24EC2611	Semiconductor Devices and Circuits Laboratory	ES	4	0	0	4	2
	24CS2511	Python Programming Laboratory	ES	4	0	0	4	2
	24EC3511	Object Oriented Programming and Data Structures Laboratory	ES	4	0	0	4	2

List of Professional Core Courses

S.No	Course Code	Course Name	Category	Contact Periods	L	T	P	C
Theory Courses								
1	24EC3601	Analog Electronics	PC	3	3	0	0	3
2	24EC3602	Signals and Systems	PC	3	3	0	0	3
3	24EC3603	Digital Logic Design	PC	3	3	0	0	3
4	24EC4601	Analog and Digital Communication	PC	3	3	0	0	3
5	24EC4602	Applied Electromagnetics	PC	3	3	0	0	3
6	24EC5601	Control Systems	PC	3	3	0	0	3
7	24EC5602	VLSI Design	PC	3	3	0	0	3
8	24EC6601	Microprocessor and Embedded system Design	PC	3	3	0	0	3
9	24EC6602	Wireless Communication Systems	PC	3	3	0	0	3
10	24EC7601	Microwave and Optical Communication	PC	3	3	0	0	3
Theory cum Practical Courses								
1	24EC4604	Linear Integrated Circuits	PC	5	3	0	2	4
2	24EC4605	Principles of Computer Networks	PC	5	3	0	2	4
3	24EC5603	Discrete Time Signal Processing	PC	5	3	0	2	4
4	24EC5604	Transmission lines and Radiation Systems	PC	5	3	0	2	4
Practical Courses								
1	24EC3611	Analog and Digital Electronics Laboratory	PC	4	0	0	4	2
2	24EC4611	Analog and Digital Communication Laboratory	PC	4	0	0	4	2
3	24EC5611	VLSI Design Laboratory	PC	4	0	0	4	2
4	24EC6611	Microprocessor and Embedded system Design Laboratory	PC	4	0	0	4	2
5	24EC7611	Advanced Communication Laboratory	PC	4	0	0	4	2

List of Employability Enhancement Courses

S.No	Course Code	Course Name	Category	Contact Periods	L	T	P	C
Practical Courses								
1	24PT3901	Soft Skill: Aptitude I	EEC	2	0	0	2	1

2	24PT4901	Soft Skill: Verbal Ability	EEC	2	0	0	2	1
3	24PT4902	Design Thinking	EEC	1	0	0	1	1
4	24GE4911	Design Thinking Projects	EEC	2	0	0	2	1
5	24PT5901	Soft Skill: Aptitude - II	EEC	2	0	0	2	1
6	24PT5911	Communication & Soft skills Laboratory	EEC	4	0	0	4	1
7	24PT6901	Soft Skill: Reasoning	EEC	2	0	0	2	1
8	24EC6911	Internship	EEC	4	0	0	4	2
9	24EC7611	Project Work I	EEC	4	0	0	4	2
10	24EC8911	Project Work – II/Startup	EEC	20	0	0	20	9

List of Mandatory Courses

S.No	Course Code	Course Name	Category	Contact Periods	L	T	P	C
Practical Courses								
1	24GE2M01	Environmental and Sustainable Engineering	MC	2	2	0	0	0

List of Professional Electives Courses

S.No	Course Code	Course Name	Sem.	L	T	P	C	Stream/Domain
Professional Elective I								
1	24EC5701	Medical Electronics	5	3	0	0	3	Electronics system design
2	24EC5702	Information Theory and Coding Techniques	5	3	0	0	3	Wired and wireless communication
3	24EC5703	Computer Architecture and Organization	5	3	0	0	3	Embedded system design
4	24EC5704	Wireless Networks	5	3	0	0	3	Networks Design
5	24EC5705	Robotics and Artificial Intelligence	5	3	0	0	3	Sensor technologies and IOT
6	24EC5706	VLSI Signal Processing	5	3	0	0	3	Semiconductor chip design and verification
Professional Elective II								
1	24EC6701	Solid State Devices	6	3	0	0	3	Electronics system design
2	24EC6702	Satellite Communication and Broadcasting	6	3	0	0	3	Wired and wireless communication

3	24EC6703	Advanced Microprocessors and Microcontrollers	6	3	0	0	3	Embedded system design
4	24EC6704	Cryptography and Network Security	6	3	0	0	3	Networks Design
5	24EC6705	Sensors, Actuators and Interface Electronics	6	3	0	0	3	Sensor technologies and IOT
6	24EC6706	Mixed Signal IC Design	6	3	0	0	3	Semiconductor chip design and verification
Professional Elective III								
1	24EC6707	Nanoelectronic Devices and Circuits	6	3	0	0	3	Electronics system design
2	24EC6708	Multimedia Compression and Communication	6	3	0	0	3	Wired and wireless communication
3	24EC6709	ARM based Digital Signal Processing	6	3	0	0	3	Embedded system design
4	24EC6710	Blockchain Principles	6	3	0	0	3	Networks Design
5	24EC6711	Automation System Design	6	3	0	0	3	Sensor technologies and IOT
6	24EC6712	CMOS Analog IC Design	6	3	0	0	3	Semiconductor chip design and verification
Professional Elective IV								
1	24EC7701	Design and Fabrication of Electronic Product	7	3	0	0	3	Electronics system design
2	24EC7702	Broadband Access Technologies	7	3	0	0	3	Wired and wireless communication
3	24EC7703	IoT System Design and Applications	7	3	0	0	3	Embedded system design
4	24EC7704	Ad hoc and Wireless Sensor Networks	7	3	0	0	3	Networks Design
5	24EC7705	Deep Learning Techniques for computer vision	7	3	0	0	3	Sensor technologies and IOT
6	24EC7706	Lowpower SOC	7	3	0	0	3	Semiconductor chip design and verification
Professional Elective V								
1	24EC7707	Micro- and Nano-Fabrication Technologies	7	3	0	0	3	Electronics system design
2	24EC7708	Mobile Communications	7	3	0	0	3	Wired and wireless communication

3	24EC7709	Embedded C and Linux	7	3	0	0	3	Embedded system design
4	24EC7710	Cognitive Radio Networks	7	3	0	0	3	Networks Design
5	24EC7711	Unmanned Aerial Vehicles	7	3	0	0	3	Sensor technologies and IOT
6	24EC7712	ASIC and FPGA Based Design	7	3	0	0	3	Semiconductor chip design and verification

Professional Elective VI

1	24EC7713	Digital Image Processing	7	3	0	0	3	Electronics system design
2	24EC7714	Millimeter wave Communication	7	3	0	0	3	Wired and wireless communication
3	24EC7715	Design using RaspBerry Pi	7	3	0	0	3	Embedded system design
4	24EC7716	4G & 5G Networks	7	3	0	0	3	Networks Design
5	24EC7717	Machine Learning Fundamentals	7	3	0	0	3	Sensor technologies and IOT
6	24EC7718	CAD for VLSI Circuits	7	3	0	0	3	Semiconductor chip design and verification

List of Open Elective Courses

S.No	Course Code	Course Name	Category	Contact Periods	L	T	P	C
Open Elective I								
1	24EC3801	Digital Electronics Fundamentals	OE	3	3	0	0	3
2	24EC3802	Basics of Biomedical Engineering	OE	3	3	0	0	3
3	24EC3803	Principles of Electronic Communication	OE	3	3	0	0	3
4	24EC3804	Digital Audio Engineering	OE	3	3	0	0	3
Open Elective II								
1	24EC4801	Sensors and Actuators	OE	3	3	0	0	3
2	24EC4802	Principles of Multimedia	OE	3	3	0	0	3
3	24EC4803	Telemedicine	OE	3	3	0	0	3
4	24EC4804	Fundamentals of Nano Electronics	OE	3	3	0	0	3
Open Elective III								
1	24EC5805	Introduction to Mobile Communication	OE	3	3	0	0	3
2	24EC5806	Wireless Communication	OE	3	3	0	0	3
3	24EC5807	Basic VLSI Design	OE	3	3	0	0	3

4	24EC5808	Embedded System Design	OE	3	3	0	0	3
Open Elective IV								
1	24EC6801	Wireless Networks	OE	3	3	0	0	3
2	24EC6802	Image Processing Essentials	OE	3	3	0	0	3
3	24EC6803	Robotic Vision and Automation	OE	3	3	0	0	3
4	24EC6804	Internet of Things	OE	3	3	0	0	3

Minor Course on Internet of Things

S.No	Course Code	Course Name	Category	Contact Periods	L	T	P	C
FOURTH SEMESTER								
1	24EC4S01	Introduction to Internet of Things	MC	3	0	0	3	3
FIFTH SEMESTER								
1	24EC5S01	Sensors and Actuators	MC	3	0	0	3	3
SIXTH SEMESTER THEORY CUM PRACTICAL								
1	24EC6S01	Embedded Systems for IoT	MC	3	0	2	4	5
SEVENTH SEMESTER THEORY CUM PRACTICAL								
1	24EC7S01	IoT with Arduino, ESP, and Raspberry Pi	MC	3	0	2	4	5
EIGHTH SEMESTER								
1	24EC8S01	Project Work	MC	0	0	8	4	8

Department Mandatory Skill Curriculum

S.No	Skill Code	Skill Name	Semester	Contact Periods	C
1	24EC2DS01	PCB Design	II	60	2
2	24EC3DS01	Mobile Robotics	III	60	2
3	24EC4DS01	Signal and Image Processing Techniques Using MATLAB	IV	60	2
4	24EC5DS01	Verilog Programming	V	60	2
5	24EC6DS01	Hands on Course on Internet of Things	VI	60	2

FRANCIS XAVIER ENGINEERING COLLEGE
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SEMESTER I

S No.	Course Code	Course Name	Category	L	T	P	C	H
		THEORY COURSES						
1.	24MA1201	Matrices and Multivariable Calculus	BS	3	1	0	4	4
2.	24PH1301	Applied Physics	BS	2	0	0	2	2
3.	24CY1401	Applied Chemistry	BS	2	0	0	2	2
4.	24CS1501	INTRODUCTION TO PROGRAMMING WITH C	ES	3	0	0	3	3
5.	24ME1501	Engineering Graphics	ES	2	0	4	4	6
6.	24HS1101	PROFESSIONAL COMMUNICATION SKILLS	HSS	2	0	0	3	2
7.	24HS1103	Tamil Heritage	HSS	2	0	0	1	2
		PRACTICAL COURSES						
8.	24PC1311	Applied Physics and Chemistry Laboratory	BS	0	0	4	2	4
9.	24CS1511	Programming Practice Laboratory using C	ES	0	0	4	2	4
10.	24GE1511	Engineering Practices Laboratory	ES	0	0	4	2	4
			TOTAL				25	

SEMESTER II

S No.	Course Code	Course Name	Category	L	T	P	C	H
		THEORY COURSES						
1.	24HS2101	English for Technical Communication	HSS	2	0	0	2	3

2.	24MA2201	Complex Analysis with Fourier series and Laplace Transform.	BS	3	1	0	4	4
3.	24EE2601	Electric Circuits and Network Analysis	PC	3	0	0	3	3
4.	24CS2501	Introduction to Computing Using Python	ES	3	0	0	3	3
5.	24HS2103	Technology in Tamil Culture	HSS	2	0	0	1	2
THEORY CUM PRACTICAL COURSES								
6.	24EE2501	Measurements and Modern Instruments	ES	3	0	0	3	4
PRACTICAL COURSES								
7.	24CS2511	Introduction to Computing Using Python	ES	0	0	4	2	4
8.	24EE2611	Electrical Circuit Analysis Laboratory	PC	0	0	4	2	4
		TOTAL					21	

SEMESTER III								
S No.	Course Code	Course Name	Category	L	T	P	C	H
THEORY COURSES								
1.	24MA3201	Transforms Techniques and Numerical Methods	BS	3	1	0	4	4
2.	24EE3601	Analog and Integrated Circuits	PC	3	0	0	3	3
3.	24EE3602	DC Machines and Transformers	PC	3	0	0	3	3
4.	24EE3603	Fundamentals of Applied Electromagnetics	PC	3	0	0	3	3
5.		Open Elective-I	OE	3	0	0	3	3
PRACTICAL COURSES								
6.	24EE3611	Analog and Integrated Circuit Design Laboratory	PC	0	0	0	2	4
7.	24EE3612	DC Machines and Transformers Laboratory	PC	0	0	0	2	4
8.	24PT3901	Soft Skills- Aptitude I	EEC	1	0	0	1	1
		TOTAL					21	

SEMESTER IV

S No.	Course Code	Course Name	Category	L	T	P	C	H
		THEORY COURSES						
1.	24EE4601	Generation, Transmission and Distribution in Power Systems	PC	3	0	0	3	3
2.	24EE4602	Control Theory	PC	3	0	0	3	3
3.	24EE4603	AC Machines	PC	3	0	0	3	3
4.	24HS4101	Professional Ethics and Human values	HSS	2	0	0	2	2
5.	24GE2901	Design Thinking	EEC	1	0	0	1	1
6.		Open Elective-II	OE	3	0	0	3	3
		THEORY CUM PRACTICAL COURSES						
7.	24EE4604	Digital Electronics	PC	2	0	2	3	4
		PRACTICAL COURSES						
8.	24EE4611	Control and Instrumentation Laboratory	PC	0	0	4	2	4
9.	24EE4612	AC Machines Laboratory	PC	0	0	4	2	4
10.	24PT3902	Soft Skills-Verbal Ability	EEC	0	0	2	1	1
			TOTAL				23	

SEMESTER V

S No.	Course Code	Course Name	Category	L	T	P	C	H
		THEORY COURSES						
1.	24EE5601	Micro Processor Microcontrollers and Applications	PC	3	0	0	3	3
2.	24EE5602	Power Electronics	PC	3	0	0	3	3
3.	24EE5603	Signals and Systems	PC	3	0	0	3	3
4.		Professional Elective – I	PE	3	0	0	3	3
5.		Professional Elective – II	PE	3	0	0	3	3

6.		Open Elective – III	OE	3	0	0	3	3
		PRACTICAL COURSES						
7.	24EE5611	Power Electronics Laboratory	PC	0	0	4	2	4
8.	24EE5612	Microcontrollers Laboratory	PC	0	0	4	2	4
9.	24PT5901	Soft Skills- Aptitude II	EEC	0	0	2	1	2
10.	24GE4911	Design Thinking – Project work	EEC	0	0	2	1	1
			TOTAL				**24**	

SEMESTER VI

S No.	Course Code	Course Name	Category	L	T	P	C	H
		THEORY COURSES						
1.	24EE6601	Power System Analysis	PC	3	0	0	3	4
2.	24EE6501	Embedded system	ES	3	0	0	3	3
3.		Professional Elective – III	PE	3	0	0	3	3
4.		Professional Elective – IV	PE	3	0	0	3	3
5.		Open Elective – IV	OE	3	0	0	3	3
6.	24GE6M01	Environmental and Sustainable Engineering	MC	2	0	0	0	2
		THEORY CUM PRACTICAL COURSES						
7.	24EE6603	Solid State Drives	PC	2	0	2	3	4
		PRACTICAL COURSES						
8.	24PT5902	Soft Skills-Reasoning	EEC	0	0	2	1	2
9.	24EE6611	Power System Simulation Laboratory	PC	0	0	4	2	4
10.	24EE6612	Internship	EEC	0	0	4	2	4
11.	24HS5911	Communication & Soft Skill Laboratory	EEC	0	0	2	1	2
			TOTAL				**24**	

SEMESTER VII

S No.	Course Code	Course Name	Category	L	T	P	C	H
		THEORY COURSES						
1.	24HS7101	Principles of Quality and Management	HSS	3	0	0	3	3
2.	24EE7601	Renewable Energy Systems	PC	3	0	0	3	3
3.		Professional Elective-V	PE	3	0	0	3	3
4.		Professional Elective-VI	PE	3	0	0	3	3
5.		Professional Elective-VII	PE	3	0	0	3	3
		PRACTICAL COURSES						
6.	24EE7611	Project Phase-I	EEC	0	0	6	2	0
7.	24EE7612	Renewable Energy Systems Laboratory	PC	0	0	4	2	0
			TOTAL				16	

SEMESTER VIII

S No.	Course Code	Course Name	Category	L	T	P	C	H
		PRACTICAL COURSES						
1	24EE8611	Project Work Phase-II	EEC	0	0	18	9	20
			TOTAL				9	

Minimum Number of Credits to be Acquired:165

Humanities and Social Sciences Including Management

S No.	Course Code	Course Name	Category	L	T	P	C	H
		THEORY COURSES						
1.	24HS1101	English for Professional Communication	HSS	2	0	0	3	2
2.	24HS1103	Tamil Heritage	HSS	2	0	0	1	2
3.	24HS2101	English for Technical Communication	HSS	2	0	0	2	3
4.	24HS2103	Technology in Tamil Culture	HSS	2	0	0	1	2
5.	24HS4101	Professional Ethics and Human values	HSS	2	0	0	2	2
6.	24HS7101	Principles of Quality and Management	HSS	3	0	0	3	3
			TOTAL				12	

List Basic Science Courses

S No.	Course Code	Course Name	Category	L	T	P	C	H
		THEORY COURSES						
1.	24MA1201	Matrices and Multivariable Calculus	BS	3	1	0	4	4
2.	24PH1301	Applied Physics	BS	2	0	0	2	2
3.	24CY1401	Applied Chemistry	BS	2	0	0	2	2
4.	24MA2201	Complex Analysis with Fourier series and Laplace Transform.	BS	3	1	0	4	4
5.	24MA3201	Transforms Techniques and Numerical Methods	BS	3	1	0	4	4
		PRACTICAL COURSES						
6.	24PC1311	Applied Physics and Chemistry Laboratory	BS	0	0	4	2	4
			TOTAL				18	

7.	24EE6612	Internship	EEC	0	0	4	2	4
8..	24HS5911	Communication & Soft Skill Laboratory	EEC	0	0	2	1	2
9.	24EE7611	Project Phase-I	EEC	0	0	6	2	0
10.	24EE8611	Project Work Phase-II	EEC	0	0	18	9	20
			TOTAL				20	

FRANCIS XAVIER ENGINEERING COLLEGE

B.E. – MECHANICAL ENGINEERING REGULATIONS 2024

Choice Based Credit System and Outcome Based Education

SUMMARY OF CREDIT DISTRIBUTION

S. No	Category	Credits Per Semester								Total Credits	Credits in %
		I	II	III	IV	V	VI	VII	VIII		
1	HSSM	4	3		2			3		12	7.23
2	BS	10	4	4						18	10.84
3	ES	11	14							25	15.06
4	PC			14	18	17	9	3		61	36.75
5	PE					3	6	9		18	10.84
6	OE			3	3	3	3			12	7.23
7	EEC			1	1	2	5	2	9	20	12.05
TOTAL		25	21	22	24	25	23	17	9	166	100

Minimum Number of Credits to be Acquired for UG Regular: 166

Minimum Number of Credits to be Acquired for UG Lateral: 120

HSS - Humanities and Social Sciences including Management

BS - Basic Science

ES - Engineering Sciences

PC - Professional Core

PE - Professional Elective

OE – Open Elective/Program Specific Elective for Expandable Scope

EEC - Employability Enhancement Course

FRANCIS XAVIER ENGINEERING COLLEGE
B.E. – MECHANICAL ENGINEERING REGULATIONS 2024
Choice Based Credit System and Outcome Based Education
I-VIII Semester Curricula and Syllabi

SEMESTER I

S.No	Course Code	Course Name	Category	Contact Periods	L	T	P	C
Theory Courses								
1	24MA1201	Matrices and Multivariable Calculus	BS	4	3	1	0	4
2	24PH1301	Applied Physics	BS	2	2	0	0	2
3	24CY1401	Applied Chemistry	BS	2	2	0	0	2
4	24CS1501	Introduction to Programming with C	ES	3	3	0	0	3
5	24ME1501	Engineering Graphics	ES	6	2	0	4	4
6	24HS1103	Tamil Heritage தமிழர் மரபு	HSSM	2	2	0	0	1
Theory Cum Practical Courses								
1	24HS1101	Professional Communication Skills	HSSM	4	2	0	2	3
Practical Courses								
1	24PC1311	Applied Physics and Chemistry Laboratory	BS	4	0	0	4	2
2	24CS1511	Programming Practice Laboratory using C	ES	4	0	0	4	2
3	24GE1511	Engineering Practices Laboratory	ES	4	0	0	4	2
			Total	35	16	1	18	25

SEMESTER II

S.No	Course Code	Course Name	Category	Contact Periods	L	T	P	C
Theory Courses								
1	24HS2101	Technical Communication Skills	HSSM	2	2	0	0	2
2	24MA2201	Complex Analysis and Fourier Series	BS	4	3	1	0	4
3	24ME2501	Engineering Mechanics	ES	3	3	0	0	3
4	24EE2501	Fundamentals of Electrical and Electronics Engineering	ES	3	3	0	0	3
5	24CS2501	Introduction to Computing using Python	ES	3	3	0	0	3
6	24ME2502	Engineering Materials and Metallurgy	ES	3	3	0	0	3
7	24HS2103	Technology in Tamil Culture தமிழரும் தொழில்நுட்பமும்	HSSM	2	2	0	0	1
Practical Course								
1	24CS2511	Python Programming Laboratory	ES	4	0	0	4	2
			Total	24	19	1	4	21

SEMESTER III

S.No	Course Code	Course Name	Category	Contact Periods	L	T	P	C
Theory Courses								
1	24MA3201	Statistical Computing and Numerical Techniques	BS	4	3	1	0	4
2	24ME3601	Engineering Thermodynamics	PC	3	2	1	0	3
3	24ME3602	Manufacturing Technology	PC	3	3	0	0	3
4	OE 1	Open Elective - I	OE	3	3	0	0	3
5	24PT3901	Soft skills - Aptitude I	EEC	2	0	0	2	1
Theory Cum Practical Courses								
1	24ME3603	Fluid Mechanics and Machinery	PC	5	3	0	2	4
Practical Courses								
1	24ME3611	Computer Aided Machine Drawing Laboratory	PC	4	0	0	4	2
2	24ME3612	Manufacturing Technology Laboratory	PC	4	0	0	4	2
			Total	28	14	2	12	22

SEMESTER IV

S.No	Course Code	Course Name	Category	Contact Periods	L	T	P	C
Theory Courses								
1	24ME4601	Thermal Engineering	PC	3	2	1	0	3
2	24ME4602	Strength of Materials	PC	3	2	1	0	3
3	OE -2	Open Elective - II	OE	3	3	0	0	3
4	24PT3902	Soft skills – Verbal Ability	EEC	2	0	0	2	1
5	24HS4101	Professional Ethics and Human Values	HSSM	2	2	0	0	2
Theory cum Practical Courses								
1	24ME4603	Metrology and Instrumentations	PC	5	3	0	2	4
2	24ME4604	Theory of Machines	PC	5	3	0	2	4
Practical Courses								
1	24ME4611	Thermal Engineering Laboratory	PC	4	0	0	4	2
2	24ME4612	Strength of Materials Laboratory	PC	4	0	0	4	2
			Total	31	15	2	14	24

SEMESTER V

S.No	Course Code	Course Name	Category	Contact Periods	L	T	P	C
Theory Courses								
1	24ME5601	Heat and Mass Transfer	PC	3	2	1	0	3
2	24ME5602	Design of Machine Elements and Joints	PC	3	2	1	0	3
3	24ME5603	CAD/CAM/CIM for Automation	PC	3	3	0	0	3
4	PE-1	Professional Elective – I	PE	3	3	0	0	3
5	OE-3	Open Elective – III	OE	3	3	0	0	3
6	24GE2901	Design Thinking	EEC	2	1	0	0	1
7	24PT5901	Soft skills - Aptitude II	EEC	2	0	0	2	1
Theory cum Practical Courses								
1	24ME5604	Mechatronics and Internet of Things	PC	5	3	0	2	4
Practical Courses								
1	24ME5611	Heat and Mass Transfer Laboratory	PC	4	0	0	4	2
2	24ME5612	CAD/CAM Laboratory	PC	4	0	0	4	2
			Total	32	17	2	12	25

SEMESTER VI

S.No	Course Code	Course Name	Category	Contact Periods	L	T	P	C
Theory Courses								
1	24ME6601	Finite Element Analysis	PC	3	2	1	0	3
2	24GE6M01	Environmental and sustainable Engineering	MC	2	2	0	0	0
3	PE-2	Professional Elective – II	PE	3	3	0	0	3
4	PE-3	Professional Elective – III	PE	3	3	0	0	3
5	OE-4	Open Elective – IV	OE	3	3	0	0	3
6	24PT5902	Soft skills - Reasoning	EEC	2	0	0	2	1
Theory cum Practical Courses								
1	24ME6602	Industrial Automation with PLC	PC	5	3	0	2	4
Practical Courses								
1	24ME6611	Finite Element Analysis Laboratory	PC	4	0	0	4	2
2	24HS5911	English Language Proficiency Lab	EEC	2	0	0	2	1
3	24GE4911	Design Thinking Project	EEC	2	0	0	2	1
4	24ME6612	Internship	EEC	4	0	0	4	2
			Total	33	16	1	16	23

SEMESTER VII

S. No	Course Code	Course Name	Category	Contact Periods	L	T	P	C
Theory Courses								
1	24HS7101	Principles of Quality and Management	HSSM	3	3	0	0	3
2	24ME7601	Artificial Intelligence for Mechanical Engineers	PC	3	3	0	0	3
3	PE-4	Professional Elective – IV	PE	3	3	0	0	3
4	PE-5	Professional Elective – V	PE	3	3	0	0	3
5	PE-6	Professional Elective – VI	PE	3	3	0	0	3
Practical Courses								
1	24ME7911	Design and Fabrication Project	EEC	4	0	0	4	2
			Total	**19**	**15**	**0**	**4**	**17**

SEMESTER VIII

S.No	Course Code	Course Name	Category	Contact Periods	L	T	P	C
Practical Courses								
1	24ME 8911	Project Work	EEC	18	0	0	18	9
			Total	**18**	**0**	**0**	**18**	**9**

Minimum Number of Credits to be Acquired:166

List of Humanities and Social Sciences Including Management (HSSM)

S.No	Course Code	Course Name	Category	Contact Periods	L	T	P	C
Theory Courses								
1	24HS1103	Tamil Heritage தமிழர் மரபு	HSSM	2	2	0	0	1
2	24HS1101	Professional Communication Skills	HSSM	4	2	0	2	3
3	24HS2101	Technical Communication Skills	HSSM	2	2	0	0	2
4	24HS2103	Technology in Tamil Culture தமிழறும் தொழில்நுட்பமும்	HSSM	2	2	0	0	1
5	24HS7107	Principles of Quality and Management	HSSM	3	3	0	0	3

List of Basic Science Courses

S.No	Course Code	Course Name	Category	Contact Periods	L	T	P	C
Theory Courses								
1	24MA1201	Matrices and Multivariable Calculus	BS	4	3	1	0	4
2	24PH1301	Applied Physics	BS	2	2	0	0	2
3	24CY1401	Applied Chemistry	BS	2	2	0	0	2
4	24MA2201	Complex Analysis and Fourier Series	BS	4	3	1	0	4
5	24MA3201	Statistical Computing and Numerical Techniques	BS	4	3	1	0	4
Practical Courses								
1	24PC1311	Applied Physics and Chemistry Laboratory	BS	4	0	0	4	2

List of Engineering Science Courses

S.No	Course Code	Course Name	Category	Contact Periods	L	T	P	C
Theory Courses								
1	24CS1501	Introduction to Programming with C	ES	3	3	0	0	3
2	24ME1501	Engineering Graphics	ES	3	2	0	4	4
3	24CS2501	Introduction to computing using Python	ES	3	3	0	0	3
4	24EE2501	Fundamentals of Electrical and Electronics Engineering	ES	3	3	0	0	3
5	24ME2501	Engineering Mechanics	ES	3	3	0	0	3
6	24ME2502	Engineering Materials and Metallurgy	ES	3	3	0	0	3
Practical Courses								
1	24CS1511	Programming Practice Laboratory using C	ES	4	0	0	4	2
2	24GE1511	Engineering Practices Laboratory	ES	4	0	0	4	2
3	24CS2511	Python programming Lab	ES	4	0	0	4	2

List of Employability Enhancement Course

S.No	Course Code	Course Name	Category	Contact Periods	L	T	P	C
Practical Courses								
1	24PT3901	Soft Skills - Aptitude I	EEC	2	0	0	2	1
2	24PT3902	Soft Skills – Verbal Ability	EEC	2	0	0	2	1
3	24PT5901	Soft Skills - Aptitude II	EEC	2	0	0	2	1
4	24GE2901	Design Thinking	EEC	2	1	0	0	1
5	24PT5902	Soft Skills - Reasoning	EEC	2	0	0	2	1
6	24HS5911	Communication Skills Laboratory	EEC	2	0	0	2	1
7	24GE4911	Design Thinking Project	EEC	2	0	0	2	1
8	24ME6612	Internhip	EEC	4	0	0	4	2
9	24ME7911	Design and Fabrication project	EEC	4	0	0	4	2
10	24ME8911	Project Work	EEC	18	0	0	18	9

FRANCIS XAVIER ENGINEERING COLLEGE
DEPARTMENT OF MANAGEMENT STUDIES
REGULATION 2024
Choice Based Credit System and Outcome Based Education
I- IV Semester Curriculum and Syllabi

SEMESTER I								
S.No	Course Code	Course Name	Category	L	T	P	C	Contact Periods
Theory Courses								
1	24BA1601	Statistics for Management	PC	3	1	0	4	5
2	24BA1602	Management Concepts and Organizational Behavior	PC	3	0	0	3	3
3	24BA1603	Managerial Economics	PC	3	0	0	3	3
4	24BA1604	Business Law	PC	4	0	0	4	4
Theory Cum Practical Courses								
5	24BA1605	Accounting for Managers	PC	2	1	2	4	5
6	24BA1606	Research Methodology and Applications	PC	3	0	2	4	5
Practical Courses								
1	24BA1907	Soft Skills: 1 - Executive Communication	EEC	0	0	4	2	4
2	24BA1908	Soft Skills: 2 - Managerial Computing	EEC	0	0	4	2	4
\multicolumn{4}{c}{Total}	20	2	6	26	33
SEMESTER II								
S.No	Course Code	Course Name	Category	L	T	P	C	Contact Periods
Theory Courses								

1	24BA2601	Operations Research	PC	3	1	0	4	5
2	24BA2602	Marketing Management	PC	4	0	0	4	4
3	24BA2603	Human Resources Management	PC	3	0	0	3	3
4	24BA2604	Quality and Operations Management	PC	4	0	0	4	4
5	24BA2605	Business Ethics and Corporate Governance	PC	3	0	0	3	3

Theory Cum Practical Courses

6	24BA2606	Financial Management and Modelling	PC	2	1	2	4	5
7	24BA2607	Entrepreneurship and Innovation Management	PC	3	0	2	4	5
8	24BA2908	Business Analytics	PC	3	0	2	4	5

Practical Courses

9	24BA2909	Soft Skills: 3 - Community Engagement	EEC	0	0	0	1	
		Total		23	2	4	31	34

SEMESTER III

S.No	Course Code	Course Name	Category	L	T	P	C	Contact Periods

Theory Courses

1	24BA3601	Strategic Management	PC	3	0	0	3	3
2	24BA3602	International Business Management	PC	3	0	0	3	3
3		Professional Elective I	PE	3	0	0	3	3
4		Professional Elective II	PE	3	0	0	3	3
5		Professional Elective III	PE	3	0	0	3	3
6		Professional Elective IV	PE	3	0	0	3	3

7		Professional Elective V	PE	3	0	0	3	3
8		Professional Elective VI	PE	3	0	0	3	3
		Practical Courses						
9	24BA3903	Soft Skills: 4 - Outbound training	EEC	0	0	0	2	
10	24BA3904	Internship / Business Plan	EEC	0	0	0	2	4 weeks
		Total		24	0	4	28	28

SEMESTER IV

S.No	Course Code	Course Name	Category	L	T	P	C	Contact Periods
1	24BA4901	Major Project / Start-up	EEC	0	0	0	12	20 weeks
		Total		0	0	0	12	

FRANCIS XAVIER ENGINEERING COLLEGE
2024 MCA CURRICULUM AND SYLLABUS REGULATIONS 2024
Choice-Based Credit System and Outcome Based Education
I - IV Semester Curriculum and Syllabi

SEMESTER I

S.No	Course Code	Course Name	Category	Contact Periods	L	T	P	C
		Theory Courses						
1	24MA1258	Discrete Mathematical Structures	FC	4	3	1	0	4
2	24CA1601	Data structures and Applications	PC	3	3	0	0	3
3	24CA1602	Computer Networks	PC	3	3	0	0	3
4	24CA1603	Python Programming	PC	4	3	1	0	4
5	24CA1604	Object Oriented Software Engineering	PC	3	3	0	0	3
		Theory cum Practical Courses						
1	24CA1605	Advanced Databases and Data Mining	PC	5	3	0	2	4
		Practical Courses						
1	24CA1611	Data Structures Laboratory	PC	4	0	0	4	2
2	24CA1912	Communication and Soft Skills Laboratory	EEC	4	0	0	4	2
		Total		30	18	2	10	25

SEMESTER II

S.No	Course Code	Course Name	Category	Contact Periods	L	T	P	C
		Theory Courses						
1	24CA2601	Java Programming	PC	3	3	0	0	3
2	24CA2602	Linux Operating Systems	PC	3	3	0	0	3
3	24CA2603	Fundamentals of Accounting	PC	3	3	0	0	3
4	24CA2604	Full Stack Development	PC	3	3	0	0	3
5		Professional Elective – I	PE	3	3	0	0	3
		Theory cum Practical Courses						
1	24CA2605	Mobile Application Development	PC	5	3	0	2	4
		Practical Courses						
1	24CA2611	Java Programming Laboratory	PC	4	0	0	4	2
2	24CA2912	Full Stack Development Laboratory	EEC	4	0	0	4	2
		Total		28	18	0	10	23

SEMESTER III

S.No	Course Code	Course Name	Category	Contact Periods	L	T	P	C
Theory Courses								
1	24CA3601	Machine Learning	PC	3	3	0	0	3
2	24CA3602	Software Testing and Quality Assurance	PC	3	3	0	0	3
3		Professional Elective – II	PE	3	3	0	0	3
4		Professional Elective – III	PE	3	3	0	0	3
5		Professional Elective – IV	PE	3	3	0	0	3
Theory cum Practical Courses								
1	24CA3603	Internet of Things and Cloud Computing	PC	5	3	0	2	4
Practical Courses								
1	24CA3611	Machine Learning Laboratory	PC	4	0	0	4	2
2	24CA3912	Project Work - Phase – I	EEC	4	0	0	4	2
2	24CA3913	Internship	EEC	4	0	0	4	2
			Total	34	18	0	16	25

SEMESTER IV

S.No	Course Code	Course Name	Category	Contact Periods	L	T	P	C
Practical Courses								
1	24CA4911	Project Work - Phase – II	EEC	20	0	0	20	10
			Total	20	0	0	20	10

Minimum Number of Credits to be acquired: 8

Professional Elective I

1	24CA2701	Network Security	II	3	0	0	3	Networking and Security
2	24CA2702	Software Project Management	II	3	0	0	3	Software Development
3	24CA2703	Data ethics and governance	II	3	0	0	3	Data Science and Analytics
4	24CA2704	AI Ethics and Policy	II	3	0	0	3	Artificial Intelligence and Machine Learning
5	24CA2705	Software Engineering Principles	II	3	0	0	3	Full Stack Development
6	24CA2706	Entrepreneurship and Innovation Management	II	3	0	0	3	Entrepreneurship
7	24CA2707	Research Methodology and IPR	II	3	0	0	3	Research Methodology and IPR Courses

Professional Elective II

1	24CA3701	Cyber Security and Resilience	III	3	0	0	3	Networking and Security
2	24CA3702	Agile Software Development	III	3	0	0	3	Software Development
3	24CA3703	Data Visualization Techniques	III	3	0	0	3	Data Science and Analytics
4	24CA3704	Deep Learning	III	3	0	0	3	Artificial Intelligence and Machine Learning
5	24CA3705	UI & UX Design	III	3	0	0	3	Full Stack Development
6	24CA3706	Social Entrepreneurship	III	3	0	0	3	Entrepreneurship

Professional Elective III

1	24CA3707	Ethical Hacking and Penetration Testing	III	3	0	0	3	Networking and Security
2	24CA3708	Test Driven Development	III	3	0	0	3	Software Development
3	24CA3709	Cloud Computing for Data Science	III	3	0	0	3	Data Science and Analytics
4	24CA3710	Reinforcement Learning	III	3	0	0	3	Artificial Intelligence and Machine Learning
5	24CA3711	Fundamentals of Backend Engineering	III	3	0	0	3	Full Stack Development
6	24CA3712	Emerging Areas in Entrepreneurship	III	3	0	0	3	Entrepreneurship

Professional Elective IV

1	24CA3713	Block Chain Technology and Its Applications	III	3	0	0	3	Networking and Security
2	24CA3714	Game Design and Development	III	3	0	0	3	Software Development
3	24CA3715	Big Data Analytics	III	3	0	0	3	Data Science and Analytics
4	24CA3716	Artificial Intelligence and its Applications	III	3	0	0	3	Artificial Intelligence and Machine Learning
5	24CA3717	DevOps	III	3	0	0	3	Full Stack Development
6	24CA3718	Building a Sustainable Enterprise	III	3	0	0	3	Entrepreneurship

List of Foundation Courses

S.No	Course Code	Course Name	Category	Contact Periods	L	T	P	C
Theory Courses								
1	24MA1258	Discrete Mathematical Structures	FC	4	4	0	0	4

List of Professional Core Courses

S.No	Course Code	Course Name	Category	Contact Periods	L	T	P	C
1	24CA1601	Data Structures and Applications	PC	3	3	0	0	3
2	24CA1602	Computer Networks	PC	3	3	0	0	3
3	24CA1603	Python Programming	PC	4	3	1	0	4
4	24CA1604	Object Oriented Software Engineering	PC	3	3	0	0	3
5	24CA1605	Advanced Databases and Data Mining	PC	5	3	0	2	4
6	24CA1611	Data Structures Laboratory	PC	3	3	0	0	3
7	24CA2601	Java Programming	PC	3	3	0	0	3
8	24CA2602	Linux Operating Systems	PC	3	3	0	0	3
9	24CA2603	Fundamentals of Accounting	PC	3	3	0	0	3
10	24CA2604	Full Stack Development	PC	3	3	0	0	3
11	24CA2605	Mobile Application Development	PC	5	3	0	2	4
12	24CA2611	Java Programming Laboratory	PC	3	3	0	0	3
13	24CA3601	Machine Learning	PC	3	3	0	0	3
14	24CA3602	Software Testing and Quality Assurance	PC	3	3	0	0	3
15	24CA3603	Internet of Things and Cloud Computing	PC	5	3	0	2	4
16	24CA3611	Machine Learning Laboratory	PC	3	3	0	0	3

List of Employability Enhancement Course

S.No	Course Code	Course Name	Category	Contact Periods	L	T	P	C
Practical Courses								
1	24CA1912	Communication and Soft Skills Laboratory	EEC	4	0	0	4	2

2	24CA2912	Full Stack Development Laboratory	EEC	4	0	0	4	2
3	24CA3912	Project Work - Phase – I	EEC	4	0	0	4	2
4	24CA3913	Internship	EEC	4	0	0	4	2
5	24CA4911	Project Work - Phase – II	EEC	20	0	0	20	10

List of Research Methodology and IPR Courses

S. No	Course Code	Course Name	Category	Contact Periods	L	T	P	C
Theory Courses								
1	24CA2707	Research Methodology and IPR	RMC	3	3	0	0	3

List of Value Added Courses

S. No	Course Code	Course Name	Category	Contact Periods	L	T	P	C
Practical Courses								
1	24CA0V01	JavaScript for Web Development	VA	2	0	0	2	1
2	24CA0V02	Web Technologies	VA	2	0	0	2	1
3	24CA0V03	ASP.NET for Web Development	VA	4	0	0	4	2
4	24CA0V04	Data Analytic Tools	VA	4	0	0	4	2
5	24CA0V05	Automation Testing tools	VA	4	0	0	2	1

Bridge Courses I SEM

S.No	Course Code	Course Name	Category	Contact Periods	L	T	P	C
Theory Courses								
1	24CA1B01	Digital Logic and Computer Organization	BC	4	4	0	0	4
2	24CA1B02	Problem Solving and Programming in C	BC	3	3	0	0	3
Practical Courses								
1	24CA1B11	Programming in C Laboratory	BC	4	0	0	4	2
			Total	11	7	0	4	9

Bridge Courses II SEM

S.No	Course Code	Course Name	Category	Contact Periods	L	T	P	C
Theory Courses								
1	24CA2B01	Design and Analysis of Algorithms	BC	3	3	0	0	3
2	24CA2B02	Object Oriented Programming	BC	3	3	0	0	3
Practical Courses								
2	24CA2B11	Object Oriented Programming Laboratory	BC	4	0	0	4	2
			Total	10	6	0	4	8

Francis Xavier Engineering College
(An Autonomous Institution)

Tirunelveli627003

Tamil Nadu, India

Department of Artificial Intelligence and Data Science

Curriculum and Syllabi–R2024-UG

CHOICE BASED CREDIT SYSTEM AND OBE

7th Board of Studies

Vision of the Department

Toimpartqualityeducationandproducehighquality,creativeandethicalengineers,instillprofessionalism, enhance students' problem-solving skills in the domain of artificialintelligence and datascience with a focus to prepare them for the industry, engage them inpotential research areas, to pursueandhavecontinued professional growth to servethegreatercauseofsociety.

Mission of the Department

To provide skill based education to master the students in problem Solving and analytical skills to enhance their expertise in the field Artificial Intelligence and Data Science. To educate the students with latest technologies to update their knowledge in the field of AI and Datascience.ToenableStudentstoexperiencecontent based learning with premier quality data science Education, research, industrial collaboration and to become a successful entrepreneur. recognizedglobally

Table of Contents

Programme Educational Objectives (PEOs)

PEO1 To Formulate, analyze and solve Engineering problems with strong foundation in Mathematical, Scientific, Engineering fundamentals and modern computing Practices through advanced curriculum.

PEO2 Analyze the requirements, realize the technical specification and design the Engineering solutions by applying ArtificialIntelligence and DataScience theory and principles.

PEO3 Demonstrate technical skills, competency in AI and DS and promote collaborative learning and teamwork spirit through multi-disciplinary projects and diverse professional activities.

PEO4 Equip the graduates with strong knowledge, competence and soft skills that allows them to contribute ethically to the needs of society and accomplish sustainable progress in the emerging computing technologies through life-long learning.

Programme Specific Objectives(PSOs)

PSO1   Implement Artificial Intelligence and datascience techniques such as search algorithms, neuralnetworks, machinelearning and dataanalytics for solving a problem and designing novell algorithms for successful career.

PSO2   Apply the skills in the areas of healthcare, education, agriculture, intelligent transport, environment,smart systems and in the multi disciplinary area of Artificial Intelligence And DataScience.

PSO3   . Graduates will acquire practical competency with emerging technologies and open Source platforms related to areas of Artificial Intelligence and DataScience to become a successful Entrepreneur.

Programme Outcomes(POs)

Engineering Graduates will be able to:

1. **Engineeringknowledge:**Applytheknowledgeofmathematics,science, engineeringfundamentals, and an engineering specializationtothe solution ofcomplexengineeringproblems.

2. **Problemanalysis:**Identify,formulate,reviewresearchliterature,andanalyze   complex   engineering . problems   reaching   substantiated   conclusions   using firstprinciplesofmathematics,naturalsciences,andengineeringsciences.

3. **Design/developmentofsolutions:**Designsolutionsforcomplexengineeringproblemsanddesignsystemcom ponentsorprocessesthatmeetthe specified needswith appropriate consideration for the publichealth and   safety, and   the   cultural,societal,andenvironmentalconsiderations.

4. **Conductinvestigationsofcomplexproblems:**Useresearch- basedknowledgeandresearchmethodsincludingdesignofexperiments,analysis   and   interpretation of data,andsynthesisoftheinformationtoprovidevalid conclusions.

5. **Moderntoolusage:**Create,select,andapplyappropriate techniques,resources,andmodernengineeringandITtoolsincludingpredictionandmodelingtocomplexengin eeringactivitieswithanunderstandingofthelimitations.

6. **The engineer and society:** Apply reasoning informed by the contextualknowledge toassess societal, health, safety, legal and cultural issues andthe   consequentresponsibilities   relevant totheprofessionalengineeringpractice.

7. **Environment and sustainability:** Understand the impact of the professional engineering solutionsinsocietalandenvironmentalcontexts,anddemonstratetheknowledgeof,andneedforsustainabledev elopment.

8. **Ethics:** Applyethicalprinciplesandcommittoprofessionalethicsandresponsibilitiesandnormsoftheengineer ingpractice.

9. **Individualandteamwork:** Functioneffectivelyasanindividual,andasamemberorleaderindiverseteams,and inmultidisciplinarysettings.

10. **Communication:** Communicate effectively on complex engineeringactivitieswiththeengineeringcommunityandwithsocietyatlarge,suchas beingabletocomprehendandwriteeffectivereportsanddesigndocumentation, make effective presentations, andgiveandreceiveclearinstructions.

11. **Project management and finance:** Demonstrate knowledge andunderstanding of theengineering and management principles and applythesetoone"sownwork,asamemberandleader in ateam,tomanageprojectsandinmultidisciplinaryenvironments.

12. **Life-longlearning:** Recognizetheneedfor,andhavethepreparation and ability toengageinindependentandlife-longlearninginthebroadestcontextoftechnologicalchange.

B.TECH.–Artificial Intelligence
and Data Science
REGULATIONS 2024

Choice Based Credit System and
Outcome Based Education
I-VIII Semester Curricula and
Syllabi

S. No	Category	Credits Per Semester								TotalCredits	Credits in %
		I	II	III	IV	V	VI	VII	VIII		
1	HSSM	4	3		2			3		12	7.27
2	BS	10	4	4	4					22	13.33
3	ES	8	14	3						25	15.15
4	PC		2	11	14	13	11	5		56	33.94
5	PE					6	6	6		18	10.91
6	OE			3	3	3	3			12	7.27
7	EEC		1	1	2	2	3	2	9	20	12.12
Total		22	24	22	25	24	23	16	9	165	100

Minimum Number of Credits to be
acquired: 165
Lateral Entry Credits: 120

HSSM - Humanities and Social Sciences including
Management
BS-BasicScience
ES -
Engineering
Sciences
PC-
ProfessionalCo
re
PE-ProfessionalElective
OE - Open Elective/Programme Specific Elective for
Expandable Scope
EEC-EmployabilityEnhancement Course

SEMESTER I

S. No	Course Code	Course Name	Category	Contact Periods	L	T	P	C
Theory Courses								
1	24ME1202	Linear Algebra and Calculus	BS	4	3	1	0	4
2	24PH1301	Applied Physics	BS	2	2	0	0	2
3	24CY1401	Applied Chemistry	BS	2	2	0	0	2
4	24CS1501	Introduction To Programming With C	ES	3	3	0	0	3
5	24HS1103	Tamil Heritage / தமிழர்மரபு	HSSM	2	2	0	0	1
Theory cum Practical Courses								
1	24HS1101	Professional Communication Skills	HSSM	4	2	0	2	3
Practical Courses								
1	24PC1311	Applied Physics and Chemistry Laboratory	BS	4	0	0	4	2
2	24CS1511	Programming Practice Laboratory using C	ES	4	0	0	4	2
3	24GE1511	Engineering Practices Laboratory	ES	4	0	0	4	2
		Total		29	14	1	14	21

SEMESTER II

S. No	Course Code	Course Name	Category	Conduct Periods	L	P	T	C
Theory Courses								
1	24HS2101	Technical Communication Skills	HSSM	2	2	0	0	2
2	24MA2201	Complex Analysis and Fourier Series	BS	3	3	1	0	4
3	24CS2501	Introduction to Computing using Python	ES	3	3	0	0	3
4	24EE2501	Fundamentals of Electrical and Electronics Engineering	ES	3	3	0	0	3
5	24ME1501	Engineering Graphics	ES	4	2	0	4	4
6	24GE2901	Design Thinking	EEC	1	1	0	0	1
Theory Cum Practical								
1	24AI2601	Web Design	ES	4	2	0	2	3
Practical Courses								
1	24CS2511	Python Programming Laboratory	ES	4	0	0	4	2
2	24AI2611	Artificial Intelligence Tools Laboratory	PC	4	0	0	4	2
Mandatory Courses								
1	24HS2103	Technology in Tamil Culture	HSSM	1	1	0	0	1
			Total	29	17	1	14	25

SEMESTER III

S.No	Course Code	Course Name	Category	Contact Periods	L	T	P	C
		Theory Courses						
1	24MA3201	Mathematics for Data Science	BS	3	3	1	0	4
2	24IT3501	Digital Principles and System Design	ES	3	3	0	0	3
3	24AI3601	Data Structures and Algorithm Analysis	PC	3	3	0	0	3
4	24AI3602	Data Science Using python	PC	3	3	1	0	4
5		Open Elective-I	OE	3	3	0	0	3
		Practical Courses						
1	24AI3611	Data Structures and Algorithm Analysis Lab	PC	4	0	0	4	2
2	24AI3612	Data Science lab	PC	4	0	0	4	2
3	24PT3902	Soft Skills-Verbal Ability	EEC	2	0	0	2	1
		Total		25	15	2	10	22

SEMESTER IV

S.No	Course Code	Course Name	Category	Contact Periods	L	T	P	C
		Theory Courses						
1	24HS4101	Professional Ethics and Human values	HSSM	2	2	0	0	2
2	24MA4201	Discrete Mathematics	BS	3	3	1	0	4
3	24AI4601	Data Analytics	PC	3	3	1	0	4
4	24AI4602	Artificial Intelligence and Expert Systems	PC	3	3	0	0	3
5		Open Elective- II	OE	3	3	0	0	3
		Theory Cum practical						
1	24IT4603	Operating Systems	PC	5	2	0	2	3
		Practical Courses						
1	21AI4611	Data Analytics laboratory	PC	4	0	0	4	2
2	21AI4612	Artificial Intelligence lab	PC	4	0	0	4	2
3	21PT3901	SoftSkills-Aptitude I	EEC	2	0	0	2	1
4	21AI4911	Mini Project- Creative and Innovation Project- I	EEC	1	0	0	2	1
		Total		30	16	2	14	25

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SEMESTERV

S.NO	Course Code	Course Name	Category	ContactPeriods	L	T	P	C
Theory Courses								
1	24AI5601	Database& Data Warehousing	PC	3	3	0	0	3
2	24AI5602	Machine Learning	PC	3	3	0	0	3
3		Professional Elective–I	PE	3	3	0	0	3
4		Professional Elective–II	PE	3	3	0	0	3
5		Open Elective III	OE	3	3	0	0	3
Theory cum Practical Courses								
1	24AI5603	Java Programming and Embedded SQL	PC	5	2	0	2	3
Practical Courses								
1	24AI5611	Database & Data Warehousing Laboratory	PC	4	0	0	4	2
2	24AI5612	Machine Learning Lab	PC	4	0	0	4	2
3	24PT4901	Soft Skills–Aptitude-II	EEC	2	0	0	2	1
4	24HS5911	Communication and Soft Skills Laboratory	EEC	1	0	0	2	1
Total				31	17	0	14	24

SEMESTERVI

S.No	Course Code	Course Name	Category	Contact Periods	L	T	P	C
Theory Courses								
1	24AI6601	Deep Learning	PC	3	3	0	0	3
2		Open Elective–IV	OE	3	3	0	0	3
3		Professional Elective –III	PE	3	3	0	0	3
4		Professional Elective–IV	PE	3	3	0	0	3
Theory cum Practical								
1	24AI6601	Big Data Analytics	PC	5	2	0	2	3
2	24AI6602	Computer Vision	PC	5	2	0	2	3
Practical Courses								

1	24AI6611	Deep Learning Lab	PC	4	0	0	4	2
2	24PT4902	Soft Skills –Reasoning	EEC	2	0	0	2	1
3	24AI6911	Internship	EEC	4	0	0	4	2
Mandatory Courses								
1	24GE2M02	Environmental and Sustainable Engineering	MC	2	2	0	0	0
			Total	34	18	0	14	23

SEMESTERVII

S.NO	Course Code	Course Name	Category	Contact Periods	L	T	P	C
Theory Courses								
1	24HS7101	Principles of Quality and Management	HSSM	3	3	0	0	3
2	24AI7601	NLP and Prompt Engineering	PC	3	3	0	0	3
3		Professional Elective–V	PE	3	3	0	0	3
4		Professional Elective–VI	PE	3	3	0	0	3
Practical Courses								
1	24AI7611	NLP Laboratory	PC	4	0	0	4	2
2	24AI7911	Creative and Innovation Project- II	EEC	4	0	0	4	2 .
		Total		20	12	0	8	16

SEMESTERVIII

S.NO	Course Code	Course Name	Category	Contact Periods	L	T	P	C
Practical Courses								
1	24AI8911	Project Work Phase-II	EEC	9	0	0	18	9
			Total	9	0	0	18	9

Minimum number of Credits to be Acquired: 165

List of Professional Elective Courses

Professional Elective	Vertical 1 Edge Artificial Intelligence	Vertical 2 Data Analytics	Vertical 3 Advanced Machine Learning	Vertical 4 Software Engineering	Vertical 5 Robotics
Professional Elective-I	Artificial Neural Network	Cognitive Science and Analytics	Advanced ML Techniques	Agile Software Methodologies	Actuators and sensors
Professional Elective-II	Advanced Artificial Intelligence	Text Analytics	MLOps	AI Enhanced Software Engineering	Robotic operating systems and Robot Simulation
Professional Elective-III	AI Ethics	Big data management	Scalable Machine Learning	Software Project Management	Planning and Decision Making of Robots
Professional Elective-IV	Reinforcement and Ensemble learning.	Recommendation Systems	Decision Support System	Software testing and Automation	Multi-Agent Systems
Professional Elective-V	Distributed AI	Video Analytics	Pattern recognition	Software Quality Assurance	Autonomous Systems
Professional Elective-VI	Optimization Techniques	Knowledge Engineering	Sentimental Analysis	Software Risk Management and Maintenance	Tele Robotics and Virtual Reality

List of Professional Electives Courses

S.NO	Course Code	Course Name	Semester	L	T	P	C	Stream/Domain
Professional Elective I								
1.	24AI5701	Artificial Neural Networks	5	3	0	0	3	Artificial Intelligence
2.	24AI5702	Cognitive Science and Analytics	5	3	0	0	3	Data Analytics
3.	24AI5703	Advanced ML Techniques	5	3	0	0	3	Machine Learning
4.	24AI5704	Agile Software Methodologies	5	3	0	0	3	Software Engineering
5.	24AI5705	Actuators and sensors	5	3	0	0	3	Robotics
Professional Elective II								
1.	24AI5706	Advanced Artificial Intelligence	5	3	0	0	3	Artificial Intelligence
2.	24AI5707	Text Analytics	5	3	0	0	3	Data Analytics
3.	24AI5708	MLOps	5	3	0	0	3	Machine Learning
4.	24AI5709	AI Enhanced Software Engineering	5	3	0	0	3	Software Engineering
5.	24AI5710	Robotic OS and Robot simulation	5	3	0	0	3	Robotics
Professional Elective III								
1.	24AI6701	AI Ethics	6	3	0	0	3	Artificial Intelligence
2.	24AI6702	Big-data management	6	3	0	0	3	Data Analytics
3.	24AI6703	Scalable Machine Learning	6	3	0	0	3	Machine Learning
4.	24AI6704	Software Project Management	6	3	0	0	3	Software Engineering
5.	24AI6705	Planning and Decision making in robots	6	3	0	0	3	Robotics

Professional Elective IV

1.	24AI6706	Reinforcement and Ensemble learning	6	3	0	0	3	Artificial Intelligence
2.	24AI6707	Recommendation Systems	6	3	0	0	3	Data Analytics
3.	24AI6708	Decision Support System	6	3	0	0	3	Machine Learning
4.	24AI6709	Software testing and Automation	6	3	0	0	3	Software Engineering
5.	24AI6710	Multi-Agent Systems	6	3	0	0	3	Robotics

Professional Elective V

1.	24AI7701	Distributed AI	7	3	0	0	3	Artificial Intelligence
2.	24AI7702	Video Analytics	7	3	0	0	3	Data Analytics
3.	24AI7703	Pattern recognition	7	3	0	0	3	Machine Learning
4.	24AI7704	Software Quality Assurance	7	3	0	0	3	Software Engineering
5.	24AI7705	Autonomous Systems	7	3	0	0	3	Robotics

Professional Elective VI

1.	24AI7706	Optimization Techniques	7	3	0	0	3	Artificial Intelligence
2.	24AI7707	Knowledge Engineering	7	3	0	0	3	Data Analytics
3.	24AI7708	Sentimental Analysis	7	3	0	0	3	Machine Learning
4	24AI7709	Software Risk Management and Maintenance	7	3	0	0	3	Software Engineering
5	24AI7710	Tele Robotics and Virtual Reality	7	3	0	0	3	Robotics

List of Open Elective Courses

S. N O	Course Code	Course Name	Sem	L	T	P	C
OPEN ELECTIVE-I							
1	24AI3801	Introduction to Machine Learning	3	3	0	0	3
2	24AI3802	AI in cyber security	3	3	0	0	3
3	24AI3803	Advancements in AI	3	3	0	0	3
4	24AI3804	Data Exploration Using Python	3	3	0	0	3
5	24AI3805	Data science essentials	3	3	0	0	3
OPEN ELECTIVE-II							
1	24AI4801	Principles of Deep Learning	4	3	0	0	3
2	24AI4802	AI and Robotics	4	3	0	0	3
3	24AI4803	Time series Forecasting	4	3	0	0	3
4	24AI4804	Generative AI	4	3	0	0	3
5	24AI4805	Front end Development with AI frameworks	4	3	0	0	3

OPEN ELECTIVE-III

1	24AI5801	Intelligent Automation	5	3	0	0	3
2	24AI5802	AI tools for Engineers	5	3	0	0	3
3	24AI5803	Predictive Engineering Analytics	5	3	0	0	3
4	24AI5804	Computer vision	5	3	0	0	3
5	24AI5805	Data Visualization and Dashboarding	5	3		0	3

OPEN ELECTIVE-IV

1	24AI6801	AI Driven Software Testing	6	3	0	0	3
2	24AI6802	AI based Control Systems	6	3	0	0	3
3	24AI6803	AI for Engineering decisions	6	3	0	0	3
4	24AI6804	AI in Health Care	6	3	0	0	3
5	24AI6805	Data Analytics Tools and Techniques	6	3	0	0	3