STRUCTURE OF THE SYLLABUS FOR 4 YEAR UG PROGRAMME

ROYAL SCHOOL OF ENGINEERING & TECHNOLOGY

B.Tech Computer Science and Engineering

SEMESTER 1			
S. No.	**Subject Code**	**Names of subjects**	**Credit**
1	PHY022C101	Physics	4
2	MAT022C102	Mathematics – I	4
3	CSE022C103	Basic Electrical Engineering	4
4	CEE022C104	Engineering Graphics & Design	4
5	BHS022A101	Universal Human Values: Understanding Harmony and Ethical Human Conduct	2
6	COD022S116	Design Thinking	1
7	CSE022S117	Ideation Lab	1
		TOTAL	**20**
8		**Honors/Minor (Optional) [To be obtained through MOOCS/ SWAYAM]**	**3**
SEMESTER 2			
S. No.	**Subject Code**	**Names of subjects**	**Credit**
1	CHY022C201	Chemistry	4
2	MAT022C202	Mathematics – II	4
3	CSE022C203	Biology for Engineers	3
4	CSE022C204	Programming for Problem Solving	4
5	MEE022C215	Manufacturing Practices Workshop	2
6	CEN022A201	English for Technical Writing	2
7	CSE022S217	Sports and Yoga	1
		TOTAL	**20**
8		**Honors/Minor (Optional) [To be obtained through MOOCS/ SWAYAM]**	**3**
SEMESTER 3			
S. No.	**Subject Code**	**Names of subjects**	**Credit**
1	MAT022C301	Discrete Mathematics	4
2	CSE022C302	Data Structures and Algorithms	4
3	CSE022C303	Computer Organisation and Architecture	3
4	CSE022C304	Digital Logic and Design	4
5	CSE022K305	Indian Knowledge System-I	2
6	CSE022G306	Open Elective-I (Programming with Python)	3
7	CSE022C327	Internship-I	2
		TOTAL	**22**
8		**Honors/Minor (Optional) [To be obtained through MOOCS/ SWAYAM]**	

SEMESTER 4			
S. No.	**Subject Code**	**Names of subjects**	**Credit**
1	CSE022C401	OOP using C++	4
2	CSE022C402	Database Management Systems	4
3	CSE022C403	Formal Language and Automata Theory	4
4	CSE022C404	Microprocessor	3
5	CSE022K405	Indian Knowledge System-II	2
6	CSE022G406	Open Elective-II	3
7	CSE022C427	Internship-II	2
		TOTAL	**22**
8		**Honors/Minor (Optional) [To be obtained through MOOCS/ SWAYAM]**	**3**
SEMESTER 5			
S. No.	**Subject Code**	**Names of subjects**	**Credit**
1	CSE022C501	Operating Systems	4
2	CSE022C502	Computer Based Numerical and Statistical Techniques	4
3	CSE022C503	Design and Analysis of Algorithms	3
4	CSE022C504	Data Communication	3
5	BSA022C505	Principles of Management & Organisational Behaviour	3
6	CSE022G506	Open Elective-III	3
7	CSE022C527	Internship-III	2
		TOTAL	**22**
8		**Honors/Minor (Optional) [To be obtained through MOOCS/ SWAYAM]**	**3**
SEMESTER 6			
S. No.	**Subject Code**	**Names of subjects**	**Credit**
1	CSE022C601	Computer Networks	4
2	CSE022C602	Compiler Design	4
3	CSE022C603	Software Engineering	3
4	CSE022D60X	Professional Elective Course-I	4
5	CSE022D60X	Professional Elective Course-II	4
6	CSE022G606	Open Elective-IV	3
7	CSE022C627	Internship-IV	2
		TOTAL	**24**
8		**Honors/Minor (Optional) [To be obtained through MOOCS/ SWAYAM]**	**3**
SEMESTER 7			
S. No.	**Subject Code**	**Names of subjects**	**Credit**
1	CSE022C701	Introduction to Artificial Intelligence	4
2	CSE022C702	Web Technology	4
3	CSE022D70X	Professional Elective Course-III	4
4	CSE022D70X	Professional Elective Course-IV	4
5	CSE022C725	Internship-V	2
6	CSE022C726	Project-I	2
		TOTAL	**20**
7		**Honors/Minor (Optional) [To be obtained through MOOCS/ SWAYAM]**	**3**
SEMESTER 8			
S. No.	**Subject Code**	**Names of subjects**	**Credit**

1	CSE022C801	Introduction to Machine Learning	4
2	CSE022C802	Cryptography and Network Security	4
3	CSE022D80X	PEC-V	4
4	CSE022C824	Project-II	6
		TOTAL	**18**
5		**Honors/Minor (Optional) [To be obtained through MOOCS/ SWAYAM]**	**3**

PEC Tracks	**Course Codes**	**Subjects**
Network Engineering	CSE022D601	PEC 1: Mobile Computing
	CSE022D602	PEC 2: Big Data Analytics
	CSE022D701	PEC 3: Cloud Computing
	CSE022D702	PEC 4: Wireless Sensor Networks
	CSE022D801	PEC 5: Internet of Things
Semiconductors	CSE022D603	PEC 1: Introduction to Semiconductor Devices
	CSE022D604	PEC 2: VLSI Design
	CSE022D703	PEC 3: Embedded Systems and IOT
	CSE022D704	PEC 4: Micro Electro Mechanical Systems / VHDL
	CSE022D802	PEC 5: Nanoelectronics
General Track	CSE022D605	PEC 1: Social Network Analysis
	CSE022D606	PEC 2: Digital Image Processing
	CSE022D705	PEC 3: Introduction to Data Science
	CSE022D706	PEC 4: Fundamentals of Quantum Computing
	CSE022D801	PEC 5: Introduction to Cyber Security

List of Open Electives to be offered by Department of CSE	
Open Elective-I	Programming with Python (CSE022G306)
Open Elective-II	Fundamentals of Web Design (CSE022G406)
Open Elective-III	Introduction to AI (CSE022G506)
Open Elective-IV	Fundamentals of IOT (CSE022G606)

STRUCTURE OF THE SYLLABUS FOR 4 YEAR UG PROGRAMME

ROYAL SCHOOL OF ENGINEERING & TECHNOLOGY

B.Tech Artificial Intelligence and Data Science

SEMESTER 1			
S. No.	**Subject Code**	**Names of subjects**	**Credit**
1	PHY022C101	Physics	4
2	MAT022C102	Mathematics – I	4
3	CSE022C103	Basic Electrical Engineering	4
4	CEE022C104	Engineering Graphics & Design	4
5	BHS022A101	Universal Human Values: Understanding Harmony and Ethical Human Conduct	2
6	COD022S116	Design Thinking	1
7	CSE022S117	Ideation Lab	1
		TOTAL	**20**
8		**Honors/Minor (Optional) [To be obtained through MOOCS/ SWAYAM]**	**3**
SEMESTER 2			
S. No.	**Subject Code**	**Names of subjects**	**Credit**
1	CHY022C201	Chemistry	4
2	MAT022C202	Mathematics – II	4
3	CSE022C203	Biology for Engineers	3
4	CSE022C204	Programming for Problem Solving	4
5	MEE022C215	Manufacturing Practices Workshop	2
6	CEN022A201	English for Technical Writing	2
7	CSE022S217	Sports and Yoga	1
		TOTAL	**20**
8		**Honors/Minor (Optional) [To be obtained through MOOCS/ SWAYAM]**	**3**
SEMESTER 3			
S. No.	**Subject Code**	**Names of subjects**	**Credit**
1	MAT022C301	Discrete Mathematics	4
2	ARI022C302	Data Structures and Algorithms	4
3	ARI022C303	Computer Organisation and Architecture	3
4	ARI022C304	Digital Logic and Design	4
5	ARI022K305	Indian Knowledge System-I	2
6	ARI022G306	Open Elective-I	3
7	ARI022C327	Internship-I	2
		TOTAL	**22**
8		**Honors/Minor (Optional) [To be obtained through MOOCS/ SWAYAM]**	**3**
SEMESTER 4			
S. No.	**Subject Code**	**Names of subjects**	**Credit**
1	ARI022C401	OOP using C++	4
2	ARI022C402	Database Management Systems	4
3	ARI022C403	Formal Language and Automata Theory	4
4	ARI022C405	Mathematical Foundations for AI	3

5	ARI022K405	Indian Knowledge System-II	2
6	ARI022G406	Open Elective-II	3
7	ARI022C427	Internship-II	2
		TOTAL	**22**
8		**Honors/Minor (Optional) [To be obtained through MOOCS/ SWAYAM]**	**3**
SEMESTER 5			
S. No.	**Subject Code**	**Names of subjects**	**Credit**
1	ARI022C501	Operating Systems	4
2	ARI022C504	Data Communication	4
3	ARI022C503	Design and Analysis of Algorithms	3
4	ARI022C505	Introduction to AI and ML	3
5	BSA022C505	Principles of Management & Organisational Behaviour	3
6	ARI022G506	Open Elective-III	3
7	ARI022C527	Internship-III	2
		TOTAL	**22**
8		**Honors/Minor (Optional) [To be obtained through MOOCS/ SWAYAM]**	**3**
SEMESTER 6			
S. No.	**Subject Code**	**Names of subjects**	**Credit**
1	ARI022C601	Computer Networks	4
2	ARI022C604	Introduction to Deep Learning	4
3	ARI022C603	Software Engineering	3
4	ARI022D60X	Professional Elective Course-I	4
5	ARI022D60X	Professional Elective Course-II	4
6	ARI022G606	OEC-II	3
7	ARI022C627	Internship-IV	2
		TOTAL	**24**
SEMESTER 7			
8		**Honors/Minor (Optional) [To be obtained through MOOCS/ SWAYAM]**	**3**
S. No.	**Subject Code**	**Names of subjects**	**Credit**
1	ARI022C703	Data and Visual Analytics in AI	4
2	ARI022C702	Web Technology	4
3	ARI022D70X	Professional Elective Course-III	4
4	ARI022D70X	Professional Elective Course-IV	4
5	ARI022C725	Internship-V	2
6	ARI022C726	Project-I	2
		TOTAL	**20**
7		**Honors/Minor (Optional) [To be obtained through MOOCS/ SWAYAM]**	**3**
SEMESTER 8			
S. No.	**Subject Code**	**Names of subjects**	**Credit**
1	ARI022C803	Predictive Modelling & Optimization Techniques	4
2	ARI022C802	Cryptography and Network Security	4
3	ARI022D80X	PEC-V	4
4	ARI022C824	Project-II	6
		TOTAL	**18**
5		**Honors/Minor (Optional) [To be obtained through MOOCS/ SWAYAM]**	**3**

PEC Tracks	Subjects
Artificial Intelligence	PEC 1: Advanced Deep Learning (ARI022D601)
	PEC 2: Natural Language Processing (ARI022D601)
	PEC 3: Computer Vision (ARI022D701)
	PEC 4: Reinforcement Learning (ARI022D702)
	PEC 5: AI for Robotics (ARI022D801)

List of Open Electives to be offered by Department of CSE	
Open Elective-I	Programming with Python (ARI022G306)
Open Elective-II	Fundamentals of Web Design (ARI022G406)
Open Elective-III	Introduction to AI (ARI022G506)
Open Elective-IV	Fundamentals of IOT (ARI022G606)

STRUCTURE OF THE SYLLABUS FOR 2 YEAR PG PROGRAMME

ROYAL SCHOOL OF ENGINEERING & TECHNOLOGY

M.Tech Computer Science and Engineering

SEMESTER 1			
S.N	**Subject Code**	**Names of subjects**	**CREDIT**
1	CSE024C101	Internet Protocols and Network Design	4
2	CSE024C102	Mathematical Foundations of Computer Science	4
3	CSE024C103	Distributed Operating Systems	4
4	CSE024C111	Internet Protocols and Network Design Lab	1
5	CSE024C112	Mathematical Foundations of Computer Science Lab	1
6	CSE024C113	Distributed Operating Systems Lab	1
7	CSE024D10X	PEC-I	4
8	CSE024D11X	PEC-I Lab	1
		TOTAL	**20**
SEMESTER 2			
S.N	**Subject Code**	**Names of subjects**	**CREDIT**
1	CSE024C201	Modern Database Systems	4
2	CSE024C202	Advanced Algorithm Designing	4
3	CSE024C211	Modern Database Systems Lab	1
4	CSE024C212	Advanced Algorithm Designing Lab	1
5	CSE024D20X	PEC-II	4
6	CSE024D21X	PEC-II Lab	1
7	CSE024D20X	PEC-III	4
8	CSE024D21X	PEC-III Lab	1
		TOTAL	**20**
SEMESTER 3			
S.N	**Subject Code**	**Names of subjects**	**CREDIT**
1	CSE024C301	Soft Computing	4
2	CSE024C302	Internet Security and Cryptographic Protocols	4
3	CSE024C301	Soft Computing Lab	1
4	CSE024C302	Internet Security and Cryptographic Protocols Lab	1

5	CSE024D30X	PEC-IV	4
6	CSE024D31X	PEC-IV Lab	1
7	CSE024C324	Summer Training/ Internship	2
8	CSE024C325	Dissertation-I	8
		TOTAL	**24**
SEMESTER 4			
S.N	**Subject Code**	**Names of subjects**	**CREDIT**
1	CSE024C421	Dissertation-II	16
		TOTAL	**16**

SEMESTER	TOTAL CREDITS
I	**20**
II	**20**
III	**24**
IV	**16**
TOTAL	**80**

Note: *** All Engineering Graduates have to undergo 2-year PG Course
*** Exit after 1st year will be awarded PG Diploma

DSE Tracks	Subject Name
Track 1: Artificial Intelligence	Minor 1: Foundations of AI (CSE024D101)
	Minor 2: Machine Learning & Deep Learning (CSE024D201)
	Minor 3: Natural Language Processing (CSE024D202)
	Minor 4: Computer Vision/ Generative AI and LLMs (CSE024D301)
Track 2: Data Analytics	Minor 1: Data Mining (CSE024D102)
	Minor 2: Statistical Computing (CSE024D203)
	Minor 3: Big Data Analytics (CSE024D204)
	Minor 4: Cloud Computing for Big Data (CSE024D302)
Track 3: Image Processing/ Computer Vision	Minor 1: Digital Image Processing (CSE024D101)
	Minor 2: Machine Learning & Deep Learning (CSE024D201)
	Minor 3: Remote Sensing and GIS (CSE024D206)
	Minor 4: Computer Vision/ Generative AI and LLMs (CSE024D301)