

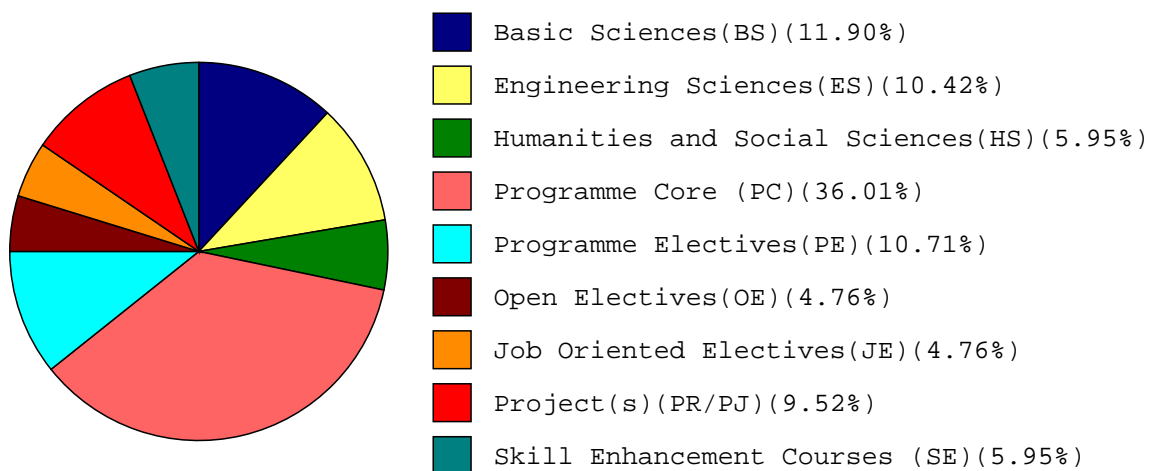
R.V.R & J.C.COLLEGE OF ENGINEERING (Autonomous)
DEPARTMENT OF INFORMATION TCHNOLOGY

B.TECH. INFORMATION TCHNOLOGY

(w.e.f. the batch of students admitted from the academic year 2024-2025)

Programme curriculum (R24) grouping based on course components

Course Component	Curriculum Content (% of total number of credits in programme)	Total number of contact hours	Total number of credits
Basic Sciences (BS)	12.5	23	20
Engineering Sciences (ES)	10.94	22	17.5
Humanities and / Social Sciences (HS)	6.25	12	10
Professional Core (PC)	37.81	76	60.5
Professional Elective(s) (PE)	11.25	17	18
Open Elective(s) (OE)	5	6	8
Job Oriented Elective(s) (JE)	0		0
Project(s) (PR/PJ)	10	22	16
Skill Enhancement Course(s) (SEC)	6.25	17	10
Mandatory Course(s) (MC)	--	6	--
Total number of Credits			160



R.V.R & J.C.COLLEGE OF ENGINEERING (Autonomous)

B.TECH. INFORMATION TECHNOLOGY

Course Structure, Scheme of Instruction (R24) and Examination

(w.e.f. the batch of students admitted from the academic year 2024-2025)

Three Weeks Orientation Programme is Mandatory before starting Semester I [First Year]

Semester I [First Year]

COURSE STRUCTURE

SNo.	Course Details		Scheme of Instruction			Scheme of Examination			Category Code
	Code No.	Subject Name	Periods per week			Maximum Marks		Credits	
			L	T	P	SES	EXT		
1	IT/CD/CM/CO/CS111	Linear Algebra, Calculus and Differential Equations	3	-	-	30	70	3.0	BS
2	IT/CD/CO/CS112	Engineering Physics	3	-	-	30	70	3.0	BS
3	IT/CD/CM/CO/CS113	Basic Electrical and Electronics Engineering	3	-	-	30	70	3.0	ES
4	IT/CD/CM/CO/CS/EC114	Programming for Problem Solving	4	-	-	30	70	4.0	ES
5	IT151	Engineering Physics Lab	-	-	2	30	70	1.0	BS
6	IT152	Basic Electrical and Electronics Engineering Lab	-	-	2	30	70	1.0	ES
7	IT153	Programming for Problem Solving Lab	-	-	3	30	70	1.5	ES
8	IT/CD/CM/CO/CS154	Engineering Graphics	1	-	2	30	70	2.0	ES
9	IT/CB/CO/CM/CD/CS155	NSS / NCC / Community Service	-	-	1	30	70	0.5	BS
TOTAL			14	0	10	270	630	19	TPW-24

Semester II [First Year]

COURSE STRUCTURE

SNo.	Course Details		Scheme of Instruction			Scheme of Examination			Category Code
	Code No.	Subject Name	Periods per week			Maximum Marks		Credits	
			L	T	P	SES	EXT		
1	IT/CD/CM/CO/CS121	Integral calculus and Transforms	3	-	-	30	70	3.0	BS
2	IT/CD/CO/CS122	Engineering Chemistry	2	-	-	30	70	2.0	BS
3	IT/CD/CM/CO/CS123	Communicative English	2	-	-	30	70	2.0	HS
4	IT/CD/CO/CM/CS124	Digital Logic Design	3	-	-	30	70	3.0	ES
5	IT/CB/CM/CO/CS125	Python Programming	2	-	-	30	70	2.0	ES
6	IT/CD/CO/CS126	Data Structures	4	-	-	30	70	4.0	PC
7	IT161	Engineering Chemistry Lab	-	-	2	30	70	1.0	BS
8	IT162	Communicative English Lab	-	-	2	30	70	1.0	HS
9	IT163	Python Programming Lab	-	-	2	30	70	1.0	ES
10	IT164	Data Structures Lab	-	-	3	30	70	1.5	PC
11	IT/CB/CD/CO/CS165	Health and Wellness, Yoga and Sports	-	-	1	30	70	0.5	BS
TOTAL			16	0	10	330	770	21	TPW-26

Semester III [Second Year]
COURSE STRUCTURE

SNo.	Course Details		Scheme of Instruction			Scheme of Examination		Credits	Category Code
	Code No.	Subject Name	Periods per week			SES	EXT		
			L	T	P				
1	IT/CD/CM/CO/CS211	Probability, Statistics & Complex Analysis	3	-	-	30	70	3.0	BS
2	IT/CB/CD/CM/CO/CS212	Universal Human Values-II Understanding Harmony	2	-	-	30	70	2.0	HS
3	IT/CD/CM/CO/CS213	Discrete Mathematical Structures	3	-	-	30	70	3.0	PC
4	IT/CD/CM/CO/CS214	Computer Organization	3	-	-	30	70	3.0	PC
5	IT/CB/CM/CO/CS215	Design and Analysis of Algorithms	3	-	-	30	70	3.0	PC
6	IT/CB/CD/CM/CO/CS216	Object Oriented Programming	3	-	-	30	70	3.0	PC
7	IT251	Skill Enhancement Course-1	-	-	4	30	70	2.0	SEC
8	IT252	Design and Analysis of Algorithms Lab	-	-	3	30	70	1.0	PC
9	IT253	Object Oriented Programming Lab	-	-	3	30	70	1.0	PC
10	MC1	Constitution of India	2	-	-	100	-	0.0	MC
TOTAL			19	0	10	370	630	21	TPW-29

Semester IV [Second Year]
COURSE STRUCTURE

SNo.	Course Details		Scheme of Instruction			Scheme of Examination		Credits	Category Code
	Code No.	Subject Name	Periods per week			SES	EXT		
			L	T	P				
1	IT/CM/CO/CS221	Computational Statistics	3	-	-	30	70	3.0	BS
2	IT/CB/CD/CM/CS222	Artificial Intelligence	3	-	-	30	70	3.0	PC
3	IT/CB/CD/CM/CO/CS223	Database Management Systems	3	-	-	30	70	3.0	PC
4	IT/CB/CD/CM/CO/CS224	Operating Systems	3	-	-	30	70	3.0	PC
5	IT/CB/CD/CS225	Software Engineering	3	-	-	30	70	3.0	PC
6	IT261	Skill Enhancement Course-2	-	-	4	30	70	2.0	SEC
7	IT/CB/CD/CM/CO/CS262	Design Thinking and Innovation	1	-	2	30	70	2.0	HS
8	IT263	Artificial Intelligence Lab	-	-	3	30	70	1.0	PC
9	IT264	Database Management Systems Lab	-	-	3	30	70	1.0	PC
10	MC2	Environmental Science	2	-	-	100	-	0.0	MC
TOTAL			18	0	12	370	630	21	TPW-30
Internship 2 weeks (Mandatory) during summer vacation (to be evaluated during next semester)									
Honors/Minor course (Maximum Two courses can be registered)			3	-	-	30	70	3	HR/MR

Semester V [Third Year]
COURSE STRUCTURE

SNo.	Course Details		Scheme of Instruction			Scheme of Examination		Credits	Category Code
	Code No.	Subject Name	Periods per week			SES	EXT		
			L	T	P				
1	IT/CS311	Automata Theory and Formal Languages	3	-	-	30	70	3.0	PC
2	IT/CB/CD/ CS312	Computer Networks	3	-	-	30	70	3.0	PC
3	IT313	Professional Elective-I	3	-	-	30	70	3.0	PE
4	IT314	Professional Elective-II	3	-	-	30	70	3.0	PE
5	IT315	Open Elective-I	3	-	-	30	70	3.0	OE
6	IT/CS316	Web Technologies	3	-	-	30	70	3.0	PC
7	IT351	Skill Enhancement Course-3 (Isp Coding-I)	-	1	2	30	70	2.0	SEC
8	IT352	Summer Internship	-	-	-	30	70	1.0	PJ
9	IT353	Tinkering Lab	-	-	2	30	70	1.0	PC
10	IT354	Web Technologies Lab	-	-	2	30	70	1.0	PC
11	IT355	Data Analysis Lab	-	-	2	30	70	1.0	PC
TOTAL			18	1	8	330	770	24	TPW-27
Honors/Minor course (Maximum Two courses can be registered)			3	-	-	30	70	3	HR/MR

Semester VI [Third Year]
COURSE STRUCTURE

SNo.	Course Details		Scheme of Instruction			Scheme of Examination		Credits	Category Code
	Code No.	Subject Name	Periods per week			SES	EXT		
			L	T	P				
1	IT/CB/CM/ CS321	Cryptography and Network Security	3	-	-	30	70	3.0	PC
2	IT/CS322	Full Stack	3	-	-	30	70	3.0	PC
3	IT323	Machine Learning	3	-	-	30	70	3.0	PC
4	IT324	Professional Elective-III	3	-	-	30	70	3.0	PE
5	IT325	Professional Elective-IV	3	-	-	30	70	3.0	PE
6	IT326	Open Elective-II	3	-	-	30	70	3.0	OE
7	IT361	Skill Enhancement Course-4 (Isp Coding-2)	-	1	2	30	70	2.0	SEC
8	IT362	Full Stack Lab	-	-	2	30	70	1.0	PC
9	IT363	Machine Learning Lab	-	-	2	30	70	1.0	PC
10	MC3	Technical Paper Writing and IPR	-	-	2	100	-	0.0	MC
TOTAL			18	1	8	370	630	22	TPW-27
Internship 4 weeks (Mandatory) during summer vacation (to be evaluated during next semester)									
Honors/Minor course (Maximum Two courses can be registered)			3	-	-	30	70	3	HR/MR

Semester VII [Fourth Year]
COURSE STRUCTURE

SNo.	Course Details		Scheme of Instruction			Scheme of Examination		Category Code	
	Code No.	Subject Name	Periods per week			Maximum Marks	Credits		
			L	T	P				SES
1	IT411	Humanities Elective	3	-	-	30	70	3.0	HS
2	IT/CS412	Compiler Design	3	-	-	30	70	3.0	PC
3	IT413	Professional Elective-V	3	-	-	30	70	3.0	PE
4	IT414	Professional Elective-VI (MOOCs)	-	-	-	-	100	2.0	PE
5	IT415	Open Elective-III (MOOCs)	-	-	-	-	100	2.0	OE
6	IT451	Skill Enhancement Course-5	-	1	2	30	70	2.0	SEC
7	IT452	Summer Internship-2	-	-	-	30	70	2.0	PJ
8	IT453	IoT Lab	-	-	2	30	70	1.0	PC
9	IT454	Professional Elective-IV Lab	-	-	2	30	70	1.0	PE
10	IT455	Term Paper	-	-	2	100	-	1.0	PJ
TOTAL			9	1	8	310	690	20	TPW-18
Honors/Minor course (Maximum Two courses can be registered)			3	-	-	30	70	3	HR/MR

Semester VIII [Fourth Year]
COURSE STRUCTURE

SNo.	Course Details		Scheme of Instruction			Scheme of Examination		Category Code	
	Code No.	Subject Name	Periods per week			Maximum Marks	Credits		
			L	T	P				SES
1	IT461	Internship and Project	-	-	20	30	70	12.0	PJ
TOTAL			0	0	20	30	70	12	TPW-20

Professional Elective Courses

Code No.	Subject Name	Code No.	Subject Name
ITPE11	Interactive Computer Graphics	ITPE12	Agile Software Development
ITPE13	Introduction to Quantum Computing	ITPE14	Advanced Java Programming
ITPE21	Generative AI	ITPE22	Big-Data Analytics
ITPE23	Cyber Security	ITPE24	Parallel Algorithms
ITPE31	Digital Image Processing	ITPE32	Mobile Computing
ITPE33	Software Testing	ITPE34	Devops
ITPE41	Virtual and Augmented Reality	ITPE42	Natural Language Processing
ITPE43	Quantum AI	ITPE44	Soft Computing
ITPE51	Internet of Things	ITPE52	Cloud Computing
ITPE53	Deep Learning	ITPE54	Industry Recommended Elective

Skill Courses

Code No.	Subject Name	Code No.	Subject Name
ITSL1	Employability Skills-I	ITSL2	Employability Skills-II
ITSL3	Industry Standard Coding Practice-I	ITSL4	Industry Standard Coding Practice-II
ITSL7	Skill Orientation Course		

Science & Humanities Elective Courses

Code No.	Subject Name	Code No.	Subject Name
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HSEL1	Industrial Management & Entrepreneurship	HSEL2	Economics for Engineers
HSEL3	Introduction to Industrial Management	HSEL4	Project Management & Entrepreneurship

Honors Courses

- Note :**
1. The subjects opted for Honors should be Advanced type which are not covered in regular curriculum
 2. Students has to acquire 12 credits with minimum one subject from each pool.
 3. Compulsory MOOC/NPTEL Courses for 06 credits (02 courses @ 3 credits each)

Pool 1

Code No.	Subject Name	Code No.	Subject Name

Pool 2

Code No.	Subject Name	Code No.	Subject Name

Pool 3

Code No.	Subject Name	Code No.	Subject Name

Pool 4

Code No.	Subject Name	Code No.	Subject Name

Open Elective Courses (Offered by other Departments)

Code No.	Subject Name	Code No.	Subject Name
CEOE1	Fundamentals of Building Planning	CEOE2	Remote Sensing and Gis
CEOE3	Disaster Management	CHOE1	Energy Engineering
CHOE2	Biofuels	ECOE1	Applied Electronics
ECOE2	Microprocessors & Interfacing	EEOE1	Renewable Energy Sources
EEOE2	Utilization of Electrical Energy	MEOE1	Operations Research
MEOE2	Elements of Robotics		

General Minor Courses (Offered by other Department)

- Note :** 1. A student can opt any 4 subjects from each pool @ 3 credits per subject.
2. Compulsory MOOC/NPTEL Courses for 06 credits (02 courses@ 3 credits each)

Offered by Civil Engineering

Code No.	Subject Name	Code No.	Subject Name
CEMR1	Geomatics (Survey, GIS & GPS)	CEMR2	Construction Engineering & Management
CEMR3	Fundamentals of Structural Engineering	CEMR4	Water Resource Engineering
CEMR5	Environmental Engineering	CEMR6	Geotechnical Engineering
CEMR7	Transportation Engineering		

Offered by Electronics & Communication Engineering

Code No.	Subject Name	Code No.	Subject Name
ECMR1	Electronics Devices & Circuits	ECMR2	Digital Logic Design
ECMR3	Network Analysis	ECMR4	Electronic Circuit Analysis
ECMR5	Signals and Systems	ECMR6	Microprocessors & Interfacing

Offered by Mechanical Engineering

Code No.	Subject Name	Code No.	Subject Name
MEMR1	Engineering Mechanics	MEMR2	Strength of Materials and Fluid Mechanics
MEMR3	Manufacturing Processes	MEMR4	Concepts of Thermal Engineering
MEMR5	Concepts of Mechanical Design	MEMR6	Computer Aided Design & Manufacturing
MEMR7	Additive Manufacturing		

Industry Track - Minor Courses

- Note :** 1. A student can opt any 4 subjects from each Track @ 3 credits per subject.
2. Compulsory MOOC/NPTEL Courses for 06 credits (02 courses@ 3 credits each)

Minor in Industrial Automation & Robotics (Offered by Mechanical Engineering)

Code No.	Subject Name	Code No.	Subject Name
ARMR1	Robotic Engineering	ARMR2	Mechatronics and Microcontrollers
ARMR3	Mechanics of Robots	ARMR4	Industrial Automation
ARMR5	Computer Integrated Manufacturing	ARMR7	3D Printing

Minor in Full Stack Development (Offered by Computer Science & Business Systems)

Code No.	Subject Name	Code No.	Subject Name
FSMR1	Client Side Scripting	FSMR2	React Js
FSMR3	C# (.Net Framework)	FSMR4	MEAN stack (MongoDB, Express JS, Angular JS, Node JS)
FSMR5	Web Application Development using Asp		

Minor in VLSI (Offered by Electronics & Communication Engineering)

Code No.	Subject Name	Code No.	Subject Name
VLMR1	HDL Programming	VLMR2	System Verilog and UVM
VLMR3	Physical Design Fundamentals	VLMR4	Low Power VLSI Design
VLMR5	Synthesis and Formal Verification	VLMR6	Advanced Physical Design

Minor in Electric Vehicles (Offered by Electrical & Electronics Engineering)

Code No.	Subject Name	Code No.	Subject Name
EVMR1	Energy Systems and Electrical Machines	EVMR2	Hybrid Electric Vehicles
EVMR3	Plug-in Electric vehicles	EVMR4	Electric Vehicle Power Train
EVMR5	Autotronics	EVMR6	BMS & Charging stations

Minor in Quantum Technologies (Offered by Computer Science & Business Systems)

Code No.	Subject Name	Code No.	Subject Name
QTMR1	Fundamentals of Quantum Computing	QTMR2	Foundations of Quantum Technologies
QTMR3	Basic Programming Lab	QTMR4	Basic Laboratory Course for Quantum Technologies
QTMR5	Introduction to Quantum Computation	QTMR6A	Introduction to Quantum Communication
QTMR6B	Engineering Foundation of Quantum Technologies	QTMR7	Introduction to Quantum Sensing
QTMR8	Introduction to Quantum Materials		

Department of INFORMATION TCHNOLOGY

Open Electives (Offered to other Departments)

Code No.	Subject Name	Code No.	Subject Name
ITOE1	Data Structures and Algorithms	ITOE2	Web Technologies