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JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

(Established by Govt. Act No. 30 of 2008)
Kukatpally, Hyderabad – 500085, Telangana (India).

Dr. K. VENKATESWARA RAO
M.Sc., M.Tech., Ph.D., PDF (Johns Hopkins Medicine USA)
Professor of Nano Technology &
REGISTRAR

Lr. No. JNTUH/DAP- Look-Up Tables for equivalence of courses /2026.

Date: 05.01.2026

To,
The Principals of JNTUH Constituent and Affiliated Colleges

Sir,

Sub: JNTUH, Hyderabad – Directorate of Academic & Planning – Approval of Look-Up Tables for equivalence of courses under Transitory Regulations for students re-admitted under R-25 Regulations – Request – Reg.

Ref: 1. R-25 Academic Regulation of B. Tech Programme.
2. Lr.No.A1/Fee for Substitute Subjects/2021,dated: 18.08.2021
3. Note orders of the Hon'ble Vice-Chancellor dated: 01.01.2026.

***

Dear Sir/Madam

Vide the reference (3) cited, the Look-Up Tables for course equivalences applicable to B.Tech. students who were detained due to either shortage of attendance or shortage of credits in R22 regulations and who subsequently seek re-admission into the B.Tech. programme under R-25 Regulations, have been approved.

Vide ref (1) cited above, in the clause no 22.0 to 22.7 of R-25 academic regulations, it has been stated that University provides Look-up tables of courses which need to be studied by detained students as part of transitory Regulations. These Look-Up Tables will clearly indicate the courses to be registered by students who are re-admitted from R-22 Regulations into R-25 Regulations.

For students re-admitted into I Year II Semester, II Year I Semester, II Year II Semester, III Year I Semester, III Year II Semester, IV Year I Semester and IV Year II Semester under R-25 Regulations, separate sets of Look-Up Tables have been prepared by the respective Chairpersons of different Board of Studies for each B.Tech. branch, ensuring accurate equivalence of courses across the regulations. These Look-Up Tables have been attached herewith for your reference.

The Principals have to communicate all the re-registration student details (detained in R22 and Re-Admitted in R25 regulation) to the office of DAP within two weeks of the Commencement of class work of every semester after otherwise a penalty of Rs.10,000/- per candidate is applicable (Vide ref (2) cited above).

This is for your information and necessary action.

Yours sincerely,

REGISTRAR 5/1/26

Encl: Annexure - I

ANNEXURE – I

Substitute /Additional Subjects offered in R25

CIVIL			
R22	**R25**	**Repeated Subjects**	**Substitute /Additional Subjects offered in R25**
Up to I-I	I-II on words	Environmental Science III-II R25 1 credit	Engineering Drawing and Computer Aided Drafting(I-I) R25 3 credits
Up to I-II	II-I on words	Environmental Science III-II R25 1 credit Surveying and Geomatics II-I R25 3 credits Surveying & Geomatics Lab II-I R25 1 credit	Python Programming (I-II) R25 3 credits Building Planning and Construction (I-II) R25 3 credits
Up to II-1	II-II on words	Environmental Science III-II R25 1 credit Engineering Geology II-II R25 2 credits Digital Surveying Lab II-II R25 1 credit Computer Aided Drafting Laboratory II-II R25 1 credit	Python Programming (I-II) R25 3 credits Building Materials and Concrete Technology (II-I) R25 3 credits
Up to II-II	III-I on words	Environmental Science III-II R25 1 credit Field Based Project/ Internship (III-I) R25 2 credits Gender Sensitization*/ Human Values and Professional Ethics (III-I) R25 0.5+0.5 credits	Theory of Structures (II-II) R25 3 credits Water Resources and Irrigation Engineering (II-II) R25 3 credits
Up to III-I	III-II on words	Environmental Science III-II R25 1 credit Field Based Project/ Internship (III-I) R25 2 credits Gender Sensitization*/ Human Values and Professional Ethics (III-I) R25 0.5+0.5 credits Geotechnical Engineering III-II (R25) 3 credits Business Economics and Financial analysis III-II (R25) 3 credits Geotechnical Engineering lab III-II (R25) 1 credit	Environmental Engineering (III-I) R25 3 credits Environmental Engineering Lab (III-I) R25 1 credit Computer Aided Design Lab (III-I) R25 1 credit Computational Mathematics Lab (II-I) R25 1 credit Material Testing Lab (II-I) R25 1 credit Design Thinking and Tinkering Lab (II-I) R25 1 credit Innovation and Entrepreneurship (II-II) R25 2 credits Engineering Geology Lab (II-II) R25 1 credit Indian Knowledge System (II-II) R25 1 credit Highway Materials Lab (III-I) R25 1 credit Building Information Modelling Lab (III-I) R25 1 credit

Up to III-II	IV-I on words	Environmental Science III-II R25 1 credit Foundation Engineering IV-I R 25 3 credits Industry Oriented Mini Project/ Summer Internship IV-I R 25 2 credits	Civil Engineering Software Lab (III-II) R25 1 credit Material Testing Lab (II-I) R25 1 credit Design Thinking and Tinkering Lab (II-I)R25 1 credit Innovation and Entrepreneurship (II-II) R25 2 credits Engineering Geology Lab (II-II) R251 credit Indian Knowledge System (II-II) R25 1 credit Highway Materials Lab (III-I) R25 1 credit Building Information Modelling Lab (III-I) R25 1 credit
Up to IV-I	IV-II on words		Material Testing Lab (II-I) R25 1 credit Engineering Geology Lab (II-II) R25 1 credit Highway Materials Lab (III-I) R25 1 credit GIS Lab (III-II) R25 1 credit

ECE			
R22	**R25**	**Repeated Subjects**	**Substitute /Additional Subjects offered in R25**
Up to I-I	I-II on words	Engineering Workshop (I-II) R25 1 Credit Environmental Science (II-I) R25 1 Credit	Engineering Drawing and Computer Aided Drafting R25 (I-I) 3 credits
Up to I-II	II-I on words	Environmental Science (II-I) R25 1 Credit Electronic Devices and Circuits (II-I) R25 3 Credit Electronic Devices and Circuits Lab (II-I) R25 1 Credit	Python Programming (I-II) R25 3 credits Network Analysis and Synthesis R25 (I-II) 3 credits
Up to II-1	II-II on words	Numerical Methods and Complex Variables (II-II) R25 3 Credits	Data Structures Lab (I-II) R25 1 credit Linux and Shell Scripting (II-I) R25 1 credit Probability Theory and Stochastic Processes R25 (II-I) 3 credits
Up to II-II	III-I on words	Field-based Research Project(III-I) R25 2 Credit Gender Sensitization*/ Human Values and Professional Ethics* (III-II) R25 0.5+0.5 credit	Python Programming (I-II) R25 3 credits Control Systems R25 (II-I) 2 credits
Up to III-I	III-II on words	Gender Sensitization*/ Human Values and Professional Ethics* (III-II) R25 0.5+0.5 credit IoT Architectures and Protocols (III-II) R25 3 Credit Business Economics and Financial Analysis (III-II) R25 3 Credit IoT Architectures and Protocols Laboratory (III-II) R25 1 Credit English for Employability Skills Lab (III-II) R25 1 Credit	Python Programming (I-II) R25 3 credits Data Structures (I-II) R25 3 credits Data Structures Lab (I-II) R25 1 credit Linux and Shell Scripting (II-I) R25 1 credit RISC and Microcontroller architectures (III-I) R25 3 credits RISC and Microcontroller Interfacing Laboratory (III-I) R25 1 credit
Up to III-II	IV-I on words	Industry Oriented Mini Project/ Internship (IV-I) R25 2 Credit	Data Structures (I-II) R25 3 credits Data Structures Lab (I-II) R25 1 credit Linux and Shell Scripting (II-I) R251 credit
Up to IV-I	IV-II on words		Data Structures (I-II) R25 3 credits Data Structures Lab (I-II) R25 1 credit

EEE			
R22	**R25**	**Repeated Subjects**	**Substitute /Additional Subjects offered in R25**
Up to I-I	I-II on words	Engineering Chemistry (I-II) R25 3 credits Engineering Chemistry Lab (I-II) R25 1 credit	Advanced Engineering Physics R25 (I-I) 3 credits Engineering Physics Lab R25 (I-I) 1 credit English Language and Communication Skills Lab R25 (I-I) 1 credit
Up to I-II	II-I on words	Environmental Science (II-I) R25 1 credit	Data Structures Lab (I-II) R25 1 credit
Up to II-1	II-II on words	Numerical Methods and Complex Variables II-II (R25) 3 credits Gender Sensitization*/ Human Values and Professional Ethics III-II R 25 0.5+0.5 credits	Innovation and Entrepreneurship (II-I) R25 2 credits Design of Electrical Systems using Auto CAD (II-I) R25 1 credits Electrical Measurements and Sensors R25 (II-I) 2 credits Electrical Measurements and Sensors Lab R25 (II-I) 1 credit
Up to II-II	III-I on words	Gender Sensitization*/ Human Values and Professional Ethics III-II R 25 0.5+0.5 credits Field Based Project/Internship III-I (R25) 2 credits	Innovation and Entrepreneurship (II-I) R25 2 credits Control Systems R25 (II-II) 3 credits
Up to III-I	III-II on words	Gender Sensitization*/ Human Values and Professional Ethics* III-II (R25) 0.5+0.5 credit English for Employability Skills Lab III-II (R25) 1 credit	Power System Protection R25 (III-I) 3 credits Power System Laboratory R25 (III-I) 1 credit Control Systems Lab R25 (II-II) 1 credit
Up to III-II	IV-I on words	Industry Oriented Mini Project/Summer Internship IV-I (R25) 2 credits	Signals and Systems (III-II) R25 3 Credits Signals and Systems Lab (III-II) R25 1 Credit Power System Simulation Lab (III-II) R25 1 Credit
Up to IV-I	IV-II on words		Signals and Systems (III-II) R25 3 Credits Signals and Systems Lab (III-II) R25 1 Credit

MECHANICAL ENGINEERING			
R22	**R25**	**Repeated Subjects**	**Substitute /Additional Subjects offered in R25**
Up to I-I	I-II Onwards	Environmental Science III-II 1 credit	Engineering Mechanics I-I 3 credits
Up to I-II	II-I Onwards	Environmental Science III-II 1 credit	Thermodynamics I-II 3 credits
Up to II-I	II-II Onwards	Environmental Science III-II 1 credit Conventional and Computer Aided Machine Drawing II-II 1 credit	Fluid Mechanics and Hydraulic Machines II-I 3 credits
Up to II-II	III-I Onwards	Environmental Science III-II 1 credit Conventional and Computer Aided Machine Drawing II-II 1 credit Gender Sensitization*/ Human Values and Professional Ethics* III-I 0.5+0.5 credits	Design of Machine Elements II-II 3 credits Thermal Engineering - I II-II 3 credits
Up to III-I	III-II Onwards	Environmental Science III-II 1 credit Gender Sensitization*/ Human Values and Professional Ethics*III-I 0.5+0.5 credits Dynamics of Machinery III-II 3 credits Business Economics and Financial Analysis III-II 3 credits Kinematics and Dynamics Lab III-II 1 credit	Thermal Engineering - I II-II 3 credits Operations Research II-II 2 credits Thermal Engineering - II III-I 3 credits Design of Transmission Elements III-I 3 credits Thermal Engineering - II Lab III-I 1 credit
Up to III-II	IV-I Onwards	Environmental Science III-II 1 credit Dynamics of Machinery III-II 3 credits Business Economics and Financial Analysis III-II 3 credits Kinematics and Dynamics Lab III-II 1 credit Finite Element Methods IV-I 3 credits	Thermal Engineering - I II-II 3 credits Operations Research II-II 2 credits Innovation and Entrepreneurship II-II 2 credits Design of Transmission Elements III-I 3 credits Thermal Engineering - II III-I 3 credits Thermal Engineering - II Lab III-I 1 credit
Up to IV-I	IV-II Onwards	Finite Element Methods IV-I 3 credits	Thermal Engineering - I II-II 3 credits Thermal Engineering - II III-I 3 credits Thermal Engineering - II Lab III-I 1 credit

CSE			
R22	**R25**	**Repeated Subjects**	**Substitute /Additional Subjects offered in R25**
Up to I-I	I-II on words	Basic Electrical Engineering (I-II) R25 3 credits Engineering Drawing and Computer Aided Drafting (I-II) R25 3 credits Basic Electrical Engineering Lab (I-II) R25 1 credit	English for Skill Enhancement R25 (I-I) 3 credits Electronic Devices and Circuits R25 (I-I) 3 credits English Language and Communication Skills Lab R25 (I-I) 1 credit
Up to I-II	II-I on words	Environmental Science R25 (II-I) 1 credit	Data Structures Lab R25 (I-II) 1 credit
Up to II-1	II-II on words	Computer oriented Statistical Methods R25 (II-II) 3 credits Data Visualization- R/ Python/ Power BI R25 (II-II) 1 credit Gender Sensitization*/ Human Values and Professional Ethics III-II R25 0.5+0.5 credits	Database Management Systems R25 (II-I) 3 credits Software Engineering R25 (II-I) 3 credits Node Js/React JS/ Django R25 (II-I) 1 credit
Up to II-II	III-I on words	Gender Sensitization*/ Human Values and Professional Ethics III-II R25 0.5+0.5 credits Business Economics and Financial analysis III-II (R25) 3 credits Field-Based Research Project III-I R25 2 credits	Innovation and Entrepreneurship II-I R25 2 credits Algorithm design and Analysis R25 (II-II) 3 credits Computer Networks R25 (II-II) 3 credits
Up to III-I	III-II on words	Gender Sensitization*/ Human Values and Professional Ethics III-II R25 0.5+0.5 credits Business Economics and Financial analysis III-II (R25) 3 credits English for Employability Skills Lab III-II (R25) 3 credits	Machine Learning R25 (II-II) 3 credits Automata Theory and Compiler Design R25 (III-I) 3 credits Artificial Intelligence R25 (III-I) 3 credits Machine Learning Lab R25 (II-II) 1 credit
Up to III-II	IV-I on words	Industry Oriented Mini Project/Summer Internship IV-I (R25) 2 credits	Deep Learning III-II R25 3 credits Innovation and Entrepreneurship II-I R25 2 credits
Up to IV-I	IV-II on words		Deep Learning III-II R25 3 credits Advanced Data Structures using Python Lab III-II R25 1 credit

CSIT			
R22	**R25**	**Repeated Subjects**	**Substitute/Additional Subjects offered in R25**
Up to I-I	I-II on words	Engineering Chemistry (I-II) R25 3 credits Engineering Chemistry Lab (I-II) R25 1 credit Environmental Science (III-II) R25 1 credit	Advanced Engineering Physics R25 (I-I) 3 credits Advanced Engineering Physics Lab R25 (I-I) 1 credit Python Programming Lab R25 (I-I) 1 credit
Up to I-II	II-I on words	Environmental Science (III-II) R25 1 credit	Data Structures Lab R25 (I-II)1 credit
Up to II-1	II-II on words	Environmental Science (III-II) R25 1 credit Gender Sensitization*/Human Values and Professional Ethics* III-I R25 0.5+0.5 credits	Operating Systems Laboratory R25 (II-I) 1 credit JAVA Programming Laboratory R25 (II-I1) 1 credit
Up to II-II	III-I on words	Environmental Science (III-II) R25 1 credit Gender Sensitization*/Human Values and Professional Ethics* III-I R25 0.5+0.5 credits Business Economics and Financial Analysis III-II (R25) 3 credits Field Based Project/Internship III-I (R25) 2 credits	Mathematical and Statistical Foundation R25 (II-I) 3 credits Computational Mathematics Laboratory R25 (II-I) 1 credit Web Programming R25 (II-II) 3 credits Web Programming Laboratory R25 (II-II) 1 credits Indian Knowledge Systems R25 (II-II) 1 credits
Up to III-I	III-II on words	Environmental Science (III-II) R25 1 credit Business Economics and Financial Analysis III-II (R25) 3 credits English for Employability Skills Lab III-II (R25) 1 credit	Web Programming R25 (II-II) 3 credits Web Programming Laboratory R25 (II-II) 1 credits Algorithm Design and Analysis Laboratory R25 (III-I) 1 credits Algorithm Design and Analysis R25 (III-I) 3 credits
Up to III-II	IV-I on words	Industry Oriented Mini Project/Summer Internship IV-I (R25) 2 credits	Web Programming R25 (II-II) 3 credits Web Programming Laboratory R25 (II-II) 1 credits Full Stack Development R25 (III-I) 1 credits
Up to IV-I	IV-II on words		Web Programming R25 (II-II) 3 credits Web Programming Laboratory R25 (II-II) 1 credits

IT			
R22	**R25**	**Repeated Subjects**	**R-25 Substitute Subjects/Additional Subjects**
Up to I-I	I-II Onwards	Engineering Chemistry I-II 3 credits Engineering Chemistry Lab I-II 1 credit	Advanced Engineering Physics I-I 3 credits Advanced Engineering Physics Lab I-I 1 credit
Up to I-II	II-I Onwards	Environmental Science III-II 1 credit	Data Structures Lab I-II 1 credit
Up to II-I	II-II Onwards	Environmental Science III-II 1 credit Gender Sensitization*/ Human Values and Professional Ethics* III-I 0.5+0.5 credits	Data Structures Lab I-II 1 credit Computational Mathematics Laboratory II-I 1 credit
Up to II-II	III-I Onwards	Environmental Science III-II 1 credit Gender Sensitization*/ Human Values and Professional Ethics* III-I 0.5+0.5 credits Business Economics and Financial Analysis III-II 3 credits Field Based Project/ Internship III-I 2 credits	Operating Systems II-I 3 credits JAVA Programming II-I 3 credits Operating Systems Lab II-I 1 credit JAVA Programming Lab II-I 1 credit Indian Knowledge System II-II 1 credit
Up to III-I	III-II Onwards	Business Economics and Financial Analysis III-II 3 credits Professional Elective-II III-II 3 credits English for Employability Skills Lab III-II 1 credit	Data Communications and Computer Networks II-II 3 credits Computer Networks Lab II-II 1 credit Web Programming II-II 3 credits Web Programming Laboratory II-II 1 credit Indian Knowledge System II-II 1 credit Full Stack Development III-I 1 credit
Up to III-II	IV-I Onwards	Professional Elective-III IV-I 3 credits Industry Oriented Mini Project/ Summer Internship IV-I 2 credits	Web Programming II-II 3 credits Web Programming Laboratory II-II 1 credit Deep Learning III-II 3 credits Deep Learning Laboratory III-II 1 credit
Up to IV-I	IV-II Onwards	Professional Elective – V IV-II 3 credits	Web Programming II-II 3 credits Web Programming Laboratory II-II 1 credit

CSE(DS)			
R22	**R25**	**Repeated Subjects**	**Substitute/Additional Subjects offered in R25**
Up to I-I	I-II on words	Engineering Chemistry (I-II) R25 3 credits Engineering Chemistry Lab (I-II) R25 1 credit	Advanced Engineering Physics R25 (I-I) 3 credits Advanced Engineering Physics Lab R25 (I-I) 1 credit
Up to I-II	II-I on words	Environmental Science R25 (III-II) 0 credit	Data Structures Lab R25 (I-II) 1 credit
Up to II-I	II-II on words	Environmental Science R25 (III-II) 1 credit Gender Sensitization*/ Human Values and Professional Ethics* III-I (R25) 0.5+0.5 credits	Database Management Systems Lab R25 (II-I) 1 credit Node JS/React JS/Django R25 (II-I) 1 credit
Up to II-II	III-I on words	Gender Sensitization*/ Human Values and Professional Ethics* III-I (R25) 0.5+0.5 credits Field Based Research Project III-I (R25) I credit Business Economics and Financial Analysis R25 (III-II) 3 credit Environmental Science R25 (III-II) 1 credit	Innovation and Entrepreneurship R25 (II-II) 2credit Algorithms Design and Analysis R25 (II-II) 3 credit Computer Networks R25 (II-II) 3 credit
Up to III-I	III-II on words	English for Employability Skills Lab R25 (III-II) 1 credit Business Economics and Financial Analysis R25 (III-II) 3 credit Environmental Science R25 (III-II) 1 credit	Innovation and Entrepreneurship R25 (II-II) 2 credit UI Design –Flutter/ Android Studio R25 (III-I) 1 credit Machine Learning R25 (II-II) 3 credit Data Mining R25(III-I) 3 credit
Up to III-II	IV-I on words	Industry Oriented Mini Project/ Summer Internship IV-I (R25) 0.5+0.5 credits	UI Design –Flutter/ Android Studio R25 (III-I) 1 credit Predictive Analytics R25 (III-I) 3 credit
Up to IV-I	IV-II on words		Data Mining R25 (III-I) 3 credit UI Design –Flutter/ Android Studio R25 (III-I) 1 credit

CSE(AIML)			
R22	**R25**	**Repeated Subjects**	**Substitute/Additional Subjects offered in R25**
Up to I-I	I-II on words	Engineering Workshop (I-II) R25 1 credits English for Skill Enhancemen t (I-II) R25 3 credit English Language and Communication Skills Lab I-II) R25 1 credit	Basic Electrical Engineering R25 (I-I) 3 credit Basic Electrical Engineering Lab R25 (I-I) 1 credit IT Workshop R25 (I-I) 1 credit
Up to I-II	II-I on words		Nil
Up to II-I	II-II on words	Operating Systems R25 (II-II) 3 credit Operating Systems Lab II-II (R25) 1 credits	Object Oriented Programming through java) R25 (II-I) 3 credit Object Oriented Programming through Java Lab R25 (II-I) 1 credit
Up to II-II	III-I on words	Automata theory and Compiler Design III-I (R25) 3 credits Artificial Intelligence III-I (R25) 3 credit Field Based Research Project R25 (III-I) 2 credit Environmental Science R25 (III-I) 0 credit Gender Sensitization*/ Human Values and Professional Ethics* R25 (III-I) 0.5+0.5 credit	Algorithms Design and Analysis R25 (II-II) 3 credit Computer Networks R25 (II-II) 3 credit Innovation and Entrepreneurship R25 (II-II) 2credit Machine Learning R25 (II-II) 3 credit
Up to III-I	III-II on words	English for Employability Skills Lab R25 (III-II) 1 credit Business Economics and Financial Analysis R25 (III-II) 3 credit	Data Visualization- R Programming/ Power BI R25 (II-II) 1 credit Innovation and Entrepreneurship R25 (II-II) 2credit Data Analytics and Visualization R25 (II-II) 3 credit Data Analytics and Visualization Lab R25 (II-II) 1 credit
Up to III-II	IV-I on words	Industry Oriented Mini Project/ Summer Internship IV-I (R25) 2 credits	Innovation and Entrepreneurship R25 (II-II) 2credit Deep Learning R25 (III-II) 3 credit
Up to IV-I	IV-II on words		Data Visualization- R Programming/ Power BI R25 (II-II) 1 credit Generative AI R25 (IV-I) 3credit

CSE			
R22	**R25**	**Repeated Subjects**	**Substitute /Additional Subjects offered in R25**
Up to I-I	I-II on words	Basic Electrical Engineering (I-II) R25 3 credits Engineering Drawing and Computer Aided Drafting (I-II) R25 3 credits Basic Electrical Engineering Lab (I-II) R25 1 credit	English for Skill Enhancement R25 (I-I) 3 credits Electronic Devices and Circuits R25 (I-I) 3 credits English Language and Communication Skills Lab R25 (I-I) 1 credit
Up to I-II	II-I on words	Environmental Science R25 (II-I) 1 credit	Data Structures Lab R25 (I-II) 1 credit
Up to II-1	II-II on words	Computer oriented Statistical Methods R25 (II-II) 3 credits Data Visualization- R/ Python/ Power BI R25 (II-II) 1 credit Gender Sensitization*/ Human Values and Professional Ethics III-II R25 0.5+0.5 credits	Database Management Systems R25 (II-I) 3 credits Software Engineering R25 (II-I) 3 credits Node Js/React JS/ Django R25 (II-I) 1 credit
Up to II-II	III-I on words	Gender Sensitization*/ Human Values and Professional Ethics III-II R25 0.5+0.5 credits Business Economics and Financial analysis III-II (R25) 3 credits Field-Based Research Project III-I R25 2 credits	Innovation and Entrepreneurship II-I R25 2 credits Algorithm design and Analysis R25 (II-II) 3 credits Computer Networks R25 (II-II) 3 credits
Up to III-I	III-II on words	Gender Sensitization*/ Human Values and Professional Ethics III-II R25 0.5+0.5 credits Business Economics and Financial analysis III-II (R25) 3 credits English for Employability Skills Lab III-II (R25) 3 credits	Machine Learning R25 (II-II) 3 credits Automata Theory and Compiler Design R25 (III-I) 3 credits Artificial Intelligence R25 (III-I) 3 credits Machine Learning Lab R25 (II-II) 1 credit
Up to III-II	IV-I on words	Industry Oriented Mini Project/Summer Internship IV-I (R25) 2 credits	Deep Learning III-II R25 3 credits Innovation and Entrepreneurship II-I R25 2 credits
Up to IV-I	IV-II on words		Deep Learning III-II R25 3 credits Advanced Data Structures using Python Lab III-II R25 1 credit

CSE(IOT)			
R22	**R25**	**Repeated Subjects**	**R-25 Substitute Subjects/ Additional Subjects**
Up to I-I	I-II Onwards	Engineering Workshop I-II 1 credit English for Skill Enhancement I-II 3 credits English Language and Communication Skills Lab I-II 1 credit	Basic Electrical Engineering I-I 3 credits Basic Electrical Engineering Lab I-I 1 credit IT Workshop I-I 1 credit
Up to I-II	II-I Onwards		
Up to II-I	II-II Onwards	Operating Systems II-II 3 credits Discrete Mathematics II-II 3 credits Operating Systems Lab II-II 1 credit Data Visualization-R Programming/Power BI II-II 1 credit	Data Structures I-II 3 credits Data Structures Lab I-II 1 credit Mathematical and Statistical Foundations II-I 3 credits Software Engineering Lab II-I 1 credit
Up to II-II	III-I Onwards	Sensors and Devices III-I 3 credits Sensors and Devices Lab III-I 1 credit Field Based Research Project III-I 2 credits Gender Sensitization*/ Human Values and Professional Ethics* III-I 0.5+0.5 credits	Computer Organization and Architecture II-I 3 credits Object Oriented Programming through java II-I 3 credits Machine Learning II-II 3 credits
Up to III-I	III-II Onwards	Business Economics and Financial Analysis III-II 3 credits English for Employability Skills Lab III-II 1 credit	Database Management System II-I 3 credits Database Management Systems Lab II-I 1 credit Machine Learning II-II 3 credits
Up to III-II	IV-I Onwards	IoT Security IV-I 3 credits IoT Security Lab IV-I 1 credit Industry Oriented Mini Project/ Summer Internship IV-I 2 credits	Open Elective-I III-I 2 credits Algorithms Design and Analysis II-II 3 credits Machine Learning II-II 3 credits Innovation and Entrepreneurship II-II 2 credits
Up to IV-I	IV-II Onwards		Open Elective – II III-II 2 credits Machine Learning II-II 3 credits

COMPUTER ENGINEERING (SOFTWARE ENGINEERING)			
R22	**R25**	**Repeated Subjects**	**Substitute/Additional Subjects offered in R25**
Up to I-I	I-II on words	Engineering Chemistry (I-II) R25 3 credits Engineering Chemistry Lab (I-II) R25 1 credit	Advanced Engineering Physics R25 (I-I) 3 credit Advanced Engineering Physics Lab R25 (I-I) 1 credits
Up to I-II	II-I on words		Nil
Up to II-1	II-II on words	Gender Sensitization*/ Human Values and Professional Ethics III-I R25 0.5+0.5 credits	Computational Mathematics Lab II-I R25 1 credits
Up to II-II	III-I on words	Gender Sensitization*/ Human Values and Professional Ethics III-I R25 0.5+0.5 credits Business Economics and Financial analysis III-II (R25) 3 credits Field Based Project/ Internship III-I R25 2 credits	Mathematical and Statistical Foundations II-I R253 credits Computational Mathematics Lab II-I R25 1 credits Innovation and Entrepreneurship II-II R25 2 credits Linux Programming Lab II-II R25 1 credit Indian Knowledge System II-II R25 1 credit
Up to III-I	III-II on words	Business Economics and Financial analysis III-II (R25) 3 credits English for Employability Skills Lab III-II (R25) 3 credits Computer Networks III-II (R25) 3 credits Computer Networks Lab III-II (R25) 1 credits UI design- Flutter III-II (R25) 1 credits	Mathematical and Statistical Foundations II-I R25 3 credits Web Technologies II-II R25 3 credits Innovation and Entrepreneurship II-II R25 2 credits Linux Programming Lab II-II R25 1 credit Web Technologies Lab II-II R25 1 credits Algorithms Design and Analysis Lab III-I R25 1 credit Algorithm Design and Analysis R25 (III-I) 3 credits
Up to III-II	IV-I on words	Industry Oriented Mini Project/Summer Internship IV-I (R25) 2 credits	Mathematical and Statistical Foundations II-I R25 3 credits Innovation and Entrepreneurship II-II R25 2 credits
Up to IV-I	IV-II on words		Web Technologies II-II R25 3 credits Web Technologies Lab II-II R25 1 credit

COMPUTER SCIENCE AND DESIGN (CSD)			
R22	**R25**	**Repeated Subjects**	**Additional Subjects/ Substitute Subjects**
Up to I-I	I-II Onwards	Engineering Chemistry I-II 3 credits Engineering Chemistry Lab I-II 1 credit	Advanced Engineering Physics I-I 3 credits IT Workshop I-I 1 credit
Up to I-II	II-I Onwards	Environmental Science III-II 1 credit	IT Workshop I-I 1 credit
Up to II-I	II-II Onwards	Environmental Science III-II 1 credit Data Visualization- R Programming/ Power BI II-II 1 credit Gender Sensitization* /Human values and Professional Ethics* III-I 0.5+0.5 credit	Data Structures I-II 3 credits
Up to II-II	III-I Onwards	Gender Sensitization* /Human values and Professional Ethics* III-I 0.5+0.5 credits Business Economics and Financial Analysis III-II 3 credits	Database Management System II-I 3 credits Software Engineering II-I 3 credits Database Management Systems Lab II-I 1 credit Node JS/React JS/Django II-I 1 credit
Up to III-I	III-II Onwards	Business Economics and Financial Analysis III-II 3 credits English for Employability Skills Lab III-II 1 credit	Computer Networks II-II 3 credits Computer Networks lab II-II 1 credit
Up to III-II	IV-I Onwards	Industry Oriented Mini Project/ Internship IV-I 2 credits	Algorithms Design and Analysis II-II 3 credits
Up to IV-I	IV-II Onwards		Automata Theory and Compiler Design III-I 3 credits Compiler Design Lab III-I 1 credits

COMPUTER SCIENCE AND BUSINESS SYSTEMS			
R22	**R25**	**Repeated Subjects**	**Substitute/Additional Subjects offered in R25**
Up to I-I	I-II on words	Engineering Chemistry (I-II) R25 3 credits Engineering Chemistry Lab (I-II) R25 1 credit	Advanced Engineering Physics R25 (I-I) 3 credits Advanced Engineering Physics Lab R25 (I-I) 1 credits
Up to I-II	II-I on words	Environmental Science (III-II) R25 1 credit	Data Structures Lab R25 (I-II) 1 credits
Up to II-1	II-II on words	Gender Sensitization*/ Human Values and Professional Ethics* (III-I) R25 0.5+0.5 credit Environmental Science (III-II) R25 1 credit	Software Engineering Laboratory R25 (II-I) 1 credit Data Base Management System R25 (II-I) 1 credit
Lab	III-I on words	Field Based Project/Internship III-I (R25) 2 credits Business Economics and Financial analysis III-II (R25) 3 credits Environmental Science (III-II) R25 1 credit	Business Statistics Using R R25 (II-I) 3 credits Business Statistics Using R Lab R25 (II-I) 1 credit Indian Knowledge System R25 (II-I) 1 credit Computer Networks R25 (II-II) 3 credits
Up to III-I	III-II on words	English for Employability Skills Lab III-II (R25) 1 credit Environmental Science (III-II) R25 1 credit Business Economics and Financial analysis III-II (R25) 3 credits	Business Statistics Using R R25 (II-I) 3 credits Business Statistics Using R Lab R25 (II-I) 1 credit Algorithms Design and Analysis Lab R25 (II-I) 1 credit Algorithm Design and Analysis R25 (II-I) 3 credits
Up to III-II	IV-I on words	Marketing Management and Research IV-I (R25) 3 credit Industry Oriented Mini Project/Summer Internship IV-I (R25) 2 credits	Business Statistics Using R R25 (II-I) 3 credits Business Statistics Using R Lab R25 (II-I) 1 credit Artificial Intelligence R25 (II-II) 3 credit Artificial Intelligence Laboratory R25 (II-I) 1 credit
Up to IV-I	IV-II on words		Business Statistics Using R R25 (II-I) 3 credits Business Statistics Using R Lab R25 (II-I) 1 credit

AIML			
R22	**R25**	**Repeated Subjects**	**Additional Subjects offered in R25 Not Studied Subjects**
Up to I-I	I-II on words	Engineering Workshop (I-II) R25 1 credits English for Skill Enhancement (I-II) R25 3 credit English Language and Communication Skills Lab I-II) R25 1 credit	Basic Electrical Engineering R25 (I-I) 3 credit Basic Electrical Engineering Lab R25 (I-I) 1 credit IT Workshop R25 (I-I)1 credit
Up to I-II	II-I on words		Nil
Up to II-I	II-II on words	Operating Systems R25 (II-II) 3 credit Operating Systems Lab II-II (R25) 1 credits	Object Oriented Programming through java R25 (II-I) 3 credit Object Oriented Programming through Java Lab R25 (II-I) 1 credit
Up to II-II	III-I on words	Automata theory and Compiler Design III-I (R25) 3 credits Artificial Intelligence III-I (R25) 3 credit Field Based Research Project R25 (III-I) 2 credit Environmental Science R25 (III-I) 0 credit Gender Sensitization*/ Human Values and Professional Ethics* R25 (III-I) 0.5+0.5 credit	Innovation and Entrepreneurship R25 (II-II) 2 credits Algorithms Design and Analysis R25 (II-II) 3 credit Computer Networks R25 (II-II) 3 credit Machine Learning R25 (II-II) 3 credit
Up to III-I	III-II on words	English for Employability Skills Lab R25 (III-II) 1 credit Business Economics and Financial Analysis R25 (III-II) 3 credit	Data Analytics and Visualization R25 (II-II) 3 credit Data Analytics and Visualization Lab R25 (II-II) 1 credit Innovation and Entrepreneurship R25 (II-II) 2 credit Artificial Intelligence Lab Compiler Design Lab R25 (III-I) 1credit
Up to III-II	IV-I on words	Industry Oriented Mini Project/ Summer Internship IV-I (R25) 2 credits	Data Visualization- R Programming/ Power BI R25 (II-II) 1 credit Artificial Intelligence Lab Compiler Design Lab R25 (III-I) 1credit Deep Learning R25 (III-II) 3 credit
Up to IV-I	IV-II on words		Data Visualization- R Programming/ Power BI R25 (II-II) 1 credit Generative AI R25 (IV-I) 3credit

AIDS			
R22	**R25**	**Repeated Subjects**	**Substitute/Additional Subjects offered in R25**
Up to I-I	I-II on words	Engineering Workshop (I-II) R25 1 credits English for Skill Enhancement (I-II) R25 3 credit English Language and Communication Skills Lab(I-II) R25 1 credit	Basic Electrical Engineering R25 (I-I) 3 credit Basic Electrical Engineering Lab R25 (I-I) 1 credit IT Workshop R25 (I-I) 1 credit
Up to I-II	II-I on words		Nil
Up to II-I	II-II on words	Data Visualization- R Programming/ Power BI R25 (II-II) 1 credit	Node JS/React JS/Django R25 (II-I) 1 credit
Up to II-II	III-I on words	Artificial Intelligence III-I (R25) 3 credit Field Based Research Project/ Internship *III-I (R25) 2 credit Gender Sensitization*/ Human Values and Professional Ethics*R25 (III-I) 0.5+0.5 credit	Innovation and Entrepreneurship R25 (II-II) 2 credit Algorithms Design and Analysis R25 (II-II) 3 credit Computer Networks R25 (II-II) 3 credit
Up to III-I	III-II on words	English for Employability Skills Lab R25 (III-II) 1 credit Business Economics and Financial Analysis R25 (III-II) 3 credit	Machine Learning R25 (II-II) 3 credit Machine Learning Lab R25 (II-II) 1 credit Big Data Technologies R25(III-I) 3 credits
Up to III-II	IV-I on words	Industry Oriented Mini Project/ Summer Internship IV-I (R25) 0.5+0.5 credits	Innovation and Entrepreneurship R25 (II-II) 2 credit Deep Learning R25 (III-II) 3 credit
Up to IV-I	IV-II on words		Innovation and Entrepreneurship R25 (II-II) 2 credit Deep Learning R25 (III-II) 3 credit

CSE (Cyber Security)			
R22	**R25**	**Repeated Subjects**	**Substitute/Additional Subjects offered in R25**
Up to I-I	I-II on words	Engineering Chemistry (I-II) R25 3 credits Engineering Chemistry Lab (I-II) R25 1 credit	Advanced Engineering Physics R25 (I-I) 3 credits Advanced Engineering Physics Lab R25 (I-I) 1 credit
Up to I-II	II-I on words	Environmental Science (III-II) R25 1 credit	Data Structures Lab R25 (I-II) 1 credit
Up to II-1	II-II on words	Mathematical and Statistical Foundation II-II (R25) 3 credits Environmental Science (III-II) R25 1 credit	Software Engineering R25 (II-I) 3 credit Software Engineering Laboratory R25 (II-I) 1 credit
Up to II-II	III-I on words	Field Based Project/Internship III-I (R25) 2 credits Business Economics and Financial analysis III-II (R25) 3 credits Environmental Science (III-II) R25 1 credit	Mathematical Foundations of Cryptography R25 (II-II) 3 credit Mathematical Foundations of Cryptography Laboratory R25 (II-II) 1 credit Database Management Systems R25 (II-I) 3 credit Database Management Systems Laboratory R25 (II-I) 1 credit
Up to III-I	III-II on words	English for Employability Skills Lab III-II (R25) 1 credit Environmental Science (III-II) R25 1 credit Business Economics and Financial analysis III-II (R25) 3 credits	Mathematical Foundations of Cryptography R25 (II-II) 3 credit Mathematical Foundations of Cryptography Laboratory R25 (II-II) 1 credit Algorithm Design and Analysis R25 (III-I) 3 credit Algorithm Design and Analysis Laboratory R25 (III-I) 1 credit Gender Sensitization* & Human Values and Professional Ethics *R25 (III-I) 0.5+0.5 credit
Up to III-II	IV-I on words	Cyber Crime Investigation & Digital Forensics IV-I (R25) 3 credits Cyber Crime Investigation & Digital Forensics Lab IV-I (R25) 1 credit Industry Oriented Mini Project/Summer Internship IV-I (R25) 2 credits	Mathematical Foundations of Cryptography R25 (II-II) 3 credit Mathematical Foundations of Cryptography Laboratory R25 (II-II) 1 credit Gender Sensitization* & Human Values and Professional Ethics *R25 (III-I) 0.5+0.5 credit Network Management Systems and Operations R25 (III-I) 3 credits Network Management Systems and Operations Laboratory R25 (III-I) 1 credit
Up to IV-I	IV-II on words		Mathematical Foundations of Cryptography (II-II) 3 credit Mathematical Foundations of Cryptography Laboratory (II-II) 1 credit

COMPUTER SCIENCE AND ENGINEERING (NETWORKS)			
R22	**R25**	**Repeated Subjects**	**Substitute/Additional Subjects offered in R25**
Up to I-I	I-II Onwards	Engineering Chemistry I-II 3 credits Engineering Chemistry Lab I-II 1 credit	Advanced Engineering Physics I-I 3 credits Advanced Engineering Physics Lab I-I 1 credit
Up to I-II	II-I Onwards	Environmental Sciences III-I 1 credit	Python Programming Lab I-I 1 credit
Up to II-I	II-II Onwards	Environmental Sciences III-I 1 credit Gender Sensitization* & Human Values and Professional Ethics * III-I 1 credit	Data Structures Lab I-II 1 credit Software Engineering Laboratory II-I 1 credit
Up to II-II	III-I Onwards	Environmental Sciences III-I 1 credit Gender Sensitization* & Human Values and Professional Ethics * III-I 1 credit Business Economics and Financial Analysis III-I 3 credits Field Based Research Project III-I 2 credits	Database Management Systems II-I 3 credits Database Management Systems Lab II-I 1 credit Mathematical and Statistical Foundation II-I 3 credits Computational Mathematics Laboratory II-I 1 credit Indian Knowledge System II-II 1 credit
Up to III-I	III-II Onwards		Data Communications II-II 3 credits
Up to III-II	IV-I Onwards	Industry Oriented Mini Project/ Summer Internship IV-I 2 credits	Software Engineering II-I 3 credits Software Engineering Laboratory II-I 1 credit Linux Programming Laboratory II-II 1 credit Computer Networks III-I 3 credits
Up to IV-I	IV-II Onwards	Professional Elective – V IV-II 3 credits	Cryptography and Network Security III-II 3 credits Cryptography and Network Security Lab III-I 1 credit

Mining Engineering			
R22	**R25**	**Repeated Subjects**	**Substitute/Additional Subjects offered in R25**
Up to I-I	I-II Onwards	Introduction to Mining Engineering I-II 3 credits	Engineering Mechanics I-I 3 credits
Up to I-II	II-I Onwards	Environmental Science III-II 1 credit Mine Surveying-I II-I 3 credits Mine Surveying- I Lab II-I 1 credit	Engineering Mechanics I-I 3 credits Python Programming, I-II 3 credits
Up to II-I	II-II Onwards	Environmental Science III-II 1 credit	Python Programming, I-II 3 credits Computational Mathematics Lab II-I 1 credit Industrial Training-I II-I 1 credit
Up to II-II	III-I Onwards	Environmental Science III-II 1 credit Field Based Research Project/ Internship III-I 2 credit Gender Sensitization/Human Values and Professionals Ethics III-I 1 credit	Elements of Electrical and Electronics Engineering I-II 3 credits Mine Ventilation II-II 3 credits
Up to III-I	III-II Onwards	Environmental Science III-II 1 credit	Mine Mechanization-I II-II 3 credits Surface Mining Technology II-II 3 credits Mine Mechanization- I lab II-II 1 credit
Up to III-II	IV-I Onwards	Environmental Science III-II 1 credit Underground metal Mining Technology IV-I 3 credits Computer Applications in Mining Lab IV-I 1 credits Industry Oriented Mini Project/ Summer Internship IV-I 2 credits	Mine Mechanization-II III-I 3 credits Mine Mechanization -II Lab III-I 1 credit Mine Ventilation II-II 3 credits Mine Planning & Design III-II 3 credits
Up to IV-I	IV-II Onwards		Mineral Processing III-II 3 credits Mineral Processing Lab III-II 1 credit Mine Planning & Design III-II 3 credits Mine Planning & Design lab III-II 1 credit

Biotechnology			
R22	**R25**	**Repeated Subjects**	**Substitute/Additional Subjects offered in R25**
Up to I-I	I-II Onwards	Elements of Electrical and Electronics Engineering I-II 3 credits	Engineering Drawing and Computer Aided Drafting I-I 3 credits
Up to I-II	II-I Onwards	Environmental Science III-II 1 credit	Python Programming I-II 3 credits
Up to II-I	II-II Onwards	Environmental Science III-II 1 credit Artificial Intelligence and Machine Learning II-II 2 credit Artificial Intelligence and Machine Learning Laboratory II-II 1 credit	Genetics & Molecular Biology II-I 3 credits Molecular Biology Laboratory II-I 1 credit II-I Skill Development Course – 1 (Computer based) 1 credit
Up to II-II	III-I Onwards	Environmental Science III-II 1 credit Business Economics and Financial Analysis III-II 3 credits Chemical Reaction Engineering III-I 3 credits Chemical Reaction Engineering Laboratory III-I 1 credit Field Based Research Project/ Internship III-I 2 credits Gender Sensitization/ Human Values and Professional Ethics III-I 1 credit	Python Programming I-II 3 credits Engineering Mechanics I-II 3 credits Mathematics – III for Biotechnology Lab II-I 1 credit Skill Development Course – 1 (Computer based) II-I 1 credit Innovation and Entrepreneurship II-II 2 credits Skill Development Course – 2 (Biotechnology related) II-II 1 credit Indian Knowledge System II-II 1 credit
Up to III-I	III-II Onwards	Environmental Science III-II 1 credit Business Economics and Financial Analysis III-II 3 credits	Analytical Techniques in Biotechnology II-II 3 credits Chemical and Biochemical Thermodynamics II-II 3 credits Analytical Techniques & Enzyme Engineering and Technology Laboratory II-II 1 credit
Up to III-II	IV-I Onwards	Down Stream Processing IV-I 3 credits Down Stream Processing Laboratory IV-I 1 credit Industry Oriented Mini Project/ Summer Internship IV-I 2 credits	Bioinformatics III-I 3 credits Bioinformatics Laboratory III-I 1 credit Plant Biotechnology III-II 3 credits Plant Biotechnology Laboratory III-II 1 credit Skill Development Course – 3 (Biotechnology related) III-I 1 credit
Up to IV-I	IV-II Onwards		Plant Biotechnology III-II 3 credits Plant Biotechnology Laboratory III-II 1 credit

B.Pharmacy			
R22	**R25**	**Repeated Subjects**	**Substitute/Additional Subjects offered in R25**
Up to I-I	I-II on words **(6+0=6)**	Human Anatomy, Physiology and Pathophysiology- I (I-II) R25 4 credits Human Anatomy, Physiology and Pathophysiology- I Lab (I-II) R25 2 credit	Pharmaceutical Organic Chemistry-I R25 (I-I) 4 Crediits Pharmaceutical Organic Chemistry-I Lab R25 (I-I) 2 Credits
Up to I-II	II-I on words **(6+0=6)**	Human Anatomy, Physiology and Pathophysiology- II (II-I) R25 4 credits Human Anatomy, Physiology and Pathophysiology- II lab(II-I) R25 2 credits	Pharmaceutical Organic Chemistry-II R25 (I-II) 4 Crediits Pharmaceutical Organic Chemistry-II Lab R25 (I-II) 2 Credits
Up to II-1	II-II on words **(0+0=0)**	--	Pharmacognosy R25 (II-I) 4 Credits
Up to II-II	III-I on words **(0+0=0)**	--	Pharmacognosy R25 (II-I) 4 Credits Medicinal Chemistry-I R25 (II-II) 4 Credits Medicinal Chemistry-I Lab R25 (II-II) 4 Credits
Up to III-I	III-II on words **(0+0=0)**	--	Pharmacognosy R25 (II-I) 4 Credits Medicinal Chemistry-II R25 (III-I) 4 Crediits Pharmacology- III R25 (III-I) 4 Crediits Herbal Drug Technology R25 (III-I) 4 Crediits Herbal Drug Technology Lab R25 (III-I) 2 Crediits Gender Sensitization/ Human Values and Professional Ethics R25 (II-II) 0.5+0.5 Credits

Up to III-II	IV-I on words **(0+0=0)**	--	R25 (I-I) 4 Credits General Pharmacy Lab R25 (I-I) 2 Credits Pharmacognosy R25 (II-I) 4 Credits AI/ML in Pharmaceutical Sciences (III-II) R25 4 credits Indian Knowledge System (III-II) R25 1 Credit Medicinal Chemistry- III R25 (III-II) 4 Credits Industrial Training R25 (III-II) 2 Credits
Up to IV-I	IV-II on words **(0+0=0)**	--	R25 (I-I) 4 Credits General Pharmacy Lab R25 (I-I) 2 Credits Pharmacognosy R25 (II-I) 4 Credits AI/ML in Pharmaceutical Sciences (III-II) R25 4 credits Indian Knowledge System (III-II) R25 1 credit Pharmacovigilance and Materiovigilance(IV-I) R25 4 credits