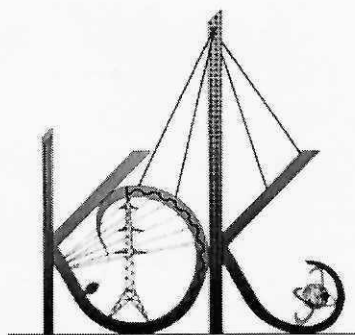




KDK College of Engineering, Nagpur 440024

Scheme and Syllabus for
Bachelor of Technology (Electronics and Telecommunication Engineering)

Submitted by
Board of Studies in Electronics and Telecommunication Engineering

2025-26

SYUG Engineering Curriculum (Proposed) : NEP- Electronics and Telecommunication Engineering

Institute

Vision:

Service to the society through Quality Technical Education

Mission:

- Academic Excellence in Engineering and Technology Through Complete dedication to all round Growth of Students.
- Enable the Students to Develop Outstanding Professional with Technical Competence and Management Skills.
- Fulfill the Expectance of the Society and Industries with Ethical Standards for developing Sustainable Solutions

Department

Vision:

Endeavoring in developing technically competent, confident and socially responsible Electronics Engineers.

Mission:

- M1. Focus on teaching-learning process to spread in-depth knowledge of principles and its applications pertaining to Electronics Engineering and interdisciplinary areas.
- M2. To inculcate creative thinking through innovative and group work exercises which enhances the practical and project skills, entrepreneurship, employability and research capabilities
- M3. Provide ethical and value based education by promoting activities addressing the societal needs.

Program Educational Objectives (PEOs):

PEO 1: Graduates shall exhibit their knowledge and skills in analyzing and solving the real time engineering problems.

PEO 2: Graduate shall be successful in careers, higher studies, research or entrepreneurial assignments.

PEO 3: Graduate shall have exposure to emerging technologies, have opportunities to work as team member on multidisciplinary projects with effective communication skills and leadership qualities

Knowledge and Attitude Profile (WK) as per NBA guidelines

WK1: A systematic, theory-based understanding of the natural sciences applicable to the discipline and awareness of relevant social sciences.

WK2: Conceptually-based mathematics, numerical analysis, data analysis, statistics and formal aspects of computer and information science to support detailed analysis and modelling applicable to the discipline.

WK3: A systematic, theory-based formulation of engineering fundamentals required in the engineering discipline.

WK4: Engineering specialist knowledge that provides theoretical frameworks and bodies of knowledge for the accepted practice areas in the engineering discipline; much is at the forefront of the discipline.

WK5: Knowledge, including efficient resource use, environmental impacts, whole-life cost, re-use of resources, net zero carbon, and similar concepts, that supports engineering design and operations in a practice area.

WK6: Knowledge of engineering practice (technology) in the practice areas in the engineering discipline.

WK7: Knowledge of the role of engineering in society and identified issues in engineering practice in the discipline, such as the professional responsibility of an engineer to public safety and sustainable development.

WK8: Engagement with selected knowledge in the current research literature of the discipline, awareness of the power of critical thinking and creative approaches to evaluate emerging issues.

WK9: Ethics, inclusive behavior and conduct. Knowledge of professional ethics, responsibilities, and norms of engineering practice. Awareness of the need for diversity by reason of ethnicity, gender, age, physical ability etc. with mutual understanding and respect, and of inclusive attitudes

PROGRAM OUTCOMES (POs)

PO1: Engineering Knowledge: Apply knowledge of mathematics, natural science, computing, engineering fundamentals and an engineering specialization as specified in WK1 to WK4 respectively to develop to the solution of complex engineering problems.

PO2: Problem Analysis: Identify, formulate, review research literature and analyze complex engineering problems reaching substantiated conclusions with consideration for sustainable development. (WK1 to WK4)

PO3: Design/Development of Solutions: Design creative solutions for complex engineering problems and design/develop systems/components/processes to meet identified needs with consideration for the public health and safety, whole-life cost, net zero carbon, culture, society and environment as required. (WK5)

PO4: Conduct Investigations of Complex Problems: Conduct investigations of complex engineering problems using research-based knowledge including design of experiments, modelling, analysis & interpretation of data to provide valid conclusions. (WK8).

PO5: Engineering Tool Usage: Create, select and apply appropriate techniques, resources and modern engineering & IT tools, including prediction and modelling recognizing their limitations to solve complex engineering problems. (WK2 and WK6)

PO6: The Engineer and The World: Analyze and evaluate societal and environmental aspects while solving complex engineering problems for its impact on sustainability with reference to economy, health, safety, legal framework, culture and environment. (WK1, WK5, and WK7).

PO7: Ethics: Apply ethical principles and commit to professional ethics, human values, diversity and inclusion; adhere to national & international laws. (WK9)

PO8: Individual and Collaborative Team work: Function effectively as an individual, and as a member or leader in diverse/multi-disciplinary teams.

PO9: Communication: Communicate effectively and inclusively within the engineering community and society at large, such as being able to comprehend and write effective reports and design documentation, make effective presentations considering cultural, language, and learning differences

PO10: Project Management and Finance: Apply knowledge and understanding of engineering management principles and economic decision-making and apply these to one's own work, as a member and leader in a team, and to manage projects and in multidisciplinary environments.

PO11: Life-Long Learning: Recognize the need for, and have the preparation and ability for i) independent and life-long learning ii) adaptability to new and emerging technologies and iii) critical thinking in the broadest context of technological change. (WK8)

PROGRAM SPECIFIC OUTCOMES (PSOs)

PSO1: Students will have ability to design and deploy systems in Electronics, Communication, Embedded System, Automation, VLSI, Signal Processing, Robotics and IOT.

PSO2: Students shall have aptitudes towards design, development and research of innovative products / systems in Electronics solving real time, societal problems.

K.D.K.College of Engineering, Nagpur
B.Tech. Semester-III (Electronics and Telecommunication Engineering -Major)

S.N.	Course Category	Course Code	Name of Course	BoS	Teaching Scheme (hrs.)			Total Credit	Examination Scheme					
									Theory				Practical	
					(Th)	TU	P		Exam Hrs.	MSE	CA	ESE	CA	ESE
1	PCC-II	3BET01T	Electronics Devices and Circuits	ETC	3	-	-	3	3	30	20	50	-	-
2	PCC-II	3BET01P	Electronics Devices and Circuits Lab	ETC	-	-	2	1	-	-	-	-	25	25
3	PCC-III	3BET02T	Digital System Design with HDL	ETC	3	-	-	3	3	30	20	50	-	-
4	PCC-III	3BET02P	Digital System Design with HDL lab	ETC	-	-	2	1	-	-	-	-	25	25
5	MDM-I	3BETMD01T	Refer MDM Basket-1	ETC	3	-	-	3	3	30	20	50	-	-
6	OE-I	3BOE01T	Open Elective-I (Refer OE-I Basket)	ASH	3	-	-	3	3	30	20	50	-	-
7	HSSM-I	3BEM01T	Refer EEM Courses basket	ASH	2	-	-	2	2	15	10	25	-	-
8	VEC-I	3BVE01T	Refer VEC basket	ASH	2	-	-	2	2	15	10	25	-	-
9	CEP	3BET03P	Community Engagement Project	ETC	-	-	4	2	-	-	-	-	50	50
Total					16	-	8	20		150	100	250	100	100
Total Marks (Theory & Practical)										500				200
Total Marks (III Semester)										700				

			June 2025	1.00	Applicable for AY 2025-26 Onwards
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K.D.K.College of Engineering, Nagpur
B.Tech. Semester-IV (Electronics and Telecommunication Engineering -Major)

S. N.	Course Category	Course Code	Name of Course	BoS	Teaching Scheme (hrs.)			Total Credit	Examination Scheme					
									Theory			Practical		
					(Th)	TU	P		Exam Hrs.	MSE	CA	ESE	CA	ESE
1	PCC-IV	4BET01T	Microprocessor & Microcontroller	ETC	3	-	-	3	3	30	20	50		
2	PCC-IV	4BET01P	Microprocessor & Microcontroller Lab	ETC	-	-	2	1	-	-	-	-	25	25
3	PCC-V	4BET02T	Analog and Digital Communication	ETC	3	-	-	3	3	30	20	50		
4	PCC-V	4BET02P	Analog and Digital Communication Lab	ETC	-	-	2	1	-	-	-	-	25	25
5	MDM-II	4BETMD02T	Refer MDM Basket -1	ETC	2	-	-	2	2	15	10	25		
6	OE-II	4BOE02T	Open Elective – II (Refer OE-II Basket)	ASH	2	-	-	2	2	15	10	25		
7	AEC-II	4BETAE01T	Refer AEC basket	ASH	2	-	-	2	2	15	10	25		
8	HSSM-II	4BEM02T	Refer EEM Courses basket	ASH	2	-	-	2	2	15	10	25		
9	VEC-II	4BVE02T	Refer VEC basket	ASH	2	-	-	2	2	15	10	25		
10	VSEC-I	4BETVS01P	Software Workshop	ETC	-	-	4	2	-	-	-	-	50	50
Total					16		08	20		135	90	225	100	100
Total Marks (Theory & Practical)										450			200	
Total Marks (IV Semester)										650				

COURSE CODE				
SEM	B.Tech.	Branch	Subject S.N.	T/P
4	B	ET	01	T

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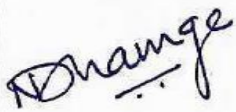
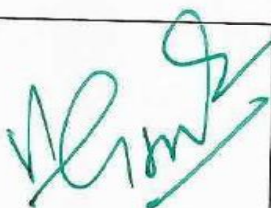
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MDM Basket-1 (Basket of Artificial Intelligence & Data Science)

Sr. No.	Course Code	Semester	Title of the MDM Course	Credit
1	3BETMD01T	III	Introduction to Artificial Intelligence	3
2	4BETMD02T	IV	Data Science & Machine Learning	2
3	5BETMD03T	V	Basics of Deep Learning	3
4	6BETMD04T	VI	Computer Vision	2
5	7BETMD 05T	VII	Natural Language Processing	2

MDM Basket-2 (Basket of Electrical Engineering)

Sr. No.	Course Code	Semester	Title of the MDM Course	Credit
1	3BETMD01T	III	Network Analysis	3
2	4BETMD02T	IV	Electrical Drives & its Controls	2
3	5BETMD03T	V	Control System	3
4	6BETMD04T	VI	Power Electronics	2
5	7BETMD 05T	VII	Energy Management & Audit	2

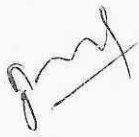
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KDK College of Engineering, Nagpur
Faculty of Engineering and Technology

Courses offered by Applied Science and Humanities Board

Open Elective Courses for III Sem. B. Tech.

Sr. No.	Semester	Course Code	Subjects	Credits
1	III	3BOE01T - A	Principles of Management	3
2	III	3BOE01T - B	Professional Practices & Ethics	3
3	III	3BOE01T - C	Insurance & Banking Management	3
4	III	3BOE01T - D	Total Quality Management	3
5	III	3BOE01T - E	Campus Sustainability	3
6	III	3BOE01T - F	Indian Stock Market	3
7	III	3BOE01T - G	Climate Change	3

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KDK College of Engineering, Nagpur

B. Tech.

Civil / Mechanical/ Electrical/ ETC/ CS/ IT/ AI&DS Engineering

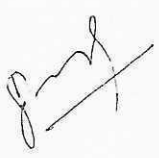
Courses offered by Applied Science and Humanities Board

Entrepreneurship/Economics/Management Courses (EEM-01 and EEM-02)

Sr. No.	Course Code	Course Name
1	3BEM01T-A /4BEM02T-A	Entrepreneurship Development
2	3BEM01T-B /4BEM02T-B	Economics for Engineers
3	3BEM01T-C /4BEM02T-C	Human Resource Management
4	3BEM01T-D /4BEM02T-D	Financial management
5	3BEM01T-E /4BEM02T-E	Strategic management

Value Education Courses (VEC-01 and VEC 02)

EM	Course Code	Course Name
1	3BVE01T-A /4BVE02T-A	Environmental Studies
2	3BVE01T-B /4BVE02T-B	Indian Constitution
3	3BVE01T-C /4BVE02T-C	Civic Education
4	3BVE01T-D /4BVE02T-D	Gender education
5	3BVE01T-E /4BVE02T-E	Universal Human Values

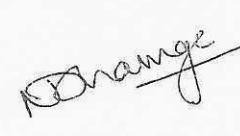
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KDK College of Engineering, Nagpur
Faculty of Engineering and Technology
B. Tech.

Courses offered by Applied Science and Humanities Board

Open Elective Courses for IV Sem. B. Tech.

Sr. No.	Semester	Course Code	Subjects	Credits
1	IV	4BOE02T - A	Corporate Social Responsibility	2
2	IV	4BOE02T - B	Life Skills	2
3	IV	4BOE02T - C	Digital Marketing	2
4	IV	4BOE02T - D	Basic of Mutual Fund	2
5	IV	4BOE02T - E	Introduction to Psychology	2
6	IV	4BOE02T - F	World Geography & Global Issue	2
7	IV	4BOE02T - G	Intercultural Communication	2

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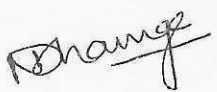
B. Tech.

Civil / Mechanical/ Electrical/ ETC/ CS/ IT/ AI&DS Engineering

Courses offered by Applied Science and Humanities Board

Ability Enhancement Courses (AEC-02)

Sr. No.	Course Code	Course Name
1	4BAE02T-A	German Language
2	4BAE02T-B	Stress Management
3	4BAE02T-C	Critical thinking
4	4BAE02T-D	Employability skills
5	4BAE02T-E	Technical English

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K. D. K College of Engineering, Nagpur
Department of Electronics & Telecommunication Engineering
Track for Major Courses-VLSI Design
(Applicable to Students of Electronics & Telecommunication Engineering)

S.N.	NPTEL Course Name	Course Coordinator	Institution	Duration
1	Network Analysis	Prof. Tapas Kumar Bhattacharya	IIT Kharagpur	12 weeks
2	Digital Electronic Circuits	Prof. Goutam Saha	IIT Kharagpur	12 weeks
3	Hardware Modeling using Verilog	Prof. Indranil Sengupta	IIT Kharagpur	8 weeks
4	Mapping Signal Processing Algorithms to Architectures	Prof. Nitin Chandrakhodan	IIT Madras	12 weeks
5	Design and Analysis of VLSI Subsystems	Prof. Madhav Rao	IIIT Bangalore	12 weeks
6	Semiconductor device modeling and Simulation	Prof. Vivek Dixit	IIT Kharagpur	12 weeks
7	RF Transceiver Design	Prof. Darshak Bhatt	IIT Roorkee	12 weeks
8	Thin Film Technology	Prof. Samit K Ray	IIT Kharagpur	12 weeks
9	Electronic Systems Design: Hands-on Circuits and PCB Design with CAD Software	Prof. Ankur Gupta	IIT Delhi	12 weeks
10	Modeling and TCAD Simulation of Solar PV Cell	Prof. Mukul Kumar Das	IIT-ISM Dhanbad	12 weeks
11	Cryogenic Electronics for Quantum Computing	Prof. Sudeb Dasgupta	IIT Roorkee	12 weeks
12	Microsensors and Nanosensors	Prof. Ravindra Kumar Jha	IIT Guwahati	12 weeks
13	RFIC Design	Prof. Imon Mondal	IIT Kanpur	12 weeks
14	Design for Internet of Things	Prof. T V Prabhakar	IISc Bangalore	08 Weeks
15	Statistical Signal Processing	Prof. Prabin Kumar Bora	IIT Guwahati	12 Weeks
16	Signals and Systems	Prof. Kushal K. Shah	IISER Bhopal	12 Weeks

NOTE: 1. The student can reach the course website by typing <https://nptel.ac.in/noc/Domain/> in the URL bar.

2. Ascertain the credits for each course

3. Total minimum credits to be acquired is 18

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K. D. K College of Engineering, Nagpur
Department of Electronics & Telecommunication Engineering
Track for Minor Courses-VLSI Design
(Applicable to Students of Other Discipline)

S.N.	NPTEL Course Name	Course Coordinator	Institution	Duration
1	Network Analysis	Prof. Tapas Kumar Bhattacharya	IIT Kharagpur	12 weeks
2	Digital Electronic Circuits	Prof. Goutam Saha	IIT Kharagpur	12 weeks
3	Hardware Modeling using Verilog	Prof. Indranil Sengupta	IIT Kharagpur	8 weeks
4	Mapping Signal Processing Algorithms to Architectures	Prof. Nitin Chandrachoodan	IIT Madras	12 weeks
5	Design and Analysis of VLSI Subsystems	Prof. Madhav Rao	IIIT Bangalore	12 weeks
6	Semiconductor device modeling and Simulation	Prof. Vivek Dixit	IIT Kharagpur	12 weeks
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13	RFIC Design	Prof. Imon Mondal	IIT Kanpur	12 weeks
14	Design for Internet of Things	Prof. T V Prabhakar	IISc Bangalore	08 Weeks
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