



JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY KAKINADA
Kakinada-533003, Andhra Pradesh (India)

Program wise Curriculum Analysis of (R19)

Program Code	Program Name	No of Courses having focus on			Total Courses	Percentage
		Employability	Entrepreneurship	Skill development		
	B.Tech – chemical engg.	02	03	35	85	47%

NW
Coordinator

Rao
HOD
Director
Head
Dept. of Petroleum Engineering &
Petrochemical Engineering, UCEK (A)

Sundetti
REGISTRAR
J.N.T. University Kakinada
Kakinada-533003



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Course wise Curriculum Analysis (R19)

Program Code:

Program Name: B.Tech – Chemical engg.

Year: 1

Semester: 1

Course code	Course name	Employability (Yes/No)	Entrepreneurship (Yes/No)	Skill development (Yes/No)
BS	Mathematics – I			
BS	Engineering Physics			
PCC	Introduction to Chemical Engineering			
ES	Programming for Problem Solving			
ES	Engineering Drawing			YES
BS	Engineering Physics Lab			Yes
BS	Physics Virtual Lab			Yes
ES	Programming for Problem Solving - Laboratory			YES
HS	English Communication Skills - Laboratory – I			YES
PR	Engineering Exploration Project			YES
*MC	Constitution of India			
Total		0	0	6



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Year: 1

Semester: 1

Course code	Course name	Employability (Yes/No)	Entrepreneurship (Yes/No)	Skill development (Yes/No)
HS	Communicative English			YES
BS	Mathematics – II			
BS	Mathematics – III			
BS	Chemistry – I (Physical Chemistry)			
ES	Engineering Mechanics			
ES	Engineering Workshop & IT Workshop			YES
BS	Chemistry - I Laboratory (Physical Chemistry)			YES
HS	English Communication Skills Laboratory – II			YES
*MC	Environmental Science			
*MC	Physical Fitness Activities			
	MOOCS (NPTEL/SWAYAM) for Honors/Minor Degree			YES
Total		0	0	05



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Kakinada-533003, Andhra Pradesh (India)

Course wise Curriculum Analysis (R19)

Program Code:

Program Name: B.Tech – Chemical engg.

Year: 2

Semester: 1

Course code	Course name	Employability (Yes/No)	Entrepreneurship (Yes/No)	Skill development (Yes/No)
BS	Mathematics-IV			
ES	Basic Electrical & Electronics Engineering			
ES	Materials Science & Engineering			
PCC	Chemistry – II (Organic Chemistry)			
PCC	Chemical Process Principles			
PCC	Mechanical Unit Operations			
ES	Basic Engineering (Mech. + Elec.) Laboratory			YES
PCC	Organic Chemistry – Laboratory			YES
PCC	Mechanical Unit Operations – Laboratory			YES
*MC	Essence of Indian Traditional Knowledge			
	MOOCS (NPTEL/SWAYAM) for Honors/Minor Degree			
	Total	0	0	03



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Course wise Curriculum Analysis (R19)

Program Code:

Program Name: B.Tech – Chemical engg.

Year: 2

Semester: 2

Course code	Course name	Employability (Yes/No)	Entrepreneurship (Yes/No)	Skill development (Yes/No)
ES	Elements of Mechanical Engineering			
HSSMS	Managerial Economics & Financial Accounting			
PCC	Momentum Transfer			
PCC	Chemical Engineering Thermodynamics-I			
PCC	Process Instrumentation			
PCC	Process Heat Transfer			
PCC	Momentum Transfer – Laboratory			YES
PCC	Process Heat Transfer – Laboratory			YES
HSSMS	Socially Relevant Project			YES
*MC	Physical Fitness Activities			
	MOOCS (NPTEL/SWAYAM) for Honors/Minor Degree			YES
Total		0	0	04



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Course wise Curriculum Analysis (R19)

Program Code:

Program Name: B.Tech – Chemical engg.

Year: 3

Semester: 1

Course code	Course name	Employability (Yes/No)	Entrepreneurship (Yes/No)	Skill development (Yes/No)
PCC	Chemical Engineering Thermodynamics-II			
PCC	Chemical Reaction Engineering – I			
PCC	Mass Transfer Operations – I			
PCC	Process Dynamics & Control			
PEC	PROFESSIONAL ELECTIVE – I i. Petroleum Refinery Engineering Air Pollution and Control			
PCC	Petroleum Analysis – Laboratory			Yes
PCC	Mass Transfer Operations – Laboratory			Yes
PCC	Instrumentation, Process Dynamics & Control – Laboratory			YES
PCC	Socially Relevant Project			YES
*MC	Physical Fitness Activities			
	MOOCS (NPTEL/SWAYAM) for Honors/Minor Degree			YES
Total		0	0	05



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Kakinada-533003, Andhra Pradesh (India)

Course wise Curriculum Analysis (R19)

Program Code:

Program Name: B.Tech – Chemical engg.

Year: 3

Semester: 2

Course code	Course name	Employability (Yes/No)	Entrepreneurship (Yes/No)	Skill development (Yes/No)
PCC	Mass Transfer Operations- II			
PCC	Chemical Reaction Engineering – II			
OEC	OPEN ELECTIVE – I (for other Branches) i. Chemical Process Safety ii. Fundamentals of Petroleum Refining Renewable Energy Sources			
PEC	PROFESSIONAL ELECTIVE – II i. Solid Waste Management Green Process Technologies		YES	
PEC	PROFESSIONAL ELECTIVE – III i. General Chemical Technology Industrial Biotechnology			
PCC	Chemical Reaction Engineering – Laboratory			Yes
PCC	Mathematical methods – Laboratory			Yes
**HSS	Universal Human Values 2: Understanding Harmony			
*MC	Employability Skills – I: Python Programming	YES		
PT	Summer Internship (4 or 6 Weeks)			YES
	MOOCS (NPTEL/SWAYAM) for Honors/Minor Degree			YES
Total		01	01	4



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Course wise Curriculum Analysis (R19)

Program Code:

Program Name: B.Tech – Chemical engg.

Year: 4

Semester: 1

Course code	Course name	Employability (Yes/No)	Entrepreneurship (Yes/No)	Skill development (Yes/No)
PCC	Transport Phenomena			
PCC	Plant Design and Economics for Chemical Engineers		YES	
PEC	PROFESSIONAL ELECTIVE – IV i. Process Modelling and Simulation Fluidization Engineering			
PEC	PROFESSIONAL ELECTIVE – V i. Optimization Techniques for Chemical Engineers Industrial Safety & Hazard Management			
OEC	OPEN ELECTIVE – II (for other Branches) i. Hazard Operability and Fault Tree Analysis in Process Plants ii. Heat Integration and Pinch Analysis iii. Design of Experiments and Analysis.			
PCC	Process Equipment Design & Drawing – Laboratory			Yes
PCC	Process Simulation – Laboratory			Yes
PROJ	Presentation/Seminar (SIP Report)			YES
PROJ	Project (Industrial/In-house) (Phase-1)			YES
*MC	IPR & Patenting			
*MC	Employability Skills – II: Data Science	01		
	MOOCS (NPTEL/SWAYAM) for Honors/Minor Degree			YES
Total		01	01	05



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Program Code:

Program Name: B.Tech – Chemical engg.

Year: 4

Semester: 2

Course code	Course name	Employability (Yes/No)	Entrepreneurship (Yes/No)	Skill development (Yes/No)
PEC	PROFESSIONAL ELECTIVE – VI i. Nanotechnology Petroleum Production Engineering			
PEC	PROFESSIONAL ELECTIVE – VII i. Natural Gas Engineering Computational Fluid Dynamics			
OEC	OPEN ELECTIVE – III (for Chemical Engineering) i. NPTEL-Data Analysis & Decision making ii. NPTEL- E-Business NPTEL- Innovation, Business Models & Entrepreneurship		YES	YES
PROJ	Project (Industrial / In-house) (Phase-2)			YES
*MC	Physical Fitness Activities			YES
	MOOCS (NPTEL/SWAYAM) for Honors/Minor			
Total			01	03