



# WALJAT COLLEGE OF APPLIED SCIENCES

In Academic Partnership With

**BIRLA INSTITUTE OF TECHNOLOGY**



## DEPARTMENT OF BIOTECHNOLOGY AND CHEMICAL ENGINEERING

**Programme:** Bachelor of Engineering in Chemical Engineering

**Duration:** 4 Years

### Programme Structure

#### Semester – I

Programme No.	Programme Title	L	T	P	Credits
HU 1101	Technical English	3	0	0	3
PH 1201	Physics	3	1	0	4
MA 1201	Engineering Mathematics	3	1	0	4
EE 2201	Principles of Electrical Engineering	3	1	0	4
CH 1401	Engineering Chemistry	3	0	0	3
ME 1202	Engineering Graphics	1	0	3	3
CS 1302	Fundamental of Unix & C Programming	1	0	3	3
PE 1202	Workshop Practice	0	0	3	2
PH 1202	Physics lab	0	0	3	2
GA 1002/ GA 1004/ GA 1006/ GA 1008	NCC / NSS / PT & Games / Creative Arts	0	0	2	1
<b>Total</b>					<b>29</b>

#### Semester – II

Programme No.	Programme Title	L	T	P	Credits
CH2106	Organic Chemistry	3	0	0	3
MA 2201	Advance Engineering Mathematics	3	1	0	4
CH 2203	Environmental Science	3	0	0	3
CS 2301	Fundamentals of Data Structure	3	1	0	4
CH2001(O)	Engineering Thermodynamics	3	0	0	3
AM 1201	Engineering Mechanics	3	1	0	4
CH 1402	Chemistry Lab	0	0	3	2
EE 3202/AM2202	Basic Electrical Engg Lab/Engg. Mechanics Lab	0	0	3	2
CH3002	Organic Chemistry Lab	0	0	3	2
CS 2302	Data Structure Lab	0	0	3	2
GA 2008	Creative Arts	0	0	2	1
<b>Total</b>					<b>30</b>

**Semester – III**

<b>Programme No.</b>	<b>Programme Title</b>	<b>L</b>	<b>T</b>	<b>P</b>	<b>Credits</b>
BT 3001	Biological Science ( <i>Breadth Paper</i> )	3	0	0	3
CL 3001	Fluid Mechanics	3	0	0	3
CL 3003	Chemical Engineering Thermodynamics	3	1	0	4
CL 3005(O)	Material & Energy balance	3	1	0	4
ME 3007	Strength of Materials	3	0	0	3
EE 3202/ AM 2202	Basic Electrical Engineering Lab / Engineering Mechanics lab	0	0	3	2
ME 3008	Strength of Materials Laboratory	0	0	3	2
CL 3004	Instrumental Analysis	0	0	3	2
GA 3008	C. Arts	0	0	2	1
<b>Total</b>					<b>24</b>

**Semester – IV**

<b>Programme No.</b>	<b>Programme Title</b>	<b>L</b>	<b>T</b>	<b>P</b>	<b>Credits</b>
HU 4001	Language ( <i>Breadth Paper</i> )	3	0	0	3
CL 5003	Energy Engineering	3	1	0	3
CL 4005	Numerical Methods For Chemical Engineers	3	0	0	3
CL 4007	Transport Phenomena	3	0	0	3
CL 4002	Chemical Engineering Lab- I	0	0	3	2
CL 4004	Numerical Methods For Chemical Engg. lab	0	0	3	2
CL 4006	Energy Engg lab	0	0	3	2
GA 4008	Creative Arts	0	0	2	1
	Breadth paper - I	3	0	0	3
<b>Total</b>					<b>22</b>

**Semester – V**

<b>Programme No.</b>	<b>Programme Title</b>	<b>L</b>	<b>T</b>	<b>P</b>	<b>Credits</b>
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CL4001	Heat transfer operation	3	1	0	4
CL 5001	Mass Transfer Operations	3	1	0	4
CL4003	Petrochemicals & refinery Engineering	3	0	0	3
CL 5005	Reaction Engg	3	0	0	3
CL6005	Modern separation processes	3	0	0	3
CL 5007	Computer Aided Process Engineering	3	0	0	3
CL 5002	Chemical Engineering lab II	0	0	3	2
		<b>Total</b>			<b>22</b>

### Semester – VI

<b>Programme No.</b>	<b>Programme Title</b>	<b>L</b>	<b>T</b>	<b>P</b>	<b>Credits</b>
CL 6001	Biochemical Engineering	3	0	0	3
CL 6003(O)	Particle Technology	3	0	0	3
CL 6007	Polymer Science and Engineering	3	0	0	3
CL 6009	Advances in Reaction Engineering	3	0	0	3
CL 6002	Chemical Engineering Lab III	0	0	3	2
CL 6004	Polymer Engineering Lab	0	0	3	2
CL6006(O)	Chemical Engg. Drawings Lab	0	0	3	2
CL5004	Computer Aided Process Engineering Lab I	0	0	3	2
CL5006	Reaction Engg. Lab	0	0	3	2
		<b>Total</b>			<b>22</b>

### Semester – VII

<b>Programme No.</b>	<b>Programme Title</b>	<b>L</b>	<b>T</b>	<b>P</b>	<b>Credits</b>
CL 7001	Process Control and Instrumentation	3	0	0	3
CL 7003	Process Modelling, Simulation & Optimization	3	0	0	3
CL 7005	Project Engg& Economics for Chemical	3	0	0	3
CL7007(O)	Safety & hazards in Chemical industry	3	0	0	3
	ELECTIVE SUBJECT	3	0	0	3
CL 7002	Process Control and Instrumentation lab	0	0	3	2
CL 7004	Computer Aided Processes Engineering lab-II	0	0	3	2

CL 7006	Chemical Technology Lab	0	0	3	2
				<b>Total</b>	<b>21</b>

### Semester – VIII

Programme No.	Programme Title	L	T	P	Credits
CL 8002	Project & Comprehensive viva	0	0	0	8
CL 8004	Entrepreneurship and Business Plan	0	0	0	1
				<b>Total</b>	<b>9</b>

### Elective Subject

Programme No.	Programme Title	L	T	P	Credits
CL7015	Nanotechnology	3	0	0	3
CL7013	Food Science and Technology	3	0	0	3
CL 7037	Renewable & non-renewable energy	3	0	0	3
PC 7003	Biomaterials	3	0	0	3
CL 7045	Pharmaceutical Technology	3	0	0	3
PC 7013	Surface Coating and Adhesion	3	0	0	3
PC 7001	Fiber Science and Technology	3	0	0	3
PC 7005	Plastics and Environment	3	0	0	3

### Breadth Paper-I

Programme No.	Programme Title	L	T	P	Credits
MSH1131	Principles of management	3	0	0	3
PE 5021	Industrial Organisation & Management for Oman	3	0	0	3
MSH 1125	Organizational Behaviour	3	0	0	3
MSH 1113	Environmental Psychology	3	0	0	3
PE 5011	Project Engineering	3	0	0	3

Semester	Credits
1	29
2	30
3	24
4	22
5	22
6	22
7	21
8	09

<b>Grand Total</b>	<b>179</b>
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**Note:** Bachelor of Engineering in Chemical Engineering Degree shall be awarded on successfully earning of 179 credits by the end of fourth year studies.