

## PROGRAMME PROFILE B.Sc. (Chemistry)

### Programme Specific Outcome (PSO)

Upon Completion of the Programme, the Students will be able to

- Development of the Skills in Handling Various Chemicals, Apparatus and Instruments.
- Application of the Principles of Thermodynamics and Chemical Kinetics in Chemical Reactions.
- Acquiring the Knowledge on Heterocyclic Compounds and Natural Products.
- Ability to Apply the Basic Principles of Various Spectroscopic, Electro and Thermo Analytical Methods to Characterize the Compounds.
- Industrial Insights on Polymers, Textile Dyes, Fibre and Medicinal Chemistry.

Semester	Part	Category	Course Code	Course Title	Pervious Course Code	Contact Hrs/ Week	Min/Max
I	I	Tamil/Hindi/French	UTAL105/ UTAL106/ UHIL101/ UFRL101	Basic Tamil-I/ Advanced Tamil-I/ Hindi-I/ French-I	UTAL103/ UTAL104	4	2/3
	II	English	UENL107/ UENL108	General English-I/ Advanced English-I	-/ UENL106	5	3/4
	III	Core I	UCHM104	Fundamentals of Chemistry	-	2	1
		Core II	UCHM105	General Chemistry –I	-	4	4
		Core III	UCHM106/ UCHM107	Analytical Chemistry	-	4	4
		Core Practical I	UCHR204/ UCHR205	Volumetric Analysis	-	3	-
		Allied I	UPHA102	Allied Physics - I	-	3	3
	Allied Practical I	UPHR103	Allied Physics Practical-I	-	3	2	
IV	Value Education				2	1	
<b>Total</b>						<b>30</b>	<b>20/22</b>
II	I	Tamil/Hindi/French	UTAL205/ UTAL206/ UHIL201/ UFRL201	Basic Tamil-II/ Advanced Tamil-II/ Hindi-II/ French-II	UTAL203/ UTAL204	4	2/3
	II	English	UENL207/ UENL208	General English-II/ Advanced English-II	-/ UENL206	5	3/4
	III	Core IV	UCHM202	General Chemistry –II	-	6	6
		Core Practical I	UCHR204/ UCHR205	Volumetric Analysis	-	3	4
		Allied II	UPHA201	Allied Physics II	-	3	3
	IV	Allied Practical I	UPHR202	Allied Physics Practical-II	-	3	2
		NME			-	4	2
	Soft Skill			-	2	1	
V	Extension Programme/ Physical Education/NCC			-	-	1/2	
<b>Total</b>						<b>30</b>	<b>24/27</b>
III	I	Tamil/Hindi/French	UTAL305/ UTAL306/ UHIL301/ UFRL301	Basic Tamil-III/ Advanced Tamil-III/ Hindi-III/ French-III	UTAL303/ UTAL304	4	2/3
	II	English	UENL307/ UENL308	General English-III/ Advanced English-III	-/ UENL306	5	3/4
	III	Core V	UCHM305	General Chemistry –	UCHM303	5	5

				III				
		Core Practical II	UCHR404/UCHR405	Semi micro Qualitative Inorganic Analysis	-	3	-	
		Core VI	UCHM306	Separation & Purification Techniques	UCHM304	3	3	
		Core VII		Online Course (NPTEL/ST)	-	3	1/2	
		Allied	UMAA304	Algebra, Differential Calculus and Trigonometry	-	5	5	
	IV	Value Education				2	1	
<b>Total</b>						<b>30</b>	<b>20/23</b>	
IV	I	Tamil/Hindi/French	UTAL405/ UTAL406/ UHIL401/ UFRL401	Basic Tamil-IV/Advanced Tamil-IV/ Hindi-IV/ French-IV	UTAL403/ UTAL404	4	2/3	
	II	English	UENL407/ UENL408	General English/ Advanced English	-/ UENL406	5	3/4	
	III	Core VIII	UCHM405		General Chemistry – IV	UCHM402 UCHM403	5	5
		Core Practical II	UCHR404/UCHR405		Semi Micro Qualitative Inorganic Analysis	-	3	4
		Core IX	UCHM406		Instrumental Method of Analysis	UCHM404	4	4
		Allied	UMAA406		Integral Calculus, Laplace Transform & Ordinary Differential Equation	-	5	5
		Core X Project/paper	UCHP501/UCHM507		Project/Dairy and its Products	-	2	-
	IV	Soft Skill	USKS401			2	1	
	V	Extension Programme/ Physical Education/NCC				-	2	
	<b>Total</b>						<b>30</b>	<b>24/28</b>
V	III	Core XI	UCHM508	Inorganic Chemistry – I	UCHM501 UCHM504	5	4	
		Core XII	UCHM509	Organic Chemistry – I	UCHM502 UCHM505	6	5	
		Core XIII	UCHM506	Physical Chemistry – I	UCHM503	5	4	
		Core Practical III	UCHR501	Gravimetric Analysis	-	4	4	
		Core Practical IV	UCHR605	Physical Chemistry Practical	-	4	-	
		Core X Paper/Project	UCHP501/ UCHM507	Project / Dairy and its Products	-	4	4/5	
	IV	Value Education				2	1	
<b>Total</b>						<b>30</b>	<b>22/23</b>	
VI	III	Core XIV	UCHM611	Inorganic Chemistry II	UCHM601 UCHM607	4	4	
		Core XV	UCHM612	Organic Chemistry II	UCHM602 UCHM608	4	4	
		Core XVI	UCHM609	Physical Chemistry II	UCHM603	4	4	
		Core XVII	UCHM613	Physical Chemistry III	UCHM610	4	4	

		Major elective	UCHO602 UCHO603 UCHO604 UCHO605	Polymer Chemistry Medicinal Chemistry Forensic Chemistry Chemistry of Dye	-	4	4
		Core Practical IV	UCHR605	Physical Chemistry Practical	-	4	4/4
		Core Practical V	UCHR606	Organic Analysis and Preparation	-	4	4
		Viva –Voce	UCHM605	Comprehensive Viva- Voce	-	-	1
	IV	Soft Skill	USKS601		-	2	1
	V	Extension Programme/ Physical Education			-	-	2
<b>Total</b>						<b>30</b>	<b>30/32</b>
<b>Grand Total</b>						<b>180</b>	<b>140/155</b>

**LIST OF COURSES OFFERED TO OTHER DEPARTMENTS  
ALLIED AND ALLIED OPTIONAL COURSES**

Semester	Part	Category	Course Code	Course Title	Pervious Course Code	Contact hrs per week	Credits
							Min/Max
I	III	Allied- I	UCHA102	Chemistry – I		5	4
IV	III	Allied- I	UCHA402	Chemistry for Physics		3	3
I	III	Allied Practical- I	UCHR103	Volumetric & Organic Analysis	-	3	2
IV	III	Allied Practical- II	UCHR404	Volumetric Analysis		3	2
V	III	Allied Optional	UCHA502 UCHA504 UCHA505 UCHA506	Industrial Chemistry Dairy Chemistry Agricultural Chemistry Environmental Chemistry	-	5	4

**NON- MAJOR ELECTIVE COURSES**

Semester	Part	Category	Course Code	Course Title	Pervious Course Code	Contact hrs per Week	Credits
							Min/Max
II	IV	Non major Elective	UCHE204	Food Chemistry	-	4	2

## EXTRA CREDIT EARNING PROVISION

Semester	Category	Course Code	Course Title	Pervious Course Code	Hrs per Week	Credits
						Min/Max
II	Core	UCHI201	Internship	-	-	1
IV	Core	UCHI401	Internship	-	-	1
VI	Core	UCHS601/ UCHP601	Green Chemistry (Self Study Paper) / Project	-	-	1/2

## EXPERIENTIAL LEARNING (MANDATORY/ONLY FOR INTERESTED STUDENTS)

Related Paper	Work Experience		Proposed Period (Sem. Break/May/ Any Other)	Collaborating Agency	Mode of Evaluation
	Nature of the Course/Institution	Proposed Duration (No.of Days/Weeks/Months)			
UCHM509	Organic Farming	2 days	August	MSME	To Get Certificate

## SKILL ORIENTATION PROGRAMME (MANDATORY/ONLY FOR INTERESTED STUDENTS)

Semester	Category	Course Code	Course Title	Collaborating Agency	Hours/Days /Month	Mode of Evaluation
V	Core	UCHT501	Industrial Lab Safety	TCIL	4 days	To Get Certificate

## COURSE PROFILE M. Sc. Chemistry

Semester	Category	Course Code	Course Title	Contact Hrs/Week	Credits	
					Min	Max
I	Core-I	PCHM107/PCHM111	Organic Chemistry-I	5	4	4
	Core-II	PCHM108/PCHM112	Inorganic Chemistry-I	5	4	4
	Core-III	PCHM109	Physical Chemistry-I	5	4	4
	Core-IV	PCHM110	Nano Science and Nano Materials	5	4	4
	Core Practical-I	PCHR203	Organic Practical	5	-	-
	Core Practical-II	PCHR204	Inorganic Practical	5	-	-
Total				<b>30</b>	<b>16</b>	<b>16</b>
II	Core-V	PCHM204	Organic Chemistry-II	5	4	4
	Core-VI	PCHM205	Inorganic Chemistry-II	5	4	4
	Core-VII	PCHM206	Physical Chemistry-II	5	4	4
	Core Practical-I	PCHR203	Organic Practical	5	5	5
	Core Practical-II	PCHR204	Inorganic Practical	5	5	5
	Non-Major Elective			5	4	4
	Service Learning	PCHX201	Vermicomposting	-	1	1
Total				<b>30</b>	<b>27</b>	<b>27</b>
III	Core-VIII	PCHM301	Organic Chemistry-III	6	5	5
	Core-IX	PCHM302	Inorganic Chemistry-III	5	4	4
	Core -X	PCHM303	Physical Chemistry-III	6	4	4
	Core-XI	PCHI301	Sustainable Materials and Technologies	6	5	5
	Core Practical – III	PCHR401	Physical Chemistry Practical	5	-	-
	Core XII	PCHP401	Project	2	-	-
Total				<b>30</b>	<b>18</b>	<b>18</b>
IV	Core-XIII	PCHM404	Organic Chemistry-IV	6	5	5
	Core-XIV	PCHM402	Inorganic Chemistry-IV	5	4	4
	Core-XV	PCHM405	Physical Chemistry-IV	5	4	4
	Core-XVI	PCHM305/PCHM407	Research Methodology	5	4	4
	Core Practical – III	PCHR401	Physical Chemistry Practical	5	6	6
	Core XVII	PCHP401	Project	4	6	6
Total				<b>30</b>	<b>29</b>	<b>29</b>

## PROGRAMME PROFILE M. Phil (Chemistry)

(With Effect From 2020-2021 Batch Onwards)

Semester	Category	Course Code	Course Title	Hrs per Week	Credit
I	Core I	MCHM105	Research Methodology	6	5
	Core II	MCHM106	Instrumental Methods of Analysis	6	5
	Core III	MCHM107	Special Area of Study	-	5
	Core IV	MRPE101	Research and Publication Ethics (RPE)	-	2
II	Core V	MCHD201	Dissertation & Viva voce	-	13
<b>Total</b>					<b>30</b>
<ul style="list-style-type: none"><li>▪ <b>Paper Presentation (Minimum One) &amp;</b></li><li>▪ <b>Publication of Articles in Journals (Minimum One) are Mandatory for Submission of Dissertation.</b></li></ul>					