

1.1.3 DG

**K. S. Rangasamy College of Arts and Science (Autonomous),  
Tiruchengode – 637 215  
Department of Chemistry  
B.Sc Chemistry**

**Courses focus on Employability/ Entrepreneurship/ Skill Development**

**Courses focus on Employability**

- Elective I: Spectroscopy I
- Elective I: Spectroscopy II
- Core X: Analytical chemistry

**Courses focus on Entrepreneurship**


- Core II: Industrial Chemistry
- Core IV: Pharmaceutical chemistry
- NMEC I: Applied chemistry I
- NMEC II: Applied chemistry II



**Courses focus on Skill Development**


- SBC I: Food Chemistry
- SBC II: Textile Chemistry
- SBC III: Polymer Chemistry
- SBC IV : Agricultural Chemistry

**Encls:**

1. Copy of Scheme of Examination
2. Syllabus copy of courses highlighting the focus on Skill Development along with course outcomes
3. Mapping of courses to Skill Development


  
HoD – Chemistry

  
PRINCIPAL  
K. S. Rangasamy College of Arts & Science  
(Autonomous)  
TIRUCHENGODE - 637 215  
Namakkal-Dt. Tamil Nadu, INDIA  
  
CONTROLLER  
OF  
EXAMINATIONS


  
CoE  
Mr. M. PRASAD, M.Sc., M.B.A.,  
Controller of Examinations  
K.S. Rangasamy College of Arts & Science (Autonomous)  
Tiruchengode - 637 215, Tamilnadu, India.

## SCHEME OF EXAMINATION

Subject Code	Subject	Hours of Instruction	Exam Duration (Hours)	Maximum Marks			Credit Points
				CA	CE	Total	
<b>FIRST SEMESTER</b>							
<b>PART-I</b>							
18UTALA101 18UHILA101 18UFRLA101	Tamil I / Hindi I / French I	5	3	25	75	100	3
<b>PART-II</b>							
18UENLA101	Foundation English I	5	3	25	75	100	3
<b>PART-III</b>							
18UCHM101	Core I: General Chemistry I	5	3	25	75	100	4
18UCHM102	Core II: Industrial Chemistry	5	3	25	75	100	4
18UMACHA101	Allied I: Algebra and Differential Calculus	5	3	25	75	100	4
18UCHMP101	Core Practical I: Volumetric and Inorganic Preparations	3	3	40	60	100	3
<b>PART-IV</b>							
18UVE101	Value Education I: Yoga	2	3	25	75	100	2
<b>Total</b>		<b>30</b>				<b>700</b>	<b>23</b>

  
**PRINCIPAL**  
 K. S. Rangasamy College of Arts & Science,  
 (Autonomous)  
 TIRUCHENGODE - 637 215  
 Namakkal-Dt. Tamil Nadu, INDIA



  
**Mr. M. PRASAD, M.Sc., M.B.A., M.Phil.**  
 Controller of Examinations  
 K.S. Rangasamy College of Arts & Science (Autonomous)  
 Tiruchengode - 637 215, Tamil Nadu, India.





Subject Code	Subject	Hours of Instruction	Exam Duration (Hours)	Maximum Marks			Credit Points
				CA	CE	Total	
<b>SECOND SEMESTER</b>							
<b>PART I</b>							
18UTALA201 18UHILA201 18UFRLA201	Tamil II / Hindi II / French II	5	3	25	75	100	3
<b>PART II</b>							
18UENLA201	Foundation English II	5	3	25	75	100	3
<b>PART III</b>							
18UCHM201	Core III: General Chemistry II	5	3	25	75	100	4
18UCHM202	Core IV: Pharmaceutical Chemistry	5	3	25	75	100	4
18UMACHA201	Allied II : Integral Calculus and Vector Calculus	5	3	25	75	100	4
18UCHMP201	Core Practical II: Organic Qualitative Analysis	3	3	40	60	100	3
<b>PART IV</b>							
18UVE201	Value Education II: Environmental Studies	2	3	25	75	100	2
<b>Total</b>		<b>30</b>				<b>700</b>	<b>23</b>

*[Signature]*  
**PRINCIPAL**  
 K. S. Rangasamy College of Arts & Science  
 (Autonomous)  
 TIRUCHENGODE - 637 215  
 Namakkal-Dt. Tamil Nadu, INDIA

3

*M.P.*

**Mr. M. PRASAD, M.Sc., M.B.A.,**  
 Controller of Examinations  
 K.S. Rangasamy College of Arts & Science (Autonomous)  
 Tiruchengode - 637 215, Tamilnadu, India.



**THIRD SEMESTER**

**PART I**

18UTALA301	Tamil III /	5	3	25	75	100	3
18UHILA301	Hindi III /						
18UFRLA301	French III						

**PART II**

18UENLA301	Foundation English III	5	3	25	75	100	3
------------	------------------------	---	---	----	----	-----	---

**PART III**


18UCHM301	Core V: General Chemistry III	4	3	25	75	100	4
18UPHCHA301	Allied III: Physics I	3	3	25	75	100	2
18UCHMP301	Core Practical III: Inorganic Qualitative Analysis	3	3	40	60	100	3
18UPHCHAP301	Allied Practical I: Physics I	3	3	40	60	100	2

**PART IV**


18UCHSB301	SBC I: Food Chemistry	2	3	40	60	100	2
	NMEC I	2	3	25	75	100	2

**NON CREDIT**

18ULS301	Career Competency Skills I	1	-	-	-	-	-
	Add-on course	2	-	-	-	-	-
<b>Total</b>		<b>30</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>800</b>	<b>21</b>

  
**PRINCIPAL**  
 K. S. Rangasamy College of Arts & Science  
 (Autonomous)  
 TIRUCHENGODE - 637 215  
 Namakkal-Dt. Tamil Nadu. INDIA



  
**Mr. M. PRASAD, M.Sc., M.Ed.**  
 Controller of Examinations  
 K.S. Rangasamy College of Arts & Science (Autonomous)  
 Tiruchengode - 637/215, Tamilnadu, India.





**FOURTH SEMESTER**

**PART I**

18UTALA401 18UHILA401 18UFRLA401	Tamil IV / Hindi IV / French IV	5	3	25	75	100	3
--	---------------------------------------	---	---	----	----	-----	---

**PART II**

18UENLA401	Foundation English IV	5	3	25	75	100	3
------------	-----------------------	---	---	----	----	-----	---

**PART III**

18UCHM401	Core VI: General Chemistry IV	4	3	25	75	100	4
18UPHCHA401	Allied IV: Physics II	3	3	25	75	100	2
18UCHMP401	Core Practical IV: Physical Practical	3	3	40	60	100	3
18UPHCHAP401	Allied Practical II: Physics II	3	3	40	60	100	2

**PART IV**

18UCHSB401	SBC II: Textile Chemistry	2	3	25	75	100	2
	NMEC II	2	3	25	75	100	2

**NON CREDIT**

18ULS401	Career Competency Skills II	1	-	-	-	-	-
	Add-on Course	2	-	-	-	-	-
<b>Total</b>		<b>30</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>800</b>	<b>21</b>

**PRINCIPAL**  
K. S. Rangasamy College of Arts & Science  
(Autonomous)  
TIRUCHENGODE - 637 215  
Namakkal-Dt. Tamil Nadu, INDIA



**Mr. M. PRASAD, M.Sc., M.A.,**  
Controller of Examinations  
K.S. Rangasamy College of Arts & Science (Autonomous)  
Tiruchengode - 637 215, Tamilnadu, India.

Subject Code	Subject	Hours of Instruction	Exam Duration (Hours)	Maximum Marks			Credit Points
				CA	CE	Total	
<b>FIFTH SEMESTER</b>							
<b>PART III</b>							
18UCHM501	Core VII: Inorganic Chemistry I	5	3	25	75	100	4
18UCHM502	Core VIII: Organic Chemistry I	5	3	25	75	100	5
18UCHM503	Core IX: Physical Chemistry I	4	3	25	75	100	4
18UCHM504	Core X: Analytical Chemistry	4	3	25	75	100	4
	Elective I	4	3	25	75	100	4
19UCHMP501	Core Practical IV: Gravimetric Estimation and Organic Preparation	5	6	25	75	100	3
<b>PART IV</b>							
18UCHSB501	SBC III: Polymer Chemistry	2	3	25	75	100	2
18UCHE501	Extension Activity	-	-	-	-	-	2
<b>NON CREDIT</b>							
18ULS501	Career Competency Skills III	1	-	-	-	-	-
<b>Total</b>		<b>30</b>				<b>700</b>	<b>28</b>

PRINCIPAL  
K. S. Rangasamy College of Arts & Science  
(Autonomous)  
TIRUCHENGODE - 637 215  
Namakkal-Dt. Tamil Nadu, INDIA



Mr. M. PRASAD, M.Sc., M.B.A., M.Phil.  
Controller of Examinations  
K.S. Rangasamy College of Arts & Science (Autonomous)  
Tiruchengode - 637 215, Tamilnadu, India.



Subject Code	Subject	Hours of Instruction	Exam Duration (Hours)	Maximum Marks			Credits Points
				CA	CE	Total	
<b>SIXTH SEMESTER</b>							
<b>PART III</b>							
18UCHM601	Core XI: Inorganic Chemistry II	6	3	25	75	100	5
18UCHM602	Core XII: Organic Chemistry II	6	3	25	75	100	5
18UCHM503	Core XIII: Physical Chemistry II	6	3	25	75	100	4
	Elective II	4	3	25	75	100	4
18UCHPR601	Project & Viva-Voce	5		25	75	100	4
<b>PART IV</b>							
18UCHSB601	SBC IV: Agricultural Chemistry	2	3	25	75	100	2
18ULS601	Career Competency Skills	1	-	-	-	-	-
<b>Total</b>		<b>30</b>				<b>600</b>	<b>24</b>

*(Handwritten signature)*  
**PRINCIPAL**  
 K. S. Rangasamy College of Arts & Science  
 (Autonomous)  
 TIRUCHENGODE - 637 215  
 Tamil Nadu, India



58



*(Handwritten signature)*  
**Mr. M. PRASAD, M.Sc., M.B.A., M.Phil.**  
 Controller of Examinations  
 K.S. Rangasamy College of Arts & Science (Autonomous)  
 Tiruchengode - 637 215, Tamilnadu, India

**COURSE OBJECTIVES:**

The course aims

- To inculcate the knowledge about fertilizers
- To feed the chemistry behind manures
- To illustrate the types of pesticides and insecticides widely used
- To pronounce the classification and properties of soil
- To compute the classification, properties and parameters of soil

Credits: 2

Total Hours: 25

UNIT	CONTENTS	HOURS	CO
I	<b>Fertilizers:</b> Effect of Nitrogen, potassium and phosphorous on plant growth - commercial method of preparation of urea, triple superphosphate. Complex fertilizers and mixed fertilizers - their manufacture and composition. Secondary nutrients - micronutrients - their function in plants.	5	CO1
II	<b>Manures:</b> Bulky organic manures - Farm yard manure - handling and storage - oil cakes - blood meal - fish manures.	5	CO2
III	<b>Pesticides and Insecticides:</b> Pesticides - classification of Insecticides, fungicides, herbicides as organic and inorganic - general methods of application and toxicity. Safety measures when using pesticides. Insecticides: Plant products - Nicotine, pyrethrin - Inorganic pesticides - borates. Organic pesticides - D.D.T. and BHC.	5	CO3
IV	<b>Fungicides and Herbicides:</b> Fungicide - Sulphur compounds, Copper compounds, Bordeaux mixture. Herbicides - Acaricides - Rodenticides. Attractants - Repellants. Preservation of seeds.	5	CO4
V	<b>Soils:</b> Classification and properties of soils - soil water, soil temperature, soil minerals, soil acidity and soil testing.	5	CO5

**Text Books:**

1. Brady N.C. 1988. **The Nature and properties of soils**, Eruasia Publishing House (P) Ltd, New Delhi.
2. Jones. V.S. 2004. **Fertilizers and soil fertility**, Prentice Hall of India, New Delhi.

**PRINCIPAL**  
K. S. Rangasamy College of Arts & Science  
(Autonomous)  
TIRUCHENGODE - 637 215  
Namakkal-Dt. Tamil Nadu.



**Mr. M. PRASAD** M.Sc., M.B.A.,  
Controller of Examinations  
K.S. Rangasamy College of Arts & Science (Autonomous)  
Tiruchengode - 637 215, Tamil Nadu.



Reference Books:

1. Fracer D.E.H. 1992. Chemistry of Pesticides - D.Van Nostrand Co., New York.

**COURSE OUTCOMES (CO)**

After completion of the course, the students will be able to

CO1	Describe the preparation methodologies of various fertilizers
CO2	Assess the handling and storage of manures
CO3	Reproduce the general methods and applications of various pesticides
CO4	Ascertain the preservation techniques using fungicides and herbicides
CO5	Illustrate the classification and properties of soil

**Mapping:**

CO \ PSO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	H	L	M	M	H
CO2	M	H	L	M	L
CO3	L	M	H	H	M
CO4	M	L	H	H	M
CO5	H	L	M	L	H

H-High M-Medium L-Low



**PRINCIPAL**  
K. S. Rangasamy College of Arts & Science  
(Autonomous)  
TIRUCHENGODE - 637 215  
Namakkal-Dt. Tamil Nadu, INDIA



**Mr. M. PRASAD, M.Sc., M.A.,**  
Controller of Examinations  
K.S. Rangasamy College of Arts & Science (Autonomous)  
Tiruchengode - 637 215, Tamil Nadu, India.

1.1.3 DG

**K. S. Rangasamy College of Arts and Science (Autonomous),  
Tiruchengode – 637 215  
Department of Chemistry  
B.Sc Chemistry**

**Courses focus on Employability/ Entrepreneurship/ Skill Development**

**Courses focus on Employability**

- Elective I: Spectroscopy I
- Elective I: Spectroscopy II
- Core X: Analytical chemistry

**Courses focus on Entrepreneurship**


- Core II: Industrial Chemistry
- Core IV: Pharmaceutical chemistry
- NMEC I: Applied chemistry I
- NMEC II: Applied chemistry II



**Courses focus on Skill Development**


- SBC I: Food Chemistry
- SBC II: Textile Chemistry
- SBC III: Polymer Chemistry
- SBC IV : Agricultural Chemistry

**Encls:**

1. Copy of Scheme of Examination
2. Syllabus copy of courses highlighting the focus on Skill Development along with course outcomes
3. Mapping of courses to Skill Development

  
**HoD – Chemistry**


  
**PRINCIPAL**  
K. S. Rangasamy College of Arts & Science  
(Autonomous)  
**TIRUCHENGODE - 637 215**  
Namakkal-Dt. Tamil Nadu, INDIA  
  
**CONTROLLER OF EXAMINATIONS**

  
**CoE**  
**Mr. M. PRASAD, M.Sc., M.B.A.,**  
Controller of Examinations  
K.S. Rangasamy College of Arts & Science (Autonomous)  
Tiruchengode - 637 215, Tamilnadu, India.




## SCHEME OF EXAMINATION

Subject Code	Subject	Hours of Instruction	Exam Duration (Hours)	Maximum Marks			Credit Points
				CA	CE	Total	
<b>FIRST SEMESTER</b>							
<b>PART-I</b>							
18UTALA101 18UHILA101 18UFRLA101	Tamil I / Hindi I / French I	5	3	25	75	100	3
<b>PART-II</b>							
18UENLA101	Foundation English I	5	3	25	75	100	3
<b>PART-III</b>							
18UCHM101	Core I: General Chemistry I	5	3	25	75	100	4
18UCHM102	Core II: Industrial Chemistry	5	3	25	75	100	4
18UMACHA101	Allied I: Algebra and Differential Calculus	5	3	25	75	100	4
18UCHMP101	Core Practical I: Volumetric and Inorganic Preparations	3	3	40	60	100	3
<b>PART-IV</b>							
18UVE101	Value Education I: Yoga	2	3	25	75	100	2
<b>Total</b>		<b>30</b>				<b>700</b>	<b>23</b>

  
**PRINCIPAL**  
 K. S. Rangasamy College of Arts & Science,  
 (Autonomous)  
 TIRUCHENGODE - 637 215  
 Namakkal-Dt. Tamil Nadu, INDIA



  
**Mr. M. PRASAD, M.Sc., M.B.A., M.Phil.**  
 Controller of Examinations  
 K.S. Rangasamy College of Arts & Science (Autonomous)  
 Tiruchengode - 637 215, Tamil Nadu, India.

Subject Code	Subject	Hours of Instruction	Exam Duration (Hours)	Maximum Marks			Credit Points
				CA	CE	Total	
<b>SECOND SEMESTER</b>							
<b>PART I</b>							
18UTALA201 18UHILA201 18UFRLA201	Tamil II / Hindi II / French II	5	3	25	75	100	3
<b>PART II</b>							
18UENLA201	Foundation English II	5	3	25	75	100	3
<b>PART III</b>							
18UCHM201	Core III: General Chemistry II	5	3	25	75	100	4
18UCHM202	Core IV: Pharmaceutical Chemistry	5	3	25	75	100	4
18UMACHA201	Allied II : Integral Calculus and Vector Calculus	5	3	25	75	100	4
18UCHMP201	Core Practical II: Organic Qualitative Analysis	3	3	40	60	100	3
<b>PART IV</b>							
18UVE201	Value Education II: Environmental Studies	2	3	25	75	100	2
<b>Total</b>		<b>30</b>				<b>700</b>	<b>23</b>

*[Signature]*  
**PRINCIPAL**  
 K. S. Rangasamy College of Arts & Science  
 (Autonomous)  
 TIRUCHENGODE - 637 215  
 Namakkal-Dt. Tamil Nadu, INDIA

3

*M.P.*

**Mr. M. PRASAD, M.Sc., M.B.A.,**  
 Controller of Examinations  
 K.S. Rangasamy College of Arts & Science (Autonomous)  
 Tiruchengode - 637 215, Tamilnadu, India.





**THIRD SEMESTER**

**PART I**

18UTALA301	Tamil III /	5	3	25	75	100	3
18UHILA301	Hindi III /						
18UFRLA301	French III						

**PART II**

18UENLA301	Foundation English III	5	3	25	75	100	3
------------	------------------------	---	---	----	----	-----	---

**PART III**

18UCHM301	Core V: General Chemistry III	4	3	25	75	100	4
18UPHCHA301	Allied III: Physics I	3	3	25	75	100	2
18UCHMP301	Core Practical III: Inorganic Qualitative Analysis	3	3	40	60	100	3
18UPHCHAP301	Allied Practical I: Physics I	3	3	40	60	100	2

**PART IV**


18UCHSB301	SBC I: Food Chemistry	2	3	40	60	100	2
	NMEC I	2	3	25	75	100	2

**NON CREDIT**

18ULS301	Career Competency Skills I	1	-	-	-	-	-
	Add-on course	2	-	-	-	-	-
<b>Total</b>		<b>30</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>800</b>	<b>21</b>

  
**PRINCIPAL**  
 K. S. Rangasamy College of Arts & Science  
 (Autonomous)  
 TIRUCHENGODE - 637 215  
 Namakkal-Dt. Tamil Nadu. INDIA



  
**Mr. M. PRASAD, M.Sc., M.Phil.**  
 Controller of Examinations  
 K.S. Rangasamy College of Arts & Science (Autonomous)  
 Tiruchengode - 637/215, Tamilnadu, India.



**FOURTH SEMESTER**

**PART I**

18UTALA401 18UHILA401 18UFRLA401	Tamil IV / Hindi IV / French IV	5	3	25	75	100	3
--	---------------------------------------	---	---	----	----	-----	---

**PART II**

18UENLA401	Foundation English IV	5	3	25	75	100	3
------------	-----------------------	---	---	----	----	-----	---

**PART III**

18UCHM401	Core VI: General Chemistry IV	4	3	25	75	100	4
18UPHCHA401	Allied IV: Physics II	3	3	25	75	100	2
18UCHMP401	Core Practical IV: Physical Practical	3	3	40	60	100	3
18UPHCHAP401	Allied Practical II: Physics II	3	3	40	60	100	2

**PART IV**

18UCHSB401	SBC II: Textile Chemistry	2	3	25	75	100	2
	NMEC II	2	3	25	75	100	2

**NON CREDIT**

18ULS401	Career Competency Skills II	1	-	-	-	-	-
	Add-on Course	2	-	-	-	-	-
<b>Total</b>		<b>30</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>800</b>	<b>21</b>

**PRINCIPAL**  
K. S. Rangasamy College of Arts & Science  
(Autonomous)  
TIRUCHENGODE - 637 215  
Namakkal-Dt. Tamil Nadu, INDIA

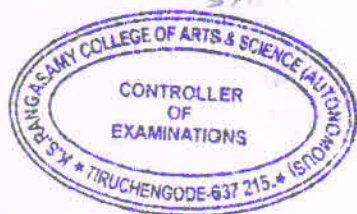



**Mr. M. PRASAD, M.Sc., M.A.,**  
Controller of Examinations  
K.S. Rangasamy College of Arts & Science (Autonomous)  
Tiruchengode - 637 215, Tamilnadu, India.



Subject Code	Subject	Hours of Instruction	Exam Duration (Hours)	Maximum Marks			Credit Points
				CA	CE	Total	
<b>FIFTH SEMESTER</b>							
<b>PART III</b>							
18UCHM501	Core VII: Inorganic Chemistry I	5	3	25	75	100	4
18UCHM502	Core VIII: Organic Chemistry I	5	3	25	75	100	5
18UCHM503	Core IX: Physical Chemistry I	4	3	25	75	100	4
18UCHM504	Core X: Analytical Chemistry	4	3	25	75	100	4
	Elective I	4	3	25	75	100	4
19UCHMP501	Core Practical IV: Gravimetric Estimation and Organic Preparation	5	6	25	75	100	3
<b>PART IV</b>							
18UCHSB501	SBC III: Polymer Chemistry	2	3	25	75	100	2
18UCHE501	Extension Activity	-	-	-	-	-	2
<b>NON CREDIT</b>							
18ULS501	Career Competency Skills III	1	-	-	-	-	-
<b>Total</b>		<b>30</b>				<b>700</b>	<b>28</b>

  
**PRINCIPAL**  
**K. S. Rangasamy College of Arts & Science**  
**(Autonomous)**  
**TIRUCHENGODE - 637 215**  
**Namakkal-Dt. Tamil Nadu, INDIA**



  
**Mr. M. PRASAD, M.Sc., M.B.A., M.Phil.**  
**Controller of Examinations**  
**K.S. Rangasamy College of Arts & Science (Autonomous)**  
**Tiruchengode - 637 215, Tamilnadu, India.**

Subject Code	Subject	Hours of Instruction	Exam Duration (Hours)	Maximum Marks			Credits Points
				CA	CE	Total	
<b>SIXTH SEMESTER</b>							
<b>PART III</b>							
18UCHM601	Core XI: Inorganic Chemistry II	6	3	25	75	100	5
18UCHM602	Core XII: Organic Chemistry II	6	3	25	75	100	5
18UCHM503	Core XIII: Physical Chemistry II	6	3	25	75	100	4
	Elective II	4	3	25	75	100	4
18UCHPR601	Project & Viva-Voce	5		25	75	100	4
<b>PART IV</b>							
18UCHSB601	SBC IV: Agricultural Chemistry	2	3	25	75	100	2
18ULS601	Career Competency Skills	1	-	-	-	-	-
<b>Total</b>		<b>30</b>				<b>600</b>	<b>24</b>

*(Handwritten signature)*  
**PRINCIPAL**  
 K. S. Rangasamy College of Arts & Science  
 (Autonomous)  
 TIRUCHENGODE - 637 215  
 Tamil Nadu, India



58



*(Handwritten signature)*  
**Mr. M. PRASAD, M.Sc., M.B.A., M.Phil.**  
 Controller of Examinations  
 K.S. Rangasamy College of Arts & Science (Autonomous)  
 Tiruchengode - 637 215, Tamilnadu, India



18UCHM504

## CORE X: ANALYTICAL CHEMISTRY

SEMESTER V

## COURSE OBJECTIVES:

The course aims

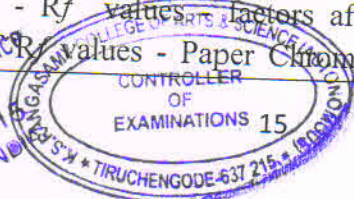
- To compute the basic principles in laboratory handling
- To discriminate the errors in experiments
- To illustrate the principles in gravimetric estimations
- To interpret the fundamentals in chromatographic techniques
- To examine the electroanalytical techniques

Credits: 4

Total Hours: 40

Unit	Content	Hours	CO
I	<b>The role of Analytical chemistry:</b> Quantitative analytical methods – Chemicals - apparatus - unit operation – selecting - handling reagents - other chemicals – cleaning - marking of laboratory ware - measuring mass and volume - calibrating volumetric glassware - Safety Measures; Handling reagents and solutions - Corrosive - Explosive – Toxic - Carcinogenic - inflammable chemicals - Disposal of wastes - waste chemicals - fumes.		CO1
II	<b>Importance of analytical methods in Qualitative and Quantitative analysis:</b> parts per million - parts per billion - Chemical and instrumental methods – advantages - limitations of chemical methods - instrumental methods - methods of analysis - steps in analysis. Errors and treatment of Analytical Chemistry – Errors - Determinant - indeterminate - Accuracy and precision. Distribution of random errors - Average derivation - standard derivation - variance limit - confidence limit - Significance figures - computation rules.		CO2
III	<b>Gravimetric methods of analysis:</b> Crucibles – types – care – uses - Principles of gravimetric analysis - characteristics of precipitating agents - choice of precipitants - conditions of precipitation - specific and conditions of precipitation - specific and selective precipitants - DMG - cupferron - salicylaldehyde - ethylenediamine - use of sequestering agents – coprecipitation - postprecipitation – peptisation – differences - Drying and ignition of precipitates - reduction of error - precipitation from homogeneous solutions - calculations in gravimetric methods - use of gravimetric factor - Application of Gravimetric methods.		CO3
IV	<b>Chromatographic methods:</b> Column Chromatography – principle - types of adsorbents - preparation of the column - applications – TLC - principle - choice of adsorbent and solvent - preparation of chromatoplates - $R_f$ values - factors affecting the $R_f$ values - Significance of $R_f$ values - Paper Chromatography – principle -		CO4

PRINCIPAL  
A. S. Rangasamy College of Arts & Science  
(Autonomous)  
TIRUCHENGODE - 637 215  
Kal-Dt. Tamil Nadu. INDIA



Mr. M. PRASAD, M.Sc., M.B.A., M.Phil.  
Controller of Examinations  
K.S. Rangasamy College of Arts & Science (Autonomous)  
Tiruchengode - 637 215, Tamil Nadu, India.

## COURSE OUTCOMES (CO)

After completion of the course, the students will be able to

CO1	Conclude the principles of laboratory handling techniques
CO2	Interpret the errors in the problems of chemical methods
CO3	Ascertain the analytical methods of gravimetry
CO4	Signify the principles and procedure of chromatographic methods
CO5	Recognize the electroanalytical techniques for qualitative and quantitative analysis

### Mapping:

CO \ PSO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	H	H	L	M	L
CO2	M	L	M	H	H
CO3	L	M	H	L	M
CO4	L	H	M	M	L
CO5	M	H	H	L	M

H-High M-Medium L-Low

**PRINCIPAL**  
K. S. Rangasamy College of Arts & Science  
(Autonomous)  
TIRUCHENGODE - 637 215  
Namakkal-Dt. Tamil Nadu, INDIA



**Mr. M. PRASAD**, M.Sc., M.Phil.,  
Controller of Examinations  
K.S. Rangasamy College of Arts & Science (Autonomous)  
Tiruchengode - 637 215 Tamil Nadu, India.




	solvents used - development of Chromatogram - Applications. Ion-exchange Chromatography - principle - applications.		
V	<b>Electro analytical method:</b> Polarography – principle - dropping mercury electrode (DME) – advantages – disadvantages – migration – residual - limiting - diffusion currents - use of supporting electrolyte - Ilkovic equation (Derivation not require) – significance - experimental assembly - current voltage curve - oxygen wave - influence of temperature on diffusion layer - Half wave potential ( $E_{1/2}$ ) - polarography as an analytical tool in quantitative and qualitative analysis.		CO5

Text books:


1. *Skoog, West, Holler and Crouch*. 2004. **Fundamentals of Analytical Chemistry**, [Eighth edition] Brooks/Cole Publishing, CA.
2. *Khopker S.M.* 1998. **Basic concepts of Analytical Chemistry**, [Second edition], New Age Int. Pvt. Ltd, New Delhi.
3. *Gopalan R, Rengarajan K and Subramanian P.S.* 2004. **Elements of Analytical Chemistry**, [Third Edition] Sultan Chand & Sons, New Delhi.

Reference books:

1. *De, A.K.* 1994. **Environmental Chemistry**, [Third edition], Wiley Eastern, New Delhi.
2. *Willard H. H., Merritt L.L. and Dean J.A.* 1968. **Instrumental Methods of Analysis**, [Sixth edition], CBS Publishers and Distributors, Shahdara, New Delhi.

  
**PRINCIPAL**  
**A. S. Rangasamy College of Arts & Science**  
**(Autonomous)**  
**TIRUCHENGODE - 637 215**  
**NamaKkal-Dt. Tamil Nadu, INDIA**



  
**Mr. M. PRASAD, M.Sc., M.Phil., M.A.**  
**Controller of Examinations**  
**K.S. Rangasamy College of Arts & Science (Autonomous)**  
**Tiruchengode - 637 215, Tamilnadu, India**

1.1.3 DG

**K. S. Rangasamy College of Arts and Science (Autonomous),  
Tiruchengode – 637 215  
Department of Chemistry  
B.Sc Chemistry**

**Courses focus on Employability/ Entrepreneurship/ Skill Development**

**Courses focus on Employability**

- Elective I: Spectroscopy I
- Elective I: Spectroscopy II
- Core X: Analytical chemistry

**Courses focus on Entrepreneurship**


- Core II: Industrial Chemistry
- Core IV: Pharmaceutical chemistry
- NMEC I: Applied chemistry I
- NMEC II: Applied chemistry II



**Courses focus on Skill Development**


- SBC I: Food Chemistry
- SBC II: Textile Chemistry
- SBC III: Polymer Chemistry
- SBC IV : Agricultural Chemistry

**Encls:**

1. Copy of Scheme of Examination
2. Syllabus copy of courses highlighting the focus on Skill Development along with course outcomes
3. Mapping of courses to Skill Development

  
HoD – Chemistry


  
PRINCIPAL  
K. S. Rangasamy College of Arts & Science  
(Autonomous)  
TIRUCHENGODE - 637 215  
Namakkal-Dt. Tamil Nadu, INDIA  
  
CONTROLLER  
OF  
EXAMINATIONS

  
CoE  
Mr. M. PRASAD, M.Sc., M.B.A.,  
Controller of Examinations  
K.S. Rangasamy College of Arts & Science (Autonomous)  
Tiruchengode - 637 215, Tamilnadu, India.




## SCHEME OF EXAMINATION

Subject Code	Subject	Hours of Instruction	Exam Duration (Hours)	Maximum Marks			Credit Points
				CA	CE	Total	
<b>FIRST SEMESTER</b>							
<b>PART-I</b>							
18UTALA101 18UHILA101 18UFRLA101	Tamil I / Hindi I / French I	5	3	25	75	100	3
<b>PART-II</b>							
18UENLA101	Foundation English I	5	3	25	75	100	3
<b>PART-III</b>							
18UCHM101	Core I: General Chemistry I	5	3	25	75	100	4
18UCHM102	Core II: Industrial Chemistry	5	3	25	75	100	4
18UMACHA101	Allied I: Algebra and Differential Calculus	5	3	25	75	100	4
18UCHMP101	Core Practical I: Volumetric and Inorganic Preparations	3	3	40	60	100	3
<b>PART-IV</b>							
18UVE101	Value Education I: Yoga	2	3	25	75	100	2
<b>Total</b>		<b>30</b>				<b>700</b>	<b>23</b>

  
**PRINCIPAL**  
 K. S. Rangasamy College of Arts & Science,  
 (Autonomous)  
 TIRUCHENGODE - 637 215  
 Namakkal-Dt. Tamil Nadu, INDIA



  
**Mr. M. PRASAD, M.Sc., M.B.A., M.Phil.**  
 Controller of Examinations  
 K.S. Rangasamy College of Arts & Science (Autonomous)  
 Tiruchengode - 637 215, Tamil Nadu, India.

Subject Code	Subject	Hours of Instruction	Exam Duration (Hours)	Maximum Marks			Credit Points
				CA	CE	Total	
<b>SECOND SEMESTER</b>							
<b>PART I</b>							
18UTALA201 18UHILA201 18UFRLA201	Tamil II / Hindi II / French II	5	3	25	75	100	3
<b>PART II</b>							
18UENLA201	Foundation English II	5	3	25	75	100	3
<b>PART III</b>							
18UCHM201	Core III: General Chemistry II	5	3	25	75	100	4
18UCHM202	Core IV: Pharmaceutical Chemistry	5	3	25	75	100	4
18UMACHA201	Allied II : Integral Calculus and Vector Calculus	5	3	25	75	100	4
18UCHMP201	Core Practical II: Organic Qualitative Analysis	3	3	40	60	100	3
<b>PART IV</b>							
18UVE201	Value Education II: Environmental Studies	2	3	25	75	100	2
<b>Total</b>		<b>30</b>				<b>700</b>	<b>23</b>

*[Signature]*  
**PRINCIPAL**  
 K. S. Rangasamy College of Arts & Science  
 (Autonomous)  
 TIRUCHENGODE - 637 215  
 Namakkal-Dt. Tamil Nadu, INDIA

3

*M.P.*

**Mr. M. PRASAD, M.Sc., M.B.A.,**  
 Controller of Examinations  
 K.S. Rangasamy College of Arts & Science (Autonomous)  
 Tiruchengode - 637 215, Tamilnadu, India.





### THIRD SEMESTER

#### PART I

18UTALA301	Tamil III /	5	3	25	75	100	3
18UHILA301	Hindi III /						
18UFRLA301	French III						

#### PART II

18UENLA301	Foundation English III	5	3	25	75	100	3
------------	------------------------	---	---	----	----	-----	---

#### PART III

18UCHM301	Core V: General Chemistry III	4	3	25	75	100	4
18UPHCHA301	Allied III: Physics I	3	3	25	75	100	2
18UCHMP301	Core Practical III: Inorganic Qualitative Analysis	3	3	40	60	100	3
18UPHCHAP301	Allied Practical I: Physics I	3	3	40	60	100	2

#### PART IV

18UCHSB301	SBC I: Food Chemistry	2	3	40	60	100	2
	NMEC I	2	3	25	75	100	2


#### NON CREDIT

18ULS301	Career Competency Skills I	1	-	-	-	-	-
	Add-on course	2	-	-	-	-	-
<b>Total</b>		<b>30</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>800</b>	<b>21</b>



**PRINCIPAL**  
K. S. Rangasamy College of Arts & Science  
(Autonomous)  
TIRUCHENGODE - 637 215  
Namakkal-Dt. Tamil Nadu. INDIA





**Mr. M. PRASAD, M.Sc., M.Ed.,**  
Controller of Examinations  
K.S. Rangasamy College of Arts & Science (Autonomous)  
Tiruchengode - 637/215, Tamilnadu, India.



**FOURTH SEMESTER**

**PART I**

18UTALA401	Tamil IV /	5	3	25	75	100	3
18UHILA401	Hindi IV /						
18UFRLA401	French IV						

**PART II**

18UENLA401	Foundation English IV	5	3	25	75	100	3
------------	-----------------------	---	---	----	----	-----	---

**PART III**


18UCHM401	Core VI: General Chemistry IV	4	3	25	75	100	4
18UPHCHA401	Allied IV: Physics II	3	3	25	75	100	2
18UCHMP401	Core Practical IV: Physical Practical	3	3	40	60	100	3
18UPHCHAP401	Allied Practical II: Physics II	3	3	40	60	100	2

**PART IV**


18UCHSB401	SBC II: Textile Chemistry	2	3	25	75	100	2
	NMEC II	2	3	25	75	100	2

**NON CREDIT**

18ULS401	Career Competency Skills II	1	-	-	-	-	-
	Add-on Course	2	-	-	-	-	-
<b>Total</b>		<b>30</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>800</b>	<b>21</b>


  
**PRINCIPAL**  
 K. S. Rangasamy College of Arts & Science  
 (Autonomous)  
 TIRUCHENGODE - 637 215  
 Namakkal-Dt. Tamil Nadu, INDIA

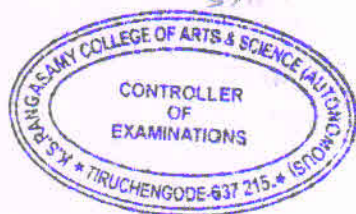



  
**Mr. M. PRASAD, M.Sc., M.A.,**  
 Controller of Examinations  
 K.S. Rangasamy College of Arts & Science (Autonomous)  
 Tiruchengode - 637 215, Tamilnadu, India.



Subject Code	Subject	Hours of Instruction	Exam Duration (Hours)	Maximum Marks			Credit Points
				CA	CE	Total	
<b>FIFTH SEMESTER</b>							
<b>PART III</b>							
18UCHM501	Core VII: Inorganic Chemistry I	5	3	25	75	100	4
18UCHM502	Core VIII: Organic Chemistry I	5	3	25	75	100	5
18UCHM503	Core IX: Physical Chemistry I	4	3	25	75	100	4
18UCHM504	Core X: Analytical Chemistry	4	3	25	75	100	4
	Elective I	4	3	25	75	100	4
19UCHMP501	Core Practical IV: Gravimetric Estimation and Organic Preparation	5	6	25	75	100	3
<b>PART IV</b>							
18UCHSB501	SBC III: Polymer Chemistry	2	3	25	75	100	2
18UCHE501	Extension Activity	-	-	-	-	-	2
<b>NON CREDIT</b>							
18ULS501	Career Competency Skills III	1	-	-	-	-	-
<b>Total</b>		<b>30</b>				<b>700</b>	<b>28</b>

  
**PRINCIPAL**  
**K. S. Rangasamy College of Arts & Science**  
**(Autonomous)**  
**TIRUCHENGODE - 637 215**  
**Namakkal-Dt. Tamil Nadu, INDIA**



  
**Mr. M. PRASAD, M.Sc., M.B.A., M.Phil.**  
**Controller of Examinations**  
**K.S. Rangasamy College of Arts & Science (Autonomous)**  
**Tiruchengode - 637 215, Tamilnadu, India.**

Subject Code	Subject	Hours of Instruction	Exam Duration (Hours)	Maximum Marks			Credits Points
				CA	CE	Total	
<b>SIXTH SEMESTER</b>							
<b>PART III</b>							
18UCHM601	Core XI: Inorganic Chemistry II	6	3	25	75	100	5
18UCHM602	Core XII: Organic Chemistry II	6	3	25	75	100	5
18UCHM503	Core XIII: Physical Chemistry II	6	3	25	75	100	4
	Elective II	4	3	25	75	100	4
18UCHPR601	Project & Viva-Voce	5		25	75	100	4
<b>PART IV</b>							
18UCHSB601	SBC IV: Agricultural Chemistry	2	3	25	75	100	2
18ULS601	Career Competency Skills	1	-	-	-	-	-
<b>Total</b>		<b>30</b>				<b>600</b>	<b>24</b>

*(Handwritten signature)*  
**PRINCIPAL**  
 K. S. Rangasamy College of Arts & Science  
 (Autonomous)  
 TIRUCHENGODE - 637 215  
 Tamil Nadu, India



58



*(Handwritten signature)*  
**Mr. M. PRASAD, M.Sc., M.B.A., M.Phil.**  
 Controller of Examinations  
 K.S. Rangasamy College of Arts & Science (Autonomous)  
 Tiruchengode - 637 215, Tamilnadu, India





B.Sc., Chemistry (Students admitted from 2018-19 onwards)

18UCHNM301	NMEC I: APPLIED CHEMISTRY I	SEMESTER - III	
<b>COURSE OBJECTIVES:</b> The course aims <ul style="list-style-type: none"><li>To provide a valuable theoretical introduction about the chemicals which are used in our daily life</li><li>To strengthen the background of the students and provide basic knowledge in chemical substances which deals with Food Chemistry, Detergents, Flavours, effect of smoking and polymers products used in our daily life</li><li>To provide the basic concepts of polymer manufacture and its impact on society</li></ul>			
Credits: 2		Total hours: 25	
UNIT	CONTENTS	Hrs	CO
I	<b>Food Chemistry:</b> Adulteration Definition - common adulterants in food - simple screening test for adulteration. Food additives - Introduction - types - function - Acidulants - Antimicrobial agent - Emulsifying - Texturing agent - Anti oxidant - Humectants - Colouring agent - Flavouring agent - Sweetener.	5	CO1
II	<b>Leather Chemistry :</b> Introduction - chief processes used in leather manufacture, structure of hide and skin, leather processing - process before tannage - tanning process - vegetable tanning and chrome tanning - tannery effluent treatment.	5	CO2
III	<b>Dairy Chemistry:</b> Milk - Definition, properties of milk, constituents of milk, chemical change taking place in milk while heating - boiling, pasteurization, sterilization and homogenization. Definition and composition of creams, butter, ghee and ice creams. Milk powder definition. Drying processes. Spray drying and drum drying.	5	CO3
IV	<b>Soil Chemistry:</b> Introduction - Classification - physical & chemical properties of soil - soil minerals - pH - acidity - salinity - alkalinity- soil fertility	5	CO4

PRINCIPAL  
K. S. Rangasamy College of Arts & Science  
(Autonomous)  
TIRUCHENGODE - 637 215  
Namakkal-Dt. Tamil Nadu.



Mr. M. PRASAD, M.Sc., M.B.A., M.Phil.,  
Controller of Examinations  
K.S. Rangasamy College of Arts & Science  
Tiruchengode - 637 215, Tamil Nadu.





*B.Sc. Chemistry (Students admitted from 2018-19 onwards)*

V	<b>Chemistry in daily life: Manufacture, composition - uses -</b> Safety matches - Agarbattis - Naphthalene balls - Wax - candles - Shoe polish - Gum paste - Writing/fountain pen ink - Chalk crayons.	5	CO5
---	--	---	-----

**Text books:**

1	<i>Jayashree Ghosh.</i> 2006. <b>Fundamental concepts of Applied chemistry</b> [First edition]. <i>S.Chand</i> and Company Ltd, New Delhi.
---	--

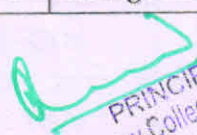
**Reference Books:**

1	<i>Belitz H. D. and Grosch W.</i> Peter Schieberle, 2009. <b>Food Chemistry</b> [Fourth edition], Springer.
2	<i>Damodaran S., Parkin K. L. and Fennema O. R.,</i> 2017. <b>Fennema's Food Chemistry</b> [Fifth edition], CRC Press.


**COURSE OUTCOMES (CO)**

After completion of the course, the students will be able to

CO1	Recognize the source of fibres, Natural Cellulose fibre, Natural protein fibres
CO2	Explain the impurities of raw material fabrics
CO3	Illustrate the textile finishing of fabrics and methods
CO4	Discuss the Fastness properties of dyed material
CO5	Recognize the chemical structure, properties, production, uses of fibres

  
PRINCIPAL  
K.S. Rangasamy College of Arts & Science  
(Autonomous)  
TIRUCHENGODE - 637 215  
Namakkal-Dt. Tamil Nadu, INDIA.



  
Mr. M. PRASAD, M.Sc., M.B.A. M  
Controller of Examinations  
K.S. Rangasamy College of Arts & Science (Autonomous)  
Tiruchengode - 637 215, Tamilnadu, India






**MAPPING:**

*B.Sc., Chemistry (Students admitted from 2018-19 onwards)*

PSO CO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	H	L	M	H	L
CO2	L	H	L	M	M
CO3	M	L	H	H	L
CO4	L	M	H	M	L
CO5	M	H	L	L	M

H-High M-Medium L-Low

  
**PRINCIPAL**  
K. S. Rangasamy College of Arts & Science  
(Autonomous)  
TIRUCHENGODE - 637 215  
Namakkal-Dt. Tamil Nadu. INDIA.

  
**Mr. M. PRASAD**, M.Sc., M.B.A., M.Phil.,  
Controller of Examinations  
K.S. Rangasamy College of Arts & Science (Autonomous)  
Tiruchengode - 637 215. Tamilnadu, India



1.1.3 DG

**K. S. Rangasamy College of Arts and Science (Autonomous),  
Tiruchengode – 637 215  
Department of Chemistry  
B.Sc Chemistry**

**Courses focus on Employability/ Entrepreneurship/ Skill Development**

**Courses focus on Employability**

- Elective I: Spectroscopy I
- Elective I: Spectroscopy II
- Core X: Analytical chemistry

**Courses focus on Entrepreneurship**


- Core II: Industrial Chemistry
- Core IV: Pharmaceutical chemistry
- NMEC I: Applied chemistry I
- NMEC II: Applied chemistry II



**Courses focus on Skill Development**


- SBC I: Food Chemistry
- SBC II: Textile Chemistry
- SBC III: Polymer Chemistry
- SBC IV : Agricultural Chemistry

**Encls:**

1. Copy of Scheme of Examination
2. Syllabus copy of courses highlighting the focus on Skill Development along with course outcomes
3. Mapping of courses to Skill Development

  
HoD – Chemistry


  
PRINCIPAL  
K. S. Rangasamy College of Arts & Science  
(Autonomous)  
TIRUCHENGODE - 637 215  
Namakkal-Dt. Tamil Nadu, INDIA  
  
CONTROLLER  
OF  
EXAMINATIONS

  
CoE  
Mr. M. PRASAD, M.Sc., M.B.A.,  
Controller of Examinations  
K.S. Rangasamy College of Arts & Science (Autonomous)  
Tiruchengode - 637 215, Tamilnadu, India.




## SCHEME OF EXAMINATION

Subject Code	Subject	Hours of Instruction	Exam Duration (Hours)	Maximum Marks			Credit Points
				CA	CE	Total	
<b>FIRST SEMESTER</b>							
<b>PART-I</b>							
18UTALA101 18UHILA101 18UFRLA101	Tamil I / Hindi I / French I	5	3	25	75	100	3
<b>PART-II</b>							
18UENLA101	Foundation English I	5	3	25	75	100	3
<b>PART-III</b>							
18UCHM101	Core I: General Chemistry I	5	3	25	75	100	4
18UCHM102	Core II: Industrial Chemistry	5	3	25	75	100	4
18UMACHA101	Allied I: Algebra and Differential Calculus	5	3	25	75	100	4
18UCHMP101	Core Practical I: Volumetric and Inorganic Preparations	3	3	40	60	100	3
<b>PART-IV</b>							
18UVE101	Value Education I: Yoga	2	3	25	75	100	2
<b>Total</b>		<b>30</b>				<b>700</b>	<b>23</b>

  
**PRINCIPAL**  
 K. S. Rangasamy College of Arts & Science,  
 (Autonomous)  
 TIRUCHENGODE - 637 215  
 Namakkal-Dt. Tamil Nadu, INDIA



  
**Mr. M. PRASAD, M.Sc., M.B.A., M.Phil.**  
 Controller of Examinations  
 K.S. Rangasamy College of Arts & Science (Autonomous)  
 Tiruchengode - 637 215, Tamil Nadu, India.

Subject Code	Subject	Hours of Instruction	Exam Duration (Hours)	Maximum Marks			Credit Points
				CA	CE	Total	
<b>SECOND SEMESTER</b>							
<b>PART I</b>							
18UTALA201 18UHILA201 18UFRLA201	Tamil II / Hindi II / French II	5	3	25	75	100	3
<b>PART II</b>							
18UENLA201	Foundation English II	5	3	25	75	100	3
<b>PART III</b>							
18UCHM201	Core III: General Chemistry II	5	3	25	75	100	4
18UCHM202	Core IV: Pharmaceutical Chemistry	5	3	25	75	100	4
18UMACHA201	Allied II : Integral Calculus and Vector Calculus	5	3	25	75	100	4
18UCHMP201	Core Practical II: Organic Qualitative Analysis	3	3	40	60	100	3
<b>PART IV</b>							
18UVE201	Value Education II: Environmental Studies	2	3	25	75	100	2
<b>Total</b>		<b>30</b>				<b>700</b>	<b>23</b>

*[Signature]*  
**PRINCIPAL**  
 K. S. Rangasamy College of Arts & Science  
 (Autonomous)  
 TIRUCHENGODE - 637 215  
 Namakkal-Dt. Tamil Nadu, INDIA

3

*M.P.*

**Mr. M. PRASAD, M.Sc., M.B.A.,**  
 Controller of Examinations  
 K.S. Rangasamy College of Arts & Science (Autonomous)  
 Tiruchengode - 637 215, Tamilnadu, India.





### THIRD SEMESTER

#### PART I

18UTALA301	Tamil III /	5	3	25	75	100	3
18UHILA301	Hindi III /						
18UFRLA301	French III						

#### PART II

18UENLA301	Foundation English III	5	3	25	75	100	3
------------	------------------------	---	---	----	----	-----	---

#### PART III

18UCHM301	Core V: General Chemistry III	4	3	25	75	100	4
18UPHCHA301	Allied III: Physics I	3	3	25	75	100	2
18UCHMP301	Core Practical III: Inorganic Qualitative Analysis	3	3	40	60	100	3
18UPHCHAP301	Allied Practical I: Physics I	3	3	40	60	100	2

#### PART IV

18UCHSB301	SBC I: Food Chemistry	2	3	40	60	100	2
	NMEC I	2	3	25	75	100	2


#### NON CREDIT

18ULS301	Career Competency Skills I	1	-	-	-	-	-
	Add-on course	2	-	-	-	-	-
<b>Total</b>		<b>30</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>800</b>	<b>21</b>



**PRINCIPAL**  
K. S. Rangasamy College of Arts & Science  
(Autonomous)  
TIRUCHENGODE - 637 215  
Namakkal-Dt. Tamil Nadu. INDIA





**Mr. M. PRASAD, M.Sc., M.Ed.,**  
Controller of Examinations  
K.S. Rangasamy College of Arts & Science (Autonomous)  
Tiruchengode - 637/215, Tamilnadu, India.

**FOURTH SEMESTER**

**PART I**

18UTALA401 18UHILA401 18UFRLA401	Tamil IV / Hindi IV / French IV	5	3	25	75	100	3
--	---------------------------------------	---	---	----	----	-----	---

**PART II**

18UENLA401	Foundation English IV	5	3	25	75	100	3
------------	-----------------------	---	---	----	----	-----	---

**PART III**

18UCHM401	Core VI: General Chemistry IV	4	3	25	75	100	4
18UPHCHA401	Allied IV: Physics II	3	3	25	75	100	2
18UCHMP401	Core Practical IV: Physical Practical	3	3	40	60	100	3
18UPHCHAP401	Allied Practical II: Physics II	3	3	40	60	100	2

**PART IV**

18UCHSB401	SBC II: Textile Chemistry	2	3	25	75	100	2
	NMEC II	2	3	25	75	100	2

**NON CREDIT**

18ULS401	Career Competency Skills II	1	-	-	-	-	-
	Add-on Course	2	-	-	-	-	-
<b>Total</b>		<b>30</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>800</b>	<b>21</b>

**PRINCIPAL**  
K. S. Rangasamy College of Arts & Science  
(Autonomous)  
TIRUCHENGODE - 637 215  
Namakkal-Dt. Tamil Nadu, INDIA

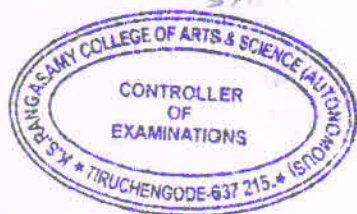



**Mr. M. PRASAD, M.Sc., M.A.,**  
Controller of Examinations  
K.S. Rangasamy College of Arts & Science (Autonomous)  
Tiruchengode - 637 215, Tamilnadu, India.



Subject Code	Subject	Hours of Instruction	Exam Duration (Hours)	Maximum Marks			Credit Points
				CA	CE	Total	
<b>FIFTH SEMESTER</b>							
<b>PART III</b>							
18UCHM501	Core VII: Inorganic Chemistry I	5	3	25	75	100	4
18UCHM502	Core VIII: Organic Chemistry I	5	3	25	75	100	5
18UCHM503	Core IX: Physical Chemistry I	4	3	25	75	100	4
18UCHM504	Core X: Analytical Chemistry	4	3	25	75	100	4
	Elective I	4	3	25	75	100	4
19UCHMP501	Core Practical IV: Gravimetric Estimation and Organic Preparation	5	6	25	75	100	3
<b>PART IV</b>							
18UCHSB501	SBC III: Polymer Chemistry	2	3	25	75	100	2
18UCHE501	Extension Activity	-	-	-	-	-	2
<b>NON CREDIT</b>							
18ULS501	Career Competency Skills III	1	-	-	-	-	-
<b>Total</b>		<b>30</b>				<b>700</b>	<b>28</b>

  
**PRINCIPAL**  
**K. S. Rangasamy College of Arts & Science**  
**(Autonomous)**  
**TIRUCHENGODE - 637 215**  
**Namakkal-Dt. Tamil Nadu, INDIA**



  
**Mr. M. PRASAD, M.Sc., M.B.A., M.Phil.**  
**Controller of Examinations**  
**K.S. Rangasamy College of Arts & Science (Autonomous)**  
**Tiruchengode - 637 215, Tamil Nadu, India.**

Subject Code	Subject	Hours of Instruction	Exam Duration (Hours)	Maximum Marks			Credits Points
				CA	CE	Total	
<b>SIXTH SEMESTER</b>							
<b>PART III</b>							
18UCHM601	Core XI: Inorganic Chemistry II	6	3	25	75	100	5
18UCHM602	Core XII: Organic Chemistry II	6	3	25	75	100	5
18UCHM503	Core XIII: Physical Chemistry II	6	3	25	75	100	4
	Elective II	4	3	25	75	100	4
18UCHPR601	Project & Viva-Voce	5		25	75	100	4
<b>PART IV</b>							
18UCHSB601	SBC IV: Agricultural Chemistry	2	3	25	75	100	2
18ULS601	Career Competency Skills	1	-	-	-	-	-
<b>Total</b>		<b>30</b>				<b>600</b>	<b>24</b>

*(Handwritten signature)*  
**PRINCIPAL**  
 K. S. Rangasamy College of Arts & Science  
 (Autonomous)  
 TIRUCHENGODE - 637 215  
 Tamil Nadu, India

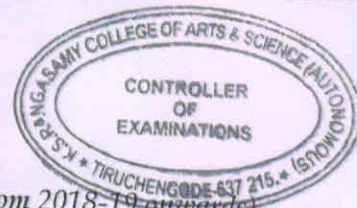


58



*(Handwritten signature)*  
**Mr. M. PRASAD, M.Sc., M.B.A., M.Phil.**  
 Controller of Examinations  
 K.S. Rangasamy College of Arts & Science (Autonomous)  
 Tiruchengode - 637 215, Tamilnadu, India





B.Sc., Chemistry (Students admitted from 2018-19 onwards)

18UCHNM401	NMEC II: APPLIED CHEMISTRY II	SEMESTER - IV
------------	-------------------------------	---------------

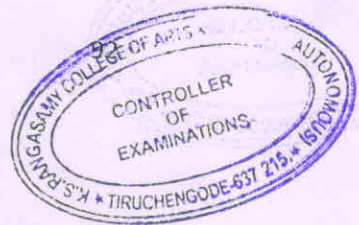
**COURSE OBJECTIVES:**  
 The course aims

- To provide a valuable theoretical introduction about the nanomaterials.
- To strengthen the background of the students and provide basic knowledge about water analysis, quality, agrochemicals, pesticides, lubricants and chemicals which are used in our daily life.
- To empathize the vitality of chemistry in daily life and its prime importance

Credits: 2 Total hours: 25

UNIT	CONTENTS	Hrs	CO
I	Nano-materials: Introduction to nano - materials - Graphite - fullerenes - carbon nanotubes - nanowires - Nano cones - Haeckelites - Their electronic & mechanical properties - Applications of nano-materials.	5	CO1
II	Water-Water quality parameters: Definition - expression - Estimation of hardness (EDTA method) - Alkalinity (Titrimetry) - Water softening (zeolite) - Demineralisation (Ion- exchangers) and desalination - Domestic water treatment.	5	CO2
III	Chemistry of agrochemicals: Insecticides - DDT - BHC -, Malathion - parathion. Herbicides - 2,4-dichloro phenoxy acetic acid - Fungicides - Boardeaux mixture - Copper oxychloride - Rodenticides - Sodium monofluoroacetate - Zinc phosphide - Plant growth Modifiers - Growth Regulators.	5	CO3
IV	Lubricants: Definitions - classification - Characteristic properties - Problems on acid value - saponification value - Theories of lubrication - Additives of lubricants - selection of lubricant - Flash point - Fire point.	5	CO4
V	Chemicals in daily life: Preparation - properties - uses of Soap, Detergent, Shampoo, Tooth paste - Whitener - Fragrance - Insecticide - Paint - Fertilizer.	5	CO5

PRINCIPAL  
 K. S. Rangasamy College of Arts & Science  
 (Autonomous)  
 TIRUCHENGODE - 637 215  
 Namakkal-Dt. Tamil Nadu. INDIA.



Mr. M PRASAD  
 Controller of Examinations  
 K.S. Rangasamy College of Arts & Science (Autonomous)  
 Tiruchengode - 637 215. Tamilnadu, India





**Text books:** *B.Sc., Chemistry (Students admitted from 2018-19 onwards)*

1	Jayashree Ghosh. 2006. <b>Fundamental concepts of Applied chemistry</b> , S.Chand and Company Ltd, New Delhi.
2	Roussak, O.V. and Gesser, H. D., 2013. <b>Applied Chemistry, a textbook for engineers and technologists</b> , [Second edition]. Springer.
3	Chautan, B. S., 2013. <b>Applied Chemistry</b> . Vayu Education of India.

**COURSE OUTCOMES (CO)**

After completion of the course, the students will be able to

CO1	Recognize the source of fibres, Natural Cellulose fibre, Natural protein fibres
CO2	Explain the impurities of raw material fabrics
CO3	Illustrate the textile finishing of fabrics and methods
CO4	Discuss the Fastness properties of dyed material
CO5	Recognize the chemical structure, properties, production, uses of fibres

**MAPPING:**

PSO \ CO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	H	L	M	H	L
CO2	L	H	M	H	M
CO3	M	L	H	H	M
CO4	L	M	L	M	H
CO5	M	H	M	L	M

H-High M-Medium L-Low

PRINCIPAL  
 K. S. Rangasamy College of Arts & Science  
 (Autonomous)  
 TIRUCHENGODE - 637 215  
 Namakkal-Dt. Tamil Nadu. INDIA.

Mr. M. PRASAD, M.Sc., M.B.A., M.Phil.,  
 Controller of Examinations  
 K.S. Rangasamy College of Arts & Science (Autonomous)  
 Tiruchengode - 637 215. Tamilnadu, India.





1.1.3 DG

**K. S. Rangasamy College of Arts and Science (Autonomous),  
Tiruchengode – 637 215  
Department of Chemistry  
B.Sc Chemistry**

**Courses focus on Employability/ Entrepreneurship/ Skill Development**

**Courses focus on Employability**

- Elective I: Spectroscopy I
- Elective I: Spectroscopy II
- Core X: Analytical chemistry

**Courses focus on Entrepreneurship**

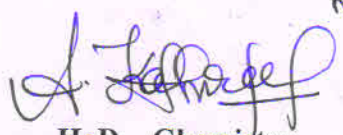
- Core II: Industrial Chemistry
- Core IV: Pharmaceutical chemistry
- NMEC I: Applied chemistry I
- NMEC II: Applied chemistry II


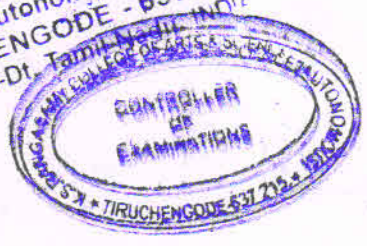
**Courses focus on Skill Development**


- SBC I: Food Chemistry
- SBC II: Textile Chemistry
- SBC III: Polymer Chemistry
- SBC IV : Agricultural Chemistry

**Encls:**

1. Copy of Scheme of Examination
2. Syllabus copy of courses highlighting the focus on Skill Development along with course outcomes
3. Mapping of courses to Skill Development


  
**HoD – Chemistry**

  
**PRINCIPAL  
K. S. Rangasamy College of Arts & Science  
(Autonomous)  
TIRUCHENGODE - 637 215  
Namakkal-Dt. Tamil Nadu, India**  



  
**CoE  
Mr. M. PRASAD, M.Sc., M.B.A.,  
Controller of Examinations  
K.S. Rangasamy College of Arts & Science (Autonomous)  
Tiruchengode - 637 215, Tamilnadu, India.**

## SCHEME OF EXAMINATION

Subject Code	Subject	Hours of Instruction	Exam Duration (Hours)	Maximum Marks			Credit Points
				CA	CE	Total	
<b>FIRST SEMESTER</b>							
<b>PART-I</b>							
18UTALA101 18UHILA101 18UFRLA101	Tamil I / Hindi I / French I	5	3	25	75	100	3
<b>PART-II</b>							
18UENLA101	Foundation English I	5	3	25	75	100	3
<b>PART-III</b>							
18UCHM101	Core I: General Chemistry I	5	3	25	75	100	4
18UCHM102	Core II: Industrial Chemistry	5	3	25	75	100	4
18UMACHA101	Allied I: Algebra and Differential Calculus	5	3	25	75	100	4
18UCHMP101	Core Practical I: Volumetric and Inorganic Preparations	3	3	40	60	100	3
<b>PART-IV</b>							
18UVE101	Value Education I: Yoga	2	3	25	75	100	2
<b>Total</b>		<b>30</b>				<b>700</b>	<b>23</b>

  
**PRINCIPAL**  
 K. S. Rangasamy College of Arts & Science,  
 (Autonomous)  
 TIRUCHENGODE - 637 215  
 Namakkal-Dt. Tamil Nadu, INDIA



  
**Mr. M. PRASAD, M.Sc., M.B.A., M.Phil.**  
 Controller of Examinations  
 K.S. Rangasamy College of Arts & Science (Autonomous)  
 Tiruchengode - 637 215, Tamil Nadu, India.



Subject Code	Subject	Hours of Instruction	Exam Duration (Hours)	Maximum Marks			Credit Points
				CA	CE	Total	
<b>SECOND SEMESTER</b>							
<b>PART I</b>							
18UTALA201 18UHILA201 18UFRLA201	Tamil II / Hindi II / French II	5	3	25	75	100	3
<b>PART II</b>							
18UENLA201	Foundation English II	5	3	25	75	100	3
<b>PART III</b>							
18UCHM201	Core III: General Chemistry II	5	3	25	75	100	4
18UCHM202	Core IV: Pharmaceutical Chemistry	5	3	25	75	100	4
18UMACHA201	Allied II : Integral Calculus and Vector Calculus	5	3	25	75	100	4
18UCHMP201	Core Practical II: Organic Qualitative Analysis	3	3	40	60	100	3
<b>PART IV</b>							
18UVE201	Value Education II: Environmental Studies	2	3	25	75	100	2
<b>Total</b>		<b>30</b>				<b>700</b>	<b>23</b>

*[Signature]*  
**PRINCIPAL**  
 K. S. Rangasamy College of Arts & Science  
 (Autonomous)  
 TIRUCHENGODE - 637 215  
 Namakkal-Dt. Tamil Nadu, INDIA

3

*M.P.*

**Mr. M. PRASAD, M.Sc., M.B.A.,**  
 Controller of Examinations  
 K.S. Rangasamy College of Arts & Science (Autonomous)  
 Tiruchengode - 637 215, Tamilnadu, India.



### THIRD SEMESTER

#### PART I

18UTALA301	Tamil III /	5	3	25	75	100	3
18UHILA301	Hindi III /						
18UFRLA301	French III						

#### PART II

18UENLA301	Foundation English III	5	3	25	75	100	3
------------	------------------------	---	---	----	----	-----	---

#### PART III

18UCHM301	Core V: General Chemistry III	4	3	25	75	100	4
18UPHCHA301	Allied III: Physics I	3	3	25	75	100	2
18UCHMP301	Core Practical III: Inorganic Qualitative Analysis	3	3	40	60	100	3
18UPHCHAP301	Allied Practical I: Physics I	3	3	40	60	100	2

#### PART IV

18UCHSB301	SBC I: Food Chemistry	2	3	40	60	100	2
	NMEC I	2	3	25	75	100	2

#### NON CREDIT

18ULS301	Career Competency Skills I	1	-	-	-	-	-
	Add-on course	2	-	-	-	-	-
<b>Total</b>		<b>30</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>800</b>	<b>21</b>

Principal

**PRINCIPAL**  
K. S. Rangasamy College of Arts & Science  
(Autonomous)  
TIRUCHENGODE - 637 215  
Namakkal-Dt. Tamil Nadu. INDIA



M.P.

**Mr. M. PRASAD, M.Sc., M.Ed.,**  
Controller of Examinations  
K.S. Rangasamy College of Arts & Science (Autonomous)  
Tiruchengode - 637/215, Tamilnadu, India.





**FOURTH SEMESTER**

**PART I**

18UTALA401	Tamil IV /	5	3	25	75	100	3
18UHILA401	Hindi IV /						
18UFRLA401	French IV						

**PART II**

18UENLA401	Foundation English IV	5	3	25	75	100	3
------------	-----------------------	---	---	----	----	-----	---

**PART III**


18UCHM401	Core VI: General Chemistry IV	4	3	25	75	100	4
18UPHCHA401	Allied IV: Physics II	3	3	25	75	100	2
18UCHMP401	Core Practical IV: Physical Practical	3	3	40	60	100	3
18UPHCHAP401	Allied Practical II: Physics II	3	3	40	60	100	2

**PART IV**


18UCHSB401	SBC II: Textile Chemistry	2	3	25	75	100	2
	NMEC II	2	3	25	75	100	2

**NON CREDIT**


18ULS401	Career Competency Skills II	1	-	-	-	-	-
	Add-on Course	2	-	-	-	-	-
<b>Total</b>		<b>30</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>800</b>	<b>21</b>

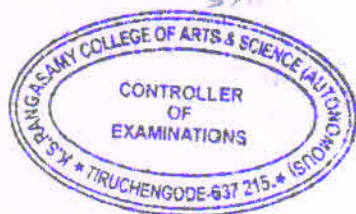
  
**PRINCIPAL**  
 K. S. Rangasamy College of Arts & Science  
 (Autonomous)  
 TIRUCHENGODE - 637 215  
 Namakkal-Dt. Tamil Nadu, INDIA




  
**Mr. M. PRASAD, M.Sc., M.A.,**  
 Controller of Examinations  
 K.S. Rangasamy College of Arts & Science (Autonomous)  
 Tiruchengode - 637 215, Tamilnadu, India.

Subject Code	Subject	Hours of Instruction	Exam Duration (Hours)	Maximum Marks			Credit Points
				CA	CE	Total	
<b>FIFTH SEMESTER</b>							
<b>PART III</b>							
18UCHM501	Core VII: Inorganic Chemistry I	5	3	25	75	100	4
18UCHM502	Core VIII: Organic Chemistry I	5	3	25	75	100	5
18UCHM503	Core IX: Physical Chemistry I	4	3	25	75	100	4
18UCHM504	Core X: Analytical Chemistry	4	3	25	75	100	4
	Elective I	4	3	25	75	100	4
19UCHMP501	Core Practical IV: Gravimetric Estimation and Organic Preparation	5	6	25	75	100	3
<b>PART IV</b>							
18UCHSB501	SBC III: Polymer Chemistry	2	3	25	75	100	2
18UCHE501	Extension Activity	-	-	-	-	-	2
<b>NON CREDIT</b>							
18ULS501	Career Competency Skills III	1	-	-	-	-	-
<b>Total</b>		<b>30</b>				<b>700</b>	<b>28</b>

  
 PRINCIPAL  
 K. S. Rangasamy College of Arts & Science  
 (Autonomous)  
 TIRUCHENGODE - 637 215  
 Namakkal-Dt. Tamil Nadu, INDIA



  
**Mr. M. PRASAD**, M.Sc., M.B.A., M.Phil.  
 Controller of Examinations  
 K.S. Rangasamy College of Arts & Science (Autonomous)  
 Tiruchengode - 637 215, Tamil Nadu, India.



Subject Code	Subject	Hours of Instruction	Exam Duration (Hours)	Maximum Marks			Credits Points
				CA	CE	Total	
<b>SIXTH SEMESTER</b>							
<b>PART III</b>							
18UCHM601	Core XI: Inorganic Chemistry II	6	3	25	75	100	5
18UCHM602	Core XII: Organic Chemistry II	6	3	25	75	100	5
18UCHM503	Core XIII: Physical Chemistry II	6	3	25	75	100	4
	Elective II	4	3	25	75	100	4
18UCHPR601	Project & Viva-Voce	5		25	75	100	4
<b>PART IV</b>							
18UCHSB601	SBC IV: Agricultural Chemistry	2	3	25	75	100	2
18ULS601	Career Competency Skills	1	-	-	-	-	-
<b>Total</b>		<b>30</b>				<b>600</b>	<b>24</b>

*(Handwritten signature)*  
**PRINCIPAL**  
 K. S. Rangasamy College of Arts & Science  
 (Autonomous)  
 TIRUCHENGODE - 637 215  
 Tamil Nadu, India




58




*(Handwritten signature)*  
**Mr. M. PRASAD, M.Sc., M.B.A., M.Phil.**  
 Controller of Examinations  
 K.S. Rangasamy College of Arts & Science (Autonomous)  
 Tiruchengode - 637 215, Tamilnadu, India

18UCHSB301	SBC I : FOOD CHEMISTRY	SEMESTER-III	
<b>COURSE OBJECTIVES:</b>			
The course aims			
<ul style="list-style-type: none"> <li>To empathize adulteration in food</li> <li>To cognize the chemistry of food poisoning</li> <li>To compile the principles of food additives</li> <li>To recognize the chemistry of beverages</li> <li>To provide basic knowledge about edible oils</li> </ul>			
Credits: 2		Total hours: 25	
UNIT	CONTENTS	Hrs	CO
I	<b>Food adulteration-</b> Sources of food, types, advantages and disadvantages. Food adulteration- Contamination of Wheat, Rice, Alial, Milk, Butter etc. with clay stones, water and toxic chemicals -Common adulterants-Ghee adulterants and their detection. Detection of adulterated food by simple analytic techniques.	5	CO1
II	<b>Food poison</b> - Food poisons- Natural poisons (alkaloids - nephrotoxing)- Pesticides. (DDT, BHC, Malathion)- Chemical poisons-First aid for poison consumed victims.	5	CO2
III	<b>Food additives-</b> Food additives-Artificial sweeteners- Saccharin - Cyclomate and aspartate. Food flavours- esters, aldehydes and heterocyclic compound. Food colours- Emulsifying agents- Preservatives learning agents-Baking powder yeast- taste makers- MSG-vinegar	5	CO3
IV	<b>Beverages-</b> Soft drinks - soda-fruit juices - alcoholic beverages - Carbonation - addiction to alcohol - Cirrhosis of liver and social problems	5	CO4

  
**PRINCIPAL**  
 K. S. Rangasamy College of Arts & Science  
 (Autonomous)  
**TIRUCHENGODE - 637 215**  
 Namakkal-Dt. Tamil Nadu, INDIA



  
**Mr. M. PRASAD, M.Sc., M.B.A.,**  
 Controller of Examinations  
 K.S. Rangasamy College of Arts & Science (Autonomous)  
 Tiruchengode - 637 215, Tamilnadu, India.




V	<b>Edible oils - Fats, Oils, - Sources of oils-Production of refined vegetable oils- preservation - Saturated and unsaturated fatty acids- Iodine value - Role of MUFA and PUFA in preventing heart diseases - Determination of iodine value and RM value, saponification values and their significance - Estimation of iodine and RM values in edible oils</b>	5	CO5
---	---	---	-----

**Text books:**


1	<i>Seema Yadav, 2006, Food Chemistry, Anmol publishing (P) Ltd, New Delhi</i>
2	<i>Car H. Synder, 1992, The Extraordinary Chemistry for ordinary things, John Wiley and Sons, New York</i>
3	<i>Jayashree Ghosh, 2008. Fundamental concepts of applied chemistry, S. Chand &amp; Co., New Delhi.</i>

**Reference books:**

1	<i>Sivasankar, B. 2005. Food Processing and Preservation. Prentice Hall of India (P) Ltd, New Delhi.</i>
2	<i>Hosahalli Ramaswamy and Michele Marcotte, 2009. Food Processing - Principles. CRC Press/Taylor &amp; Francis, New York</i>
3	<i>Garrow J. S and James W.P.T. 1993. Human Nutrition and Dietetics. [Ninth Edition]. Churchill Livingstone, Tokyo</i>
4	<i>Swaminathan M. 1985. The Essential of Food and Nutrition, Ganesh and Company, Bangalore</i>

  
**PRINCIPAL**  
**K. S. Rangasamy College of Arts & Science**  
**(Autonomous)**  
**TIRUCHENGODE - 637 215**  
**Namakkal-Dt. Tamil Nadu, INDIA**



  
**Mr. M. PRASAD, M.Sc., M.Phil.,**  
**Controller of Examinations**  
**K.S. Rangasamy College of Arts & Science (Autonomous)**  
**Tiruchengode - 637 215, Tamilnadu, India.**

### COURSE OUTCOMES (CO)


After completion of the course, the students will be able to

CO1	Revise the basic concepts of food adulteration
CO2	Analyse the chemistry of food poisoning
CO3	Predict the chemistry behind food additives
CO4	Recall the chemistry of beverages
CO5	Get the outline knowledge about the edible oils


### MAPPING:

CO \ PSO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	H	M	L	H	M
CO2	M	L	H	M	L
CO3	L	H	M	H	M
CO4	M	L	H	L	H
CO5	M	M	L	H	M

H-High M-Medium L-Low

  
PRINCIPAL  
K. S. Rangasamy College of Arts & Science  
(Autonomous)  
TIRUCHENGODE - 637 215  
Namakkal-Dt. Tamil Nadu, INDIA



  
Mr. M. PRASAD, M.Sc., M.Phil., ...  
Controller of Examinations  
K.S. Rangasamy College of Arts & Science (Autonomous)  
Tiruchengode - 637 215, Tamil Nadu, India.



1.1.3 DG

**K. S. Rangasamy College of Arts and Science (Autonomous),  
Tiruchengode – 637 215  
Department of Chemistry  
B.Sc Chemistry**

**Courses focus on Employability/ Entrepreneurship/ Skill Development**

**Courses focus on Employability**

- Elective I: Spectroscopy I
- Elective I: Spectroscopy II
- Core X: Analytical chemistry

**Courses focus on Entrepreneurship**

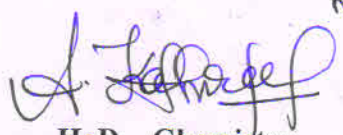
- Core II: Industrial Chemistry
- Core IV: Pharmaceutical chemistry
- NMEC I: Applied chemistry I
- NMEC II: Applied chemistry II


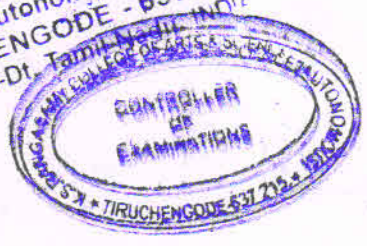
**Courses focus on Skill Development**


- SBC I: Food Chemistry
- SBC II: Textile Chemistry
- SBC III: Polymer Chemistry
- SBC IV : Agricultural Chemistry

**Encls:**

1. Copy of Scheme of Examination
2. Syllabus copy of courses highlighting the focus on Skill Development along with course outcomes
3. Mapping of courses to Skill Development


  
**HoD – Chemistry**

  
**PRINCIPAL  
K. S. Rangasamy College of Arts & Science  
(Autonomous)  
TIRUCHENGODE - 637 215  
Namakkal-Dt. Tamil Nadu, India**  



  
**CoE  
Mr. M. PRASAD, M.Sc., M.B.A.,  
Controller of Examinations  
K.S. Rangasamy College of Arts & Science (Autonomous)  
Tiruchengode - 637 215, Tamilnadu, India.**

## SCHEME OF EXAMINATION

Subject Code	Subject	Hours of Instruction	Exam Duration (Hours)	Maximum Marks			Credit Points
				CA	CE	Total	
<b>FIRST SEMESTER</b>							
<b>PART-I</b>							
18UTALA101 18UHILA101 18UFRLA101	Tamil I / Hindi I / French I	5	3	25	75	100	3
<b>PART-II</b>							
18UENLA101	Foundation English I	5	3	25	75	100	3
<b>PART-III</b>							
18UCHM101	Core I: General Chemistry I	5	3	25	75	100	4
18UCHM102	Core II: Industrial Chemistry	5	3	25	75	100	4
18UMACHA101	Allied I: Algebra and Differential Calculus	5	3	25	75	100	4
18UCHMP101	Core Practical I: Volumetric and Inorganic Preparations	3	3	40	60	100	3
<b>PART-IV</b>							
18UVE101	Value Education I: Yoga	2	3	25	75	100	2
<b>Total</b>		<b>30</b>				<b>700</b>	<b>23</b>

  
**PRINCIPAL**  
 K. S. Rangasamy College of Arts & Science,  
 (Autonomous)  
 TIRUCHENGODE - 637 215  
 Namakkal-Dt. Tamil Nadu, INDIA



  
**Mr. M. PRASAD, M.Sc., M.B.A., M.Phil.**  
 Controller of Examinations  
 K.S. Rangasamy College of Arts & Science (Autonomous)  
 Tiruchengode - 637 215, Tamil Nadu, India.



Subject Code	Subject	Hours of Instruction	Exam Duration (Hours)	Maximum Marks			Credit Points
				CA	CE	Total	
<b>SECOND SEMESTER</b>							
<b>PART I</b>							
18UTALA201 18UHILA201 18UFRLA201	Tamil II / Hindi II / French II	5	3	25	75	100	3
<b>PART II</b>							
18UENLA201	Foundation English II	5	3	25	75	100	3
<b>PART III</b>							
18UCHM201	Core III: General Chemistry II	5	3	25	75	100	4
18UCHM202	Core IV: Pharmaceutical Chemistry	5	3	25	75	100	4
18UMACHA201	Allied II : Integral Calculus and Vector Calculus	5	3	25	75	100	4
18UCHMP201	Core Practical II: Organic Qualitative Analysis	3	3	40	60	100	3
<b>PART IV</b>							
18UVE201	Value Education II: Environmental Studies	2	3	25	75	100	2
<b>Total</b>		<b>30</b>				<b>700</b>	<b>23</b>

*[Signature]*  
**PRINCIPAL**  
 K. S. Rangasamy College of Arts & Science  
 (Autonomous)  
 TIRUCHENGODE - 637 215  
 Namakkal-Dt. Tamil Nadu, INDIA

3

*M.P.*

**Mr. M. PRASAD, M.Sc., M.B.A.,**  
 Controller of Examinations  
 K.S. Rangasamy College of Arts & Science (Autonomous)  
 Tiruchengode - 637 215, Tamilnadu, India.



### THIRD SEMESTER

#### PART I

18UTALA301	Tamil III /	5	3	25	75	100	3
18UHILA301	Hindi III /						
18UFRLA301	French III						

#### PART II

18UENLA301	Foundation English III	5	3	25	75	100	3
------------	------------------------	---	---	----	----	-----	---

#### PART III

18UCHM301	Core V: General Chemistry III	4	3	25	75	100	4
18UPHCHA301	Allied III: Physics I	3	3	25	75	100	2
18UCHMP301	Core Practical III: Inorganic Qualitative Analysis	3	3	40	60	100	3
18UPHCHAP301	Allied Practical I: Physics I	3	3	40	60	100	2

#### PART IV

18UCHSB301	SBC I: Food Chemistry	2	3	40	60	100	2
	NMEC I	2	3	25	75	100	2


#### NON CREDIT

18ULS301	Career Competency Skills I	1	-	-	-	-	-
	Add-on course	2	-	-	-	-	-
<b>Total</b>		<b>30</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>800</b>	<b>21</b>



**PRINCIPAL**  
K. S. Rangasamy College of Arts & Science  
(Autonomous)  
TIRUCHENGODE - 637 215  
Namakkal-Dt. Tamil Nadu. INDIA





**Mr. M. PRASAD, M.Sc., M.Ed.,**  
Controller of Examinations  
K.S. Rangasamy College of Arts & Science (Autonomous)  
Tiruchengode - 637/215, Tamilnadu, India.





**FOURTH SEMESTER**

**PART I**

18UTALA401	Tamil IV /	5	3	25	75	100	3
18UHILA401	Hindi IV /						
18UFRLA401	French IV						

**PART II**

18UENLA401	Foundation English IV	5	3	25	75	100	3
------------	-----------------------	---	---	----	----	-----	---

**PART III**


18UCHM401	Core VI: General Chemistry IV	4	3	25	75	100	4
18UPHCHA401	Allied IV: Physics II	3	3	25	75	100	2
18UCHMP401	Core Practical IV: Physical Practical	3	3	40	60	100	3
18UPHCHAP401	Allied Practical II: Physics II	3	3	40	60	100	2

**PART IV**


18UCHSB401	SBC II: Textile Chemistry	2	3	25	75	100	2
	NMEC II	2	3	25	75	100	2

**NON CREDIT**

18ULS401	Career Competency Skills II	1	-	-	-	-	-
	Add-on Course	2	-	-	-	-	-
<b>Total</b>		<b>30</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>800</b>	<b>21</b>

  
**PRINCIPAL**  
 K. S. Rangasamy College of Arts & Science  
 (Autonomous)  
 TIRUCHENGODE - 637 215  
 Namakkal-Dt. Tamil Nadu, INDIA



  
**Mr. M. PRASAD, M.Sc., M.A.,**  
 Controller of Examinations  
 K.S. Rangasamy College of Arts & Science (Autonomous)  
 Tiruchengode - 637 215, Tamilnadu, India.

Subject Code	Subject	Hours of Instruction	Exam Duration (Hours)	Maximum Marks			Credit Points
				CA	CE	Total	
<b>FIFTH SEMESTER</b>							
<b>PART III</b>							
18UCHM501	Core VII: Inorganic Chemistry I	5	3	25	75	100	4
18UCHM502	Core VIII: Organic Chemistry I	5	3	25	75	100	5
18UCHM503	Core IX: Physical Chemistry I	4	3	25	75	100	4
18UCHM504	Core X: Analytical Chemistry	4	3	25	75	100	4
	Elective I	4	3	25	75	100	4
19UCHMP501	Core Practical IV: Gravimetric Estimation and Organic Preparation	5	6	25	75	100	3
<b>PART IV</b>							
18UCHSB501	SBC III: Polymer Chemistry	2	3	25	75	100	2
18UCHE501	Extension Activity	-	-	-	-	-	2
<b>NON CREDIT</b>							
18ULS501	Career Competency Skills III	1	-	-	-	-	-
<b>Total</b>		<b>30</b>				<b>700</b>	<b>28</b>

PRINCIPAL  
K. S. Rangasamy College of Arts & Science  
(Autonomous)  
TIRUCHENGODE - 637 215  
Namakkal-Dt. Tamil Nadu, INDIA



Mr. M. PRASAD, M.Sc., M.B.A., M.Phil.  
Controller of Examinations  
K.S. Rangasamy College of Arts & Science (Autonomous)  
Tiruchengode - 637 215, Tamilnadu, India.



Subject Code	Subject	Hours of Instruction	Exam Duration (Hours)	Maximum Marks			Credits Points
				CA	CE	Total	
<b>SIXTH SEMESTER</b>							
<b>PART III</b>							
18UCHM601	Core XI: Inorganic Chemistry II	6	3	25	75	100	5
18UCHM602	Core XII: Organic Chemistry II	6	3	25	75	100	5
18UCHM503	Core XIII: Physical Chemistry II	6	3	25	75	100	4
	Elective II	4	3	25	75	100	4
18UCHPR601	Project & Viva-Voce	5		25	75	100	4
<b>PART IV</b>							
18UCHSB601	SBC IV: Agricultural Chemistry	2	3	25	75	100	2
18ULS601	Career Competency Skills	1	-	-	-	-	-
<b>Total</b>		<b>30</b>				<b>600</b>	<b>24</b>

*(Handwritten signature)*  
**PRINCIPAL**  
 K. S. Rangasamy College of Arts & Science  
 (Autonomous)  
 TIRUCHENGODE - 637 215  
 Tamil Nadu, India



58

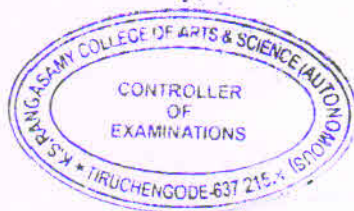


*(Handwritten signature)*  
**Mr. M. PRASAD, M.Sc., M.B.A., M.Phil.**  
 Controller of Examinations  
 K.S. Rangasamy College of Arts & Science (Autonomous)  
 Tiruchengode - 637 215, Tamilnadu, India

18UCHM102	CORE II: INDUSTRIAL CHEMISTRY	SEMESTER-I	
<b>COURSE OBJECTIVES:</b>			
The course aims			
<input type="checkbox"/> To empathize the chemistry of cements <input type="checkbox"/> To cognize the chemistry involved in paints <input type="checkbox"/> To compile the principles involved in the manufacture of glass and paper <input type="checkbox"/> To recognize the chemistry of corrosion <input type="checkbox"/> To provide basic knowledge on electrochemistry			
<b>Credits: 4</b>		<b>Total hours: 50</b>	
UNIT	CONTENTS	Hrs	CO
I	<b>Cement:</b> Classification of cement. Chemical constitution–hardening of cement - Manufacture of Portland cement - Special cements and their uses. Preparation of gypsum and its role in setting of cement – Preparation and properties of plaster of Paris.	10	CO1
II	<b>Paint sand Varnishes:</b> Primary Constituents of Paints, Dispersion medium (Solvent), binder pigments, Formulation of paints and varnishes. Requirements of good paints functions – drying process - varnishes and lacquers. Surface preparation for metallic coatings – electroplating (gold) and electroless plating (Nickel) – anodizing coating – phosphate coating – powder coating – antifouling coating.	10	CO2
III	<b>Glass:</b> Physical & chemical properties of glass. Raw materials – characteristics & types of glass – manufacture of glass – Special glass – Optical glass – borosilicate, flint and coloured glasses. <b>Papers:</b> Different methods of wood	10	CO3



PRINCIPAL  
 K. S. Rangasamy College of Arts & Science  
 (Autonomous)  
 TIRUCHENGODE - 637 215  
 Namakkal-Dt. Tamil Nadu, INDIA



*M.P.*  
 Mr. M. PRASAD, M.Sc., M.B.A.,  
 Controller of Examinations  
 K.S. Rangasamy College of Arts & Science (Autonomous)  
 Tiruchengode - 637 215, Tamilnadu, India



	pulping – Manufacture – Cases of different qualities of Paper products like cardboard, newsprint, writing paper, tissue paper & filter paper.		
IV	<b>Corrosion:</b> Principles of chemical corrosion – Pilling Bedworth rule – Principles of electrochemical corrosion – Difference between chemical and electrochemical corrosion – Galvanic corrosion. Differential aeration corrosion. Factors influencing corrosion. Corrosion control – cathodic protection – sacrificial anodic method – corrosion inhibitors - Protective coatings.	10	CO4
V	<b>Batteries:</b> Primary and secondary batteries – Alkaline batteries – lead acid batteries, Ni – Cd and Li batteries – Principles and applications of solar cells – <b>Fuels cells:</b> Hydrogen- Oxygen fuel cell - Hydrocarbon-oxygen fuel cell – Mechanism of Charging and Discharging fuel cells – Galvanic cell – Reversible and Irreversible.	10	CO5

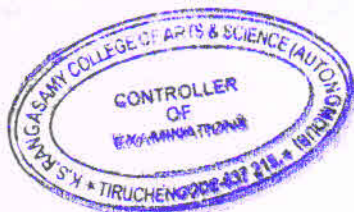
**Text books:**

1	<i>Chakrabarty B. N.</i> 1981. <b>Industrial Chemistry.</b> Oxford & IBH Publishing Co., New Delhi.
2	<i>Sharma B. K.</i> 2001. <b>Industrial Chemistry.</b> Reprinted Edition. Geol Publishing House, Meerut.

**Reference book:**

1	<i>Singh P. P., Joseph T. M. and Dhavale R. G.</i> 2000. <b>College Industrial Chemistry.</b> [Fourth Edition]. Himalaya Publishing House, Bombay.
---	--

PRINCIPAL  
K.S. Rangasamy College of Arts & Science  
(Autonomous)  
TIRUCHENGODE - 637 215  
Namakkal-Dt, Tamil Nadu, INDIA



Mr. M. PRASAD, M.Sc., M.B.A., M.Phil.  
Controller of Examinations  
K.S. Rangasamy College of Arts & Science (Autonomous)  
Tiruchengode - 637 215, Tamil Nadu, India.

### COURSE OUTCOMES (CO)

After completion of the course, the students will be able to

CO1	Revise the basic concepts of chemistry of cements
CO2	Analyse the properties of paints
CO3	Predict the chemistry behind the glass and papers
CO4	Utilize the techniques to prevent corrosion
CO5	Get the outline knowledge about the basics of electrochemistry

### MAPPING:

PSO \ CO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	H	M	L	L	M
CO2	M	L	H	M	M
CO3	H	H	L	H	L
CO4	L	L	H	M	H
CO5	M	L	M	H	L

H-High M-Medium L-Low



PRINCIPAL  
K. S. Rangasamy College of Arts & Science  
(Autonomous)  
TIRUCHENGODE - 637 215  
Namakkal-Dt. Tamil Nadu, INDIA



*M. Prasad*  
Mr. M. PRASAD, M.Sc., M.B.A.,  
Controller of Examinations  
K.S. Rangasamy College of Arts & Science (Autonomous)  
Tiruchengode - 637 215, Tamilnadu, India.





1.1.3 DG

**K. S. Rangasamy College of Arts and Science (Autonomous),  
Tiruchengode – 637 215  
Department of Chemistry  
B.Sc Chemistry**

**Courses focus on Employability/ Entrepreneurship/ Skill Development**

**Courses focus on Employability**

- Elective I: Spectroscopy I
- Elective I: Spectroscopy II
- Core X: Analytical chemistry

**Courses focus on Entrepreneurship**


- Core II: Industrial Chemistry
- Core IV: Pharmaceutical chemistry
- NMEC I: Applied chemistry I
- NMEC II: Applied chemistry II



**Courses focus on Skill Development**


- SBC I: Food Chemistry
- SBC II: Textile Chemistry
- SBC III: Polymer Chemistry
- SBC IV : Agricultural Chemistry

**Encls:**

1. Copy of Scheme of Examination
2. Syllabus copy of courses highlighting the focus on Skill Development along with course outcomes
3. Mapping of courses to Skill Development


  
**HoD – Chemistry**

  
**PRINCIPAL  
K. S. Rangasamy College of Arts & Science  
(Autonomous)  
TIRUCHENGODE - 637 215  
Namakkal-Dt. Tamil Nadu, India**  
  
**CONTROLLER  
OF  
EXAMINATIONS**


  
**CoE  
Mr. M. PRASAD, M.Sc., M.B.A.,  
Controller of Examinations  
K.S. Rangasamy College of Arts & Science (Autonomous)  
Tiruchengode - 637 215, Tamilnadu, India.**

## SCHEME OF EXAMINATION

Subject Code	Subject	Hours of Instruction	Exam Duration (Hours)	Maximum Marks			Credit Points
				CA	CE	Total	
<b>FIRST SEMESTER</b>							
<b>PART-I</b>							
18UTALA101 18UHILA101 18UFRLA101	Tamil I / Hindi I / French I	5	3	25	75	100	3
<b>PART-II</b>							
18UENLA101	Foundation English I	5	3	25	75	100	3
<b>PART-III</b>							
18UCHM101	Core I: General Chemistry I	5	3	25	75	100	4
18UCHM102	Core II: Industrial Chemistry	5	3	25	75	100	4
18UMACHA101	Allied I: Algebra and Differential Calculus	5	3	25	75	100	4
18UCHMP101	Core Practical I: Volumetric and Inorganic Preparations	3	3	40	60	100	3
<b>PART-IV</b>							
18UVE101	Value Education I: Yoga	2	3	25	75	100	2
<b>Total</b>		<b>30</b>				<b>700</b>	<b>23</b>

  
**PRINCIPAL**  
 K. S. Rangasamy College of Arts & Science,  
 (Autonomous)  
 TIRUCHENGODE - 637 215  
 Namakkal-Dt. Tamil Nadu, INDIA



  
**Mr. M. PRASAD, M.Sc., M.B.A., M.Phil.**  
 Controller of Examinations  
 K.S. Rangasamy College of Arts & Science (Autonomous)  
 Tiruchengode - 637 215, Tamil Nadu, India.



Subject Code	Subject	Hours of Instruction	Exam Duration (Hours)	Maximum Marks			Credit Points
				CA	CE	Total	
<b>SECOND SEMESTER</b>							
<b>PART I</b>							
18UTALA201 18UHILA201 18UFRLA201	Tamil II / Hindi II / French II	5	3	25	75	100	3
<b>PART II</b>							
18UENLA201	Foundation English II	5	3	25	75	100	3
<b>PART III</b>							
18UCHM201	Core III: General Chemistry II	5	3	25	75	100	4
18UCHM202	Core IV: Pharmaceutical Chemistry	5	3	25	75	100	4
18UMACHA201	Allied II : Integral Calculus and Vector Calculus	5	3	25	75	100	4
18UCHMP201	Core Practical II: Organic Qualitative Analysis	3	3	40	60	100	3
<b>PART IV</b>							
18UVE201	Value Education II: Environmental Studies	2	3	25	75	100	2
<b>Total</b>		<b>30</b>				<b>700</b>	<b>23</b>

*[Signature]*  
**PRINCIPAL**  
 K. S. Rangasamy College of Arts & Science  
 (Autonomous)  
 TIRUCHENGODE - 637 215  
 Namakkal-Dt. Tamil Nadu, INDIA

3

*M.P.*

**Mr. M. PRASAD, M.Sc., M.B.A.,**  
 Controller of Examinations  
 K.S. Rangasamy College of Arts & Science (Autonomous)  
 Tiruchengode - 637 215, Tamilnadu, India.



### THIRD SEMESTER

#### PART I

18UTALA301	Tamil III /	5	3	25	75	100	3
18UHILA301	Hindi III /						
18UFRLA301	French III						

#### PART II

18UENLA301	Foundation English III	5	3	25	75	100	3
------------	------------------------	---	---	----	----	-----	---

#### PART III

18UCHM301	Core V: General Chemistry III	4	3	25	75	100	4
18UPHCHA301	Allied III: Physics I	3	3	25	75	100	2
18UCHMP301	Core Practical III: Inorganic Qualitative Analysis	3	3	40	60	100	3
18UPHCHAP301	Allied Practical I: Physics I	3	3	40	60	100	2

#### PART IV

18UCHSB301	SBC I: Food Chemistry	2	3	40	60	100	2
	NMEC I	2	3	25	75	100	2


#### NON CREDIT

18ULS301	Career Competency Skills I	1	-	-	-	-	-
	Add-on course	2	-	-	-	-	-
<b>Total</b>		<b>30</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>800</b>	<b>21</b>



**PRINCIPAL**  
K. S. Rangasamy College of Arts & Science  
(Autonomous)  
TIRUCHENGODE - 637 215  
Namakkal-Dt. Tamil Nadu. INDIA





**Mr. M. PRASAD, M.Sc., M.Ed.,**  
Controller of Examinations  
K.S. Rangasamy College of Arts & Science (Autonomous)  
Tiruchengode - 637/215, Tamilnadu, India.





**FOURTH SEMESTER**

**PART I**

18UTALA401 18UHILA401 18UFRLA401	Tamil IV / Hindi IV / French IV	5	3	25	75	100	3
--	---------------------------------------	---	---	----	----	-----	---

**PART II**

18UENLA401	Foundation English IV	5	3	25	75	100	3
------------	-----------------------	---	---	----	----	-----	---

**PART III**


18UCHM401	Core VI: General Chemistry IV	4	3	25	75	100	4
18UPHCHA401	Allied IV: Physics II	3	3	25	75	100	2
18UCHMP401	Core Practical IV: Physical Practical	3	3	40	60	100	3
18UPHCHAP401	Allied Practical II: Physics II	3	3	40	60	100	2

**PART IV**


18UCHSB401	SBC II: Textile Chemistry	2	3	25	75	100	2
	NMEC II	2	3	25	75	100	2

**NON CREDIT**


18ULS401	Career Competency Skills II	1	-	-	-	-	-
	Add-on Course	2	-	-	-	-	-
<b>Total</b>		<b>30</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>800</b>	<b>21</b>

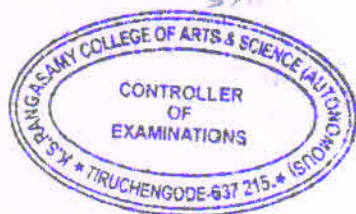
  
**PRINCIPAL**  
 K. S. Rangasamy College of Arts & Science  
 (Autonomous)  
 TIRUCHENGODE - 637 215  
 Namakkal-Dt. Tamil Nadu, INDIA




  
**Mr. M. PRASAD, M.Sc., M.A.,**  
 Controller of Examinations  
 K.S. Rangasamy College of Arts & Science (Autonomous)  
 Tiruchengode - 637 215, Tamilnadu, India.

Subject Code	Subject	Hours of Instruction	Exam Duration (Hours)	Maximum Marks			Credit Points
				CA	CE	Total	
<b>FIFTH SEMESTER</b>							
<b>PART III</b>							
18UCHM501	Core VII: Inorganic Chemistry I	5	3	25	75	100	4
18UCHM502	Core VIII: Organic Chemistry I	5	3	25	75	100	5
18UCHM503	Core IX: Physical Chemistry I	4	3	25	75	100	4
18UCHM504	Core X: Analytical Chemistry	4	3	25	75	100	4
	Elective I	4	3	25	75	100	4
19UCHMP501	Core Practical IV: Gravimetric Estimation and Organic Preparation	5	6	25	75	100	3
<b>PART IV</b>							
18UCHSB501	SBC III: Polymer Chemistry	2	3	25	75	100	2
18UCHE501	Extension Activity	-	-	-	-	-	2
<b>NON CREDIT</b>							
18ULS501	Career Competency Skills III	1	-	-	-	-	-
<b>Total</b>		<b>30</b>				<b>700</b>	<b>28</b>

  
 PRINCIPAL  
 K. S. Rangasamy College of Arts & Science  
 (Autonomous)  
 TIRUCHENGODE - 637 215  
 Namakkal-Dt. Tamil Nadu, INDIA



  
**Mr. M. PRASAD**, M.Sc., M.B.A., M.Phil.  
 Controller of Examinations  
 K.S. Rangasamy College of Arts & Science (Autonomous)  
 Tiruchengode - 637 215, Tamil Nadu, India.



Subject Code	Subject	Hours of Instruction	Exam Duration (Hours)	Maximum Marks			Credits Points
				CA	CE	Total	
<b>SIXTH SEMESTER</b>							
<b>PART III</b>							
18UCHM601	Core XI: Inorganic Chemistry II	6	3	25	75	100	5
18UCHM602	Core XII: Organic Chemistry II	6	3	25	75	100	5
18UCHM503	Core XIII: Physical Chemistry II	6	3	25	75	100	4
	Elective II	4	3	25	75	100	4
18UCHPR601	Project & Viva-Voce	5		25	75	100	4
<b>PART IV</b>							
18UCHSB601	SBC IV: Agricultural Chemistry	2	3	25	75	100	2
18ULS601	Career Competency Skills	1	-	-	-	-	-
<b>Total</b>		<b>30</b>				<b>600</b>	<b>24</b>

*(Handwritten signature)*  
**PRINCIPAL**  
 K. S. Rangasamy College of Arts & Science  
 (Autonomous)  
 TIRUCHENGODE - 637 215  
 Tamil Nadu, India




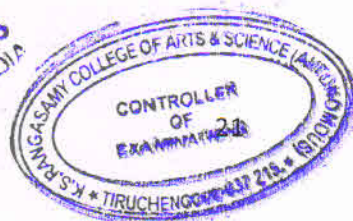
58




*(Handwritten signature)*  
**Mr. M. PRASAD, M.Sc., M.B.A., M.Phil.**  
 Controller of Examinations  
 K.S. Rangasamy College of Arts & Science (Autonomous)  
 Tiruchengode - 637 215, Tamilnadu, India

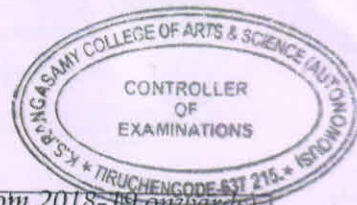
18UCHM202	CORE IV: PHARMACEUTICAL CHEMISTRY	SEMESTER-II	
<b>COURSE OBJECTIVES:</b>			
The course aims			
<input type="checkbox"/> To effectively impart knowledge about various diseases and their treatment <input type="checkbox"/> To convey about the importance of Indian medicinal plants <input type="checkbox"/> To impel the information about the different types of drugs <input type="checkbox"/> To provide knowledge of chemistry behind the drugs <input type="checkbox"/> To recognize the chemistry of anaesthetics			
<b>Credits: 4</b>		<b>Total hours: 50</b>	
UNIT	CONTENTS	Hrs	CO
I	<b>Definition of the following terms:</b> drug, pharmacophore, pharmacology, pharmacopoeia, bacteria, virus, chemotherapy and vaccine. Causes, symptoms and drug for jaundice, cholera, malaria and filarial - antidotes for poisoning. Routes of drug administration - local, enema, oral or external, parental advantages and disadvantages- Oral and parental routes- inhalation, intradermal, subcutaneous, intramuscular, intravenous - intrathecal – intraarticular transcutaneous - transmuscular.	10	CO1
II	<b>Indian medicinal plants:</b> Tulasi, Neem, Kizhanelli, Mango, Semparuthi, Adadodai and Thoothavelai- uses. Causes, detection and control of anaemia and diabetics. Diagnostic test for sugar, salt and cholesterol in serum and urine. <b>Antibacterial Drugs:</b> Sulpha drugs - examples and actions – prontosil sulphathiazole, sulphafurazole	10	CO2
III	<b>Antibiotics</b> - Definition and action of penicillin, streptomycin, chloramphenicol - SAR of chloramphenicol only - Antiseptics and disinfectants - definition and	10	CO3
	distinction- Phenolic compounds, chloro compounds and cationic surfactant. <b>Sulphonamides:</b> Definition-mechanism of action- classification - SAR synthesis and use of sulphacetamide, sulphathiazole, phthalylsulphathiazole - sulphadiazine and sulpha pyridine - assay		

  
 PRINCIPAL  
 K. S. Rangasamy College of Arts & Science  
 (Autonomous)  
 TIRUCHENGODE - 637 215  
 Namakkal-Dt. Tamil Nadu, INDIA



  
 Mr. M. PRASAD, M.Sc., M.B.A., M.L.A.  
 Controller of Examinations  
 K.S. Rangasamy College of Arts & Science (Autonomous)  
 Tiruchengode - 637 215, Tamil Nadu, India.





*B.Sc. Chemistry (Students admitted from 2018-19 onwards)*


IV	<b>Analgesics, Antipyretics and anti-inflammatory agents.</b> Definition and actions - narcotic and non-narcotic - Morphine and its derivatives, pethidine and methadone - Salicylic derivative, paracetamol, ibuprofen - disadvantages and uses. Causes and treatment of cancer. AIDS - cause of HIV - Propagation - prevention and treatment	10	CO4
V	<b>Anaesthetics:</b> Definition - local and general-Volatile nitrous oxide, ether, Chloroform, cyclopropane-trichloroethylene - uses and disadvantages- Drugs affecting CNS - Definition, distinction and examples for tranquilizers, sedatives, hypnotics, psychedelic drugs - LSD Hashish- their effects.	10	CO5

**Text Books:**


1	Ghosh J. and Chand. S. 2012. <b>A Text book of pharmaceutical Chemistry.</b> [Third Edition]. S. Chand and Company Ltd., Ram Nagar, New Delhi.
2	Lakshmi S. 1998. <b>A textbook of Pharmaceutical Chemistry.</b> [First edition]. Sulthan Chand sons, New Delhi.

**Reference Books:**

1	Bentleys, E. A. Raubins. 2010, <b>Text book of pharmaceutics.</b> [Eighth Edition]. All India
2	Kar A. 2018. <b>Medicinal Chemistry.</b> [Seventh Edition]. New Age International, Wiley-Eastern Ltd., Delhi

  
PRINCIPAL  
K. S. Rangasamy College of Arts & Science  
(Autonomous)  
TIRUCHENGODE - 637 215  
Namakkal-Dt. Tamil Nadu. INDIA.



  
Mr. M. PRASAD, B.Sc., M.B.A., M.Phil.,  
Controller of Examinations  
K.S. Rangasamy College of Arts & Science (Autonomous)  
Tiruchengode - 637 215. Tamilnadu, India.





B.Sc., Chemistry (Students admitted from 2018-19 onwards)

### COURSE OUTCOMES (CO)

After completion of the course, the students will be able to

CO1	Assess the basic concepts about drugs
CO2	Recognize the chemistry behind medicinal plants and anti-bacterial drugs
CO3	Formulate the usage of antibiotics and sulphonamides
CO4	Analyse analgesics, antipyretics drug and its usage
CO5	Predict the basic idea of anaesthetic drugs


### MAPPING:

PSO \ CO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	H	H	L	H	L
CO2	H	M	M	L	H
CO3	M	L	H	M	M
CO4	L	M	H	L	M
CO5	H	H	M	M	H

H-High M-Medium L-Low

  
PRINCIPAL  
K. S. Rangasamy College of Arts & Science  
(Autonomous)  
TIRUCHENGODE - 637 215  
Namakkal-Dt. Tamil Nadu. INDIA.



  
Mr. M. PRASAD  
Controller of Examinations  
K.S. Rangasamy College of Arts & Science (Autonomous)  
Tiruchengode - 637 215. Tamilnadu, India.



1.1.3 DG

**K. S. Rangasamy College of Arts and Science (Autonomous),  
Tiruchengode – 637 215  
Department of Chemistry  
B.Sc Chemistry**

**Courses focus on Employability/ Entrepreneurship/ Skill Development**

**Courses focus on Employability**

- Elective I: Spectroscopy I
- Elective I: Spectroscopy II
- Core X: Analytical chemistry

**Courses focus on Entrepreneurship**


- Core II: Industrial Chemistry
- Core IV: Pharmaceutical chemistry
- NMEC I: Applied chemistry I
- NMEC II: Applied chemistry II



**Courses focus on Skill Development**


- SBC I: Food Chemistry
- SBC II: Textile Chemistry
- SBC III: Polymer Chemistry
- SBC IV : Agricultural Chemistry

**Encls:**

1. Copy of Scheme of Examination
2. Syllabus copy of courses highlighting the focus on Skill Development along with course outcomes
3. Mapping of courses to Skill Development


  
**HoD – Chemistry**

  
**PRINCIPAL**  
K. S. Rangasamy College of Arts & Science  
(Autonomous)  
**TIRUCHENGODE - 637 215**  
Namakkal-Dt. Tamil Nadu, India  
  
**CONTROLLER OF EXAMINATIONS**


  
**CoE**  
**Mr. M. PRASAD, M.Sc., M.B.A.,**  
Controller of Examinations  
K.S. Rangasamy College of Arts & Science (Autonomous)  
Tiruchengode - 637 215, Tamilnadu, India.

## SCHEME OF EXAMINATION

Subject Code	Subject	Hours of Instruction	Exam Duration (Hours)	Maximum Marks			Credit Points
				CA	CE	Total	
<b>FIRST SEMESTER</b>							
<b>PART-I</b>							
18UTALA101 18UHILA101 18UFRLA101	Tamil I / Hindi I / French I	5	3	25	75	100	3
<b>PART-II</b>							
18UENLA101	Foundation English I	5	3	25	75	100	3
<b>PART-III</b>							
18UCHM101	Core I: General Chemistry I	5	3	25	75	100	4
18UCHM102	Core II: Industrial Chemistry	5	3	25	75	100	4
18UMACHA101	Allied I: Algebra and Differential Calculus	5	3	25	75	100	4
18UCHMP101	Core Practical I: Volumetric and Inorganic Preparations	3	3	40	60	100	3
<b>PART-IV</b>							
18UVE101	Value Education I: Yoga	2	3	25	75	100	2
<b>Total</b>		<b>30</b>				<b>700</b>	<b>23</b>

  
**PRINCIPAL**  
 K. S. Rangasamy College of Arts & Science,  
 (Autonomous)  
 TIRUCHENGODE - 637 215  
 Namakkal-Dt. Tamil Nadu, INDIA



  
**Mr. M. PRASAD, M.Sc., M.B.A., M.Phil.**  
 Controller of Examinations  
 K.S. Rangasamy College of Arts & Science (Autonomous)  
 Tiruchengode - 637 215, Tamil Nadu, India.



Subject Code	Subject	Hours of Instruction	Exam Duration (Hours)	Maximum Marks			Credit Points
				CA	CE	Total	
<b>SECOND SEMESTER</b>							
<b>PART I</b>							
18UTALA201 18UHILA201 18UFRLA201	Tamil II / Hindi II / French II	5	3	25	75	100	3
<b>PART II</b>							
18UENLA201	Foundation English II	5	3	25	75	100	3
<b>PART III</b>							
18UCHM201	Core III: General Chemistry II	5	3	25	75	100	4
18UCHM202	Core IV: Pharmaceutical Chemistry	5	3	25	75	100	4
18UMACHA201	Allied II : Integral Calculus and Vector Calculus	5	3	25	75	100	4
18UCHMP201	Core Practical II: Organic Qualitative Analysis	3	3	40	60	100	3
<b>PART IV</b>							
18UVE201	Value Education II: Environmental Studies	2	3	25	75	100	2
<b>Total</b>		<b>30</b>				<b>700</b>	<b>23</b>

*[Signature]*  
**PRINCIPAL**  
 K. S. Rangasamy College of Arts & Science  
 (Autonomous)  
 TIRUCHENGODE - 637 215  
 Namakkal-Dt. Tamil Nadu, INDIA

3

*M.P.*

**Mr. M. PRASAD, M.Sc., M.B.A.,**  
 Controller of Examinations  
 K.S. Rangasamy College of Arts & Science (Autonomous)  
 Tiruchengode - 637 215, Tamilnadu, India.



### THIRD SEMESTER

#### PART I

18UTALA301	Tamil III /	5	3	25	75	100	3
18UHILA301	Hindi III /						
18UFRLA301	French III						

#### PART II

18UENLA301	Foundation English III	5	3	25	75	100	3
------------	------------------------	---	---	----	----	-----	---

#### PART III

18UCHM301	Core V: General Chemistry III	4	3	25	75	100	4
18UPHCHA301	Allied III: Physics I	3	3	25	75	100	2
18UCHMP301	Core Practical III: Inorganic Qualitative Analysis	3	3	40	60	100	3
18UPHCHAP301	Allied Practical I: Physics I	3	3	40	60	100	2

#### PART IV

18UCHSB301	SBC I: Food Chemistry	2	3	40	60	100	2
	NMEC I	2	3	25	75	100	2


#### NON CREDIT

18ULS301	Career Competency Skills I	1	-	-	-	-	-
	Add-on course	2	-	-	-	-	-
<b>Total</b>		<b>30</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>800</b>	<b>21</b>



**PRINCIPAL**  
K. S. Rangasamy College of Arts & Science  
(Autonomous)  
TIRUCHENGODE - 637 215  
Namakkal-Dt. Tamil Nadu. INDIA





**Mr. M. PRASAD, M.Sc., M.Ed.,**  
Controller of Examinations  
K.S. Rangasamy College of Arts & Science (Autonomous)  
Tiruchengode - 637/215, Tamilnadu, India.





**FOURTH SEMESTER**

**PART I**

18UTALA401 18UHILA401 18UFRLA401	Tamil IV / Hindi IV / French IV	5	3	25	75	100	3
--	---------------------------------------	---	---	----	----	-----	---

**PART II**

18UENLA401	Foundation English IV	5	3	25	75	100	3
------------	-----------------------	---	---	----	----	-----	---

**PART III**

18UCHM401	Core VI: General Chemistry IV	4	3	25	75	100	4
18UPHCHA401	Allied IV: Physics II	3	3	25	75	100	2
18UCHMP401	Core Practical IV: Physical Practical	3	3	40	60	100	3
18UPHCHAP401	Allied Practical II: Physics II	3	3	40	60	100	2

**PART IV**

18UCHSB401	SBC II: Textile Chemistry	2	3	25	75	100	2
	NMEC II	2	3	25	75	100	2

**NON CREDIT**

18ULS401	Career Competency Skills II	1	-	-	-	-	-
	Add-on Course	2	-	-	-	-	-
<b>Total</b>		<b>30</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>800</b>	<b>21</b>

**PRINCIPAL**  
K. S. Rangasamy College of Arts & Science  
(Autonomous)  
TIRUCHENGODE - 637 215  
Namakkal-Dt. Tamil Nadu, INDIA



**Mr. M. PRASAD, M.Sc., M.A.,**  
Controller of Examinations  
K.S. Rangasamy College of Arts & Science (Autonomous)  
Tiruchengode - 637 215, Tamilnadu, India.

Subject Code	Subject	Hours of Instruction	Exam Duration (Hours)	Maximum Marks			Credit Points
				CA	CE	Total	
<b>FIFTH SEMESTER</b>							
<b>PART III</b>							
18UCHM501	Core VII: Inorganic Chemistry I	5	3	25	75	100	4
18UCHM502	Core VIII: Organic Chemistry I	5	3	25	75	100	5
18UCHM503	Core IX: Physical Chemistry I	4	3	25	75	100	4
18UCHM504	Core X: Analytical Chemistry	4	3	25	75	100	4
	Elective I	4	3	25	75	100	4
19UCHMP501	Core Practical IV: Gravimetric Estimation and Organic Preparation	5	6	25	75	100	3
<b>PART IV</b>							
18UCHSB501	SBC III: Polymer Chemistry	2	3	25	75	100	2
18UCHE501	Extension Activity	-	-	-	-	-	2
<b>NON CREDIT</b>							
18ULS501	Career Competency Skills III	1	-	-	-	-	-
<b>Total</b>		<b>30</b>				<b>700</b>	<b>28</b>

PRINCIPAL  
K. S. Rangasamy College of Arts & Science  
(Autonomous)  
TIRUCHENGODE - 637 215  
Namakkal-Dt. Tamil Nadu, INDIA



Mr. M. PRASAD, M.Sc., M.B.A., M.Phil.  
Controller of Examinations  
K.S. Rangasamy College of Arts & Science (Autonomous)  
Tiruchengode - 637 215, Tamilnadu, India.



Subject Code	Subject	Hours of Instruction	Exam Duration (Hours)	Maximum Marks			Credits Points
				CA	CE	Total	
<b>SIXTH SEMESTER</b>							
<b>PART III</b>							
18UCHM601	Core XI: Inorganic Chemistry II	6	3	25	75	100	5
18UCHM602	Core XII: Organic Chemistry II	6	3	25	75	100	5
18UCHM503	Core XIII: Physical Chemistry II	6	3	25	75	100	4
	Elective II	4	3	25	75	100	4
18UCHPR601	Project & Viva-Voce	5		25	75	100	4
<b>PART IV</b>							
18UCHSB601	SBC IV: Agricultural Chemistry	2	3	25	75	100	2
18ULS601	Career Competency Skills	1	-	-	-	-	-
<b>Total</b>		<b>30</b>				<b>600</b>	<b>24</b>

*(Handwritten signature)*  
**PRINCIPAL**  
 K. S. Rangasamy College of Arts & Science  
 (Autonomous)  
 TIRUCHENGODE - 637 215  
 Tamil Nadu, India



58




*(Handwritten signature)*  
**Mr. M. PRASAD, M.Sc., M.B.A., M.Phil.**  
 Controller of Examinations  
 K.S. Rangasamy College of Arts & Science (Autonomous)  
 Tiruchengode - 637 215, Tamilnadu, India

18UCHSB501	SBC III: POLYMER CHEMISTRY	SEMESTER V	
<b>COURSE OBJECTIVES:</b> The course aims <ul style="list-style-type: none"> <li>• To restate the basics of polymers and its properties</li> <li>• To illustrate the reactions of polymers</li> <li>• To predict the molecular weight of polymers by various methods</li> <li>• To infer the usage of commercial polymers and in the field of biology</li> </ul>			
Credits: 2		Total Hours: 25	
UNIT	CONTENTS	HOURS	CO
I	<b>Polymers:</b> Basic Concept - classification of polymers on the basis of source, utility and effect of temperature - distinction among plastics (thermosetting and thermoplastic), elastomers, and fibers, Homo and hetero polymers, copolymers, properties of polymer.	5	CO1
II	<b>Molecular Weight of polymer:</b> Number average - weight average - sedimentation and viscosity - average molecular weights - Molecular weights and degree of polymerization. Reactions - Hydrolysis - Hydrogenation - addition - substitution, cross linking - vulcanization and cyclisation.	5	CO2
III	<b>Polymerization techniques:</b> Bulk, solution, suspension & emulsion polymerization - melt polycondensation. Polymer processing - Calendaring, die casting, rotational casting.	5	CO3
IV	<b>Chemistry of commercial polymers:</b> General methods of preparation - properties and uses of the following - Teflon, polyethylene, polystyrene, polymethylacrylate, poly amides, polycarbonates and PVC.	5	CO4
V	<b>Advances in polymers:</b> Bio-Polymers, biomaterials, polymers in medical field, High temperature and fire resistant polymers - Silicones - Rubber - Grease.	5	CO5

  
**PRINCIPAL**  
 K. S. Rangasamy College of Arts & Science  
 (Autonomous)  
 TIRUCHENGODE - 637 215  
 Namakkal-Dt. Tamil Nadu. INDIA



  
**Mr. M. PRASAD, M.Sc., M.D.A.,**  
 Controller of Examinations  
 K.S. Rangasamy College of Arts & Science (Autonomous)  
 Tiruchengode - 637 215, Tamilnadu, India.



Text Books:

1. *Gowariker V. R., Viswanathan N. V. and Jayadev Sreedhar.* 1986. **Polymer Science**, Halsted Press (John Wiley & Sons), New York.


Reference Books:

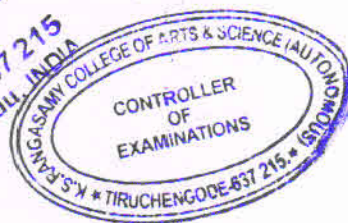
1. *Sharma.B.K.* 1989. **Polymer Chemistry**, Goel Publishing House, Meerut.
2. *Arora M.G. and Vadar M.S.* 1989. **Polymer Chemistry**, Anmol Publications Private Ltd, New Delhi.
3. *Stevens M.P.*1990. **Polymer Chemistry: An introduction**, Oxford University Press, New York.


### COURSE OUTCOMES (CO)

After completion of the course, the students will be able to

CO1	Revise the fundamentals of polymers and its properties
CO2	Evaluate the molecular weight of polymers by various methods
CO3	Paraphrase the various polymerization techniques
CO4	Compile the synthesizing techniques involved in preparation
CO5	Compute the role of polymers in biology

  
**PRINCIPAL**  
K. S. Rangasamy College of Arts & Science  
(Autonomous)  
TIRUCHENGODE - 637 215  
Namakkal-Dt. Tamil Nadu, INDIA



  
**Mr. M. PRASAD**, M.Sc., M.B.A., ...  
Controller of Examinations  
K.S. Rangasamy College of Arts & Science (Autonomous)  
Tiruchengode - 637 215, Tamilnadu, India.

**MAPPING:**

CO \ PSO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	H	L	M	M	H
CO2	M	H	L	M	L
CO3	L	M	H	H	M
CO4	M	L	H	H	M
CO5	H	L	M	L	H

H-High M-Medium L-Low



**PRINCIPAL**  
K. S. Rangasamy College of Arts & Science  
(Autonomous)  
TIRUCHENGODE - 637 215  
Namakkal-Dt, Tamil Nadu, INDIA



*M. Prasad*  
**Mr. M. PRASAD, M.Sc., M.Phil.,**  
Controller of Examinations  
K.S. Rangasamy College of Arts & Science (Autonomous)  
Tiruchengode - 637 215, Tamilnadu, India.



1.1.3 DG

**K. S. Rangasamy College of Arts and Science (Autonomous),  
Tiruchengode – 637 215  
Department of Chemistry  
B.Sc Chemistry**

**Courses focus on Employability/ Entrepreneurship/ Skill Development**

**Courses focus on Employability**

- Elective I: Spectroscopy I
- Elective I: Spectroscopy II
- Core X: Analytical chemistry

**Courses focus on Entrepreneurship**

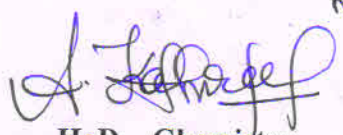
- Core II: Industrial Chemistry
- Core IV: Pharmaceutical chemistry
- NMEC I: Applied chemistry I
- NMEC II: Applied chemistry II


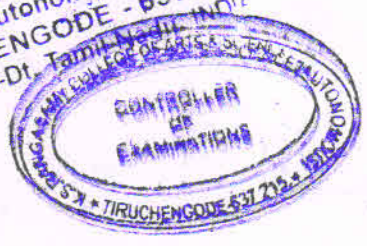
**Courses focus on Skill Development**


- SBC I: Food Chemistry
- SBC II: Textile Chemistry
- SBC III: Polymer Chemistry
- SBC IV : Agricultural Chemistry

**Encls:**

1. Copy of Scheme of Examination
2. Syllabus copy of courses highlighting the focus on Skill Development along with course outcomes
3. Mapping of courses to Skill Development


  
**HoD – Chemistry**

  
**PRINCIPAL**  
K. S. Rangasamy College of Arts & Science  
(Autonomous)  
**TIRUCHENGODE - 637 215**  
Namakkal-Dt. Tamil Nadu, India  
  
**CONTROLLER OF EXAMINATIONS**


  
**CoE**  
**Mr. M. PRASAD, M.Sc., M.B.A.,**  
Controller of Examinations  
K.S. Rangasamy College of Arts & Science (Autonomous)  
Tiruchengode - 637 215, Tamilnadu, India.

## SCHEME OF EXAMINATION

Subject Code	Subject	Hours of Instruction	Exam Duration (Hours)	Maximum Marks			Credit Points
				CA	CE	Total	
<b>FIRST SEMESTER</b>							
<b>PART-I</b>							
18UTALA101 18UHILA101 18UFRLA101	Tamil I / Hindi I / French I	5	3	25	75	100	3
<b>PART-II</b>							
18UENLA101	Foundation English I	5	3	25	75	100	3
<b>PART-III</b>							
18UCHM101	Core I: General Chemistry I	5	3	25	75	100	4
18UCHM102	Core II: Industrial Chemistry	5	3	25	75	100	4
18UMACHA101	Allied I: Algebra and Differential Calculus	5	3	25	75	100	4
18UCHMP101	Core Practical I: Volumetric and Inorganic Preparations	3	3	40	60	100	3
<b>PART-IV</b>							
18UVE101	Value Education I: Yoga	2	3	25	75	100	2
<b>Total</b>		<b>30</b>				<b>700</b>	<b>23</b>

  
**PRINCIPAL**  
 K. S. Rangasamy College of Arts & Science,  
 (Autonomous)  
 TIRUCHENGODE - 637 215  
 Namakkal-Dt. Tamil Nadu, INDIA



  
**Mr. M. PRASAD, M.Sc., M.B.A., M.Phil.**  
 Controller of Examinations  
 K.S. Rangasamy College of Arts & Science (Autonomous)  
 Tiruchengode - 637 215, Tamil Nadu, India.





Subject Code	Subject	Hours of Instruction	Exam Duration (Hours)	Maximum Marks			Credit Points
				CA	CE	Total	
<b>SECOND SEMESTER</b>							
<b>PART I</b>							
18UTALA201 18UHILA201 18UFRLA201	Tamil II / Hindi II / French II	5	3	25	75	100	3
<b>PART II</b>							
18UENLA201	Foundation English II	5	3	25	75	100	3
<b>PART III</b>							
18UCHM201	Core III: General Chemistry II	5	3	25	75	100	4
18UCHM202	Core IV: Pharmaceutical Chemistry	5	3	25	75	100	4
18UMACHA201	Allied II : Integral Calculus and Vector Calculus	5	3	25	75	100	4
18UCHMP201	Core Practical II: Organic Qualitative Analysis	3	3	40	60	100	3
<b>PART IV</b>							
18UVE201	Value Education II: Environmental Studies	2	3	25	75	100	2
<b>Total</b>		<b>30</b>				<b>700</b>	<b>23</b>

*[Signature]*  
**PRINCIPAL**  
 K. S. Rangasamy College of Arts & Science  
 (Autonomous)  
 TIRUCHENGODE - 637 215  
 Namakkal-Dt. Tamil Nadu, INDIA

3

*M.P.*

**Mr. M. PRASAD, M.Sc., M.B.A.,**  
 Controller of Examinations  
 K.S. Rangasamy College of Arts & Science (Autonomous)  
 Tiruchengode - 637 215, Tamilnadu, India.



### THIRD SEMESTER

#### PART I

18UTALA301	Tamil III /	5	3	25	75	100	3
18UHILA301	Hindi III /						
18UFRLA301	French III						

#### PART II

18UENLA301	Foundation English III	5	3	25	75	100	3
------------	------------------------	---	---	----	----	-----	---

#### PART III

18UCHM301	Core V: General Chemistry III	4	3	25	75	100	4
18UPHCHA301	Allied III: Physics I	3	3	25	75	100	2
18UCHMP301	Core Practical III: Inorganic Qualitative Analysis	3	3	40	60	100	3
18UPHCHAP301	Allied Practical I: Physics I	3	3	40	60	100	2

#### PART IV

18UCHSB301	SBC I: Food Chemistry	2	3	40	60	100	2
	NMEC I	2	3	25	75	100	2


#### NON CREDIT

18ULS301	Career Competency Skills I	1	-	-	-	-	-
	Add-on course	2	-	-	-	-	-
<b>Total</b>		<b>30</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>800</b>	<b>21</b>



**PRINCIPAL**  
K. S. Rangasamy College of Arts & Science  
(Autonomous)  
TIRUCHENGODE - 637 215  
Namakkal-Dt. Tamil Nadu. INDIA





**Mr. M. PRASAD, M.Sc., M.Ed.,**  
Controller of Examinations  
K.S. Rangasamy College of Arts & Science (Autonomous)  
Tiruchengode - 637/215, Tamilnadu, India.





**FOURTH SEMESTER**

**PART I**

18UTALA401 18UHILA401 18UFRLA401	Tamil IV / Hindi IV / French IV	5	3	25	75	100	3
--	---------------------------------------	---	---	----	----	-----	---

**PART II**

18UENLA401	Foundation English IV	5	3	25	75	100	3
------------	-----------------------	---	---	----	----	-----	---

**PART III**

18UCHM401	Core VI: General Chemistry IV	4	3	25	75	100	4
18UPHCHA401	Allied IV: Physics II	3	3	25	75	100	2
18UCHMP401	Core Practical IV: Physical Practical	3	3	40	60	100	3
18UPHCHAP401	Allied Practical II: Physics II	3	3	40	60	100	2

**PART IV**

18UCHSB401	SBC II: Textile Chemistry	2	3	25	75	100	2
	NMEC II	2	3	25	75	100	2

**NON CREDIT**


18ULS401	Career Competency Skills II	1	-	-	-	-	-
	Add-on Course	2	-	-	-	-	-
<b>Total</b>		<b>30</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>800</b>	<b>21</b>

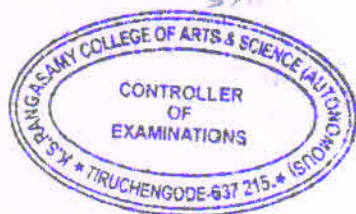
**PRINCIPAL**  
K. S. Rangasamy College of Arts & Science  
(Autonomous)  
TIRUCHENGODE - 637 215  
Namakkal-Dt. Tamil Nadu, INDIA




**Mr. M. PRASAD, M.Sc., M.A.,**  
Controller of Examinations  
K.S. Rangasamy College of Arts & Science (Autonomous)  
Tiruchengode - 637 215, Tamilnadu, India.

Subject Code	Subject	Hours of Instruction	Exam Duration (Hours)	Maximum Marks			Credit Points
				CA	CE	Total	
<b>FIFTH SEMESTER</b>							
<b>PART III</b>							
18UCHM501	Core VII: Inorganic Chemistry I	5	3	25	75	100	4
18UCHM502	Core VIII: Organic Chemistry I	5	3	25	75	100	5
18UCHM503	Core IX: Physical Chemistry I	4	3	25	75	100	4
18UCHM504	Core X: Analytical Chemistry	4	3	25	75	100	4
	Elective I	4	3	25	75	100	4
19UCHMP501	Core Practical IV: Gravimetric Estimation and Organic Preparation	5	6	25	75	100	3
<b>PART IV</b>							
18UCHSB501	SBC III: Polymer Chemistry	2	3	25	75	100	2
18UCHE501	Extension Activity	-	-	-	-	-	2
<b>NON CREDIT</b>							
18ULS501	Career Competency Skills III	1	-	-	-	-	-
<b>Total</b>		<b>30</b>				<b>700</b>	<b>28</b>

  
**PRINCIPAL**  
**K. S. Rangasamy College of Arts & Science**  
**(Autonomous)**  
**TIRUCHENGODE - 637 215**  
**Namakkal-Dt. Tamil Nadu, INDIA**



  
**Mr. M. PRASAD, M.Sc., M.B.A., M.Phil.**  
**Controller of Examinations**  
**K.S. Rangasamy College of Arts & Science (Autonomous)**  
**Tiruchengode - 637 215, Tamil Nadu, India.**



Subject Code	Subject	Hours of Instruction	Exam Duration (Hours)	Maximum Marks			Credits Points
				CA	CE	Total	
<b>SIXTH SEMESTER</b>							
<b>PART III</b>							
18UCHM601	Core XI: Inorganic Chemistry II	6	3	25	75	100	5
18UCHM602	Core XII: Organic Chemistry II	6	3	25	75	100	5
18UCHM503	Core XIII: Physical Chemistry II	6	3	25	75	100	4
	Elective II	4	3	25	75	100	4
18UCHPR601	Project & Viva-Voce	5		25	75	100	4
<b>PART IV</b>							
18UCHSB601	SBC IV: Agricultural Chemistry	2	3	25	75	100	2
18ULS601	Career Competency Skills	1	-	-	-	-	-
<b>Total</b>		<b>30</b>				<b>600</b>	<b>24</b>

*(Handwritten signature)*  
**PRINCIPAL**  
 K. S. Rangasamy College of Arts & Science  
 (Autonomous)  
 TIRUCHENGODE - 637 215  
 Tamil Nadu, India




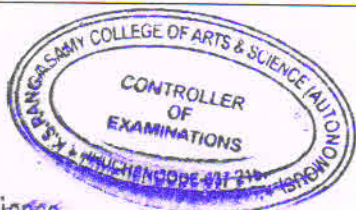
58




*(Handwritten signature)*  
**Mr. M. PRASAD, M.Sc., M.B.A., M.Phil.**  
 Controller of Examinations  
 K.S. Rangasamy College of Arts & Science (Autonomous)  
 Tiruchengode - 637 215, Tamilnadu, India

18UCHEL501	ELECTIVE I: SPECTROSCOPY I	SEMESTER V	
<b>COURSE OBJECTIVES:</b> The course aims <ul style="list-style-type: none"> <li>• To dictate the rudimentary facts of the spectroscopic techniques</li> <li>• To assess the principles and theories of IR spectroscopy</li> <li>• To cater the cardinal rationale of NMR</li> <li>• To compare IR with Raman spectroscopy</li> <li>• To rationalize the concepts of Mass spectroscopy</li> </ul>			
Credits: 4		Total Hours: 40	
Unit	Content	Hours	CO
I	<b>Introduction:</b> Electromagnetic radiation – units - Electromagnetic spectrum and absorption of radiations - Quantization of different forms of energies in molecules (translational, rotational and electronic) - Born Oppenheimer approximation. <b>Ultra violet and Visible spectroscopy:</b> Introduction – Beer-Lambert's law – Instrumentation – Types of electronic transition – Transition probability – Chromophore Auxochrome concept – Bathochromic, Hypsochromic, Hyperchromic, Hypochromic shift – Applications of UV spectroscopy.		CO1
II	<b>Infra-red spectroscopy:</b> Introduction – Principle - Theory of molecular vibrations - Expression for vibrational frequency (derivation not needed) - selection rules. Factors influencing vibrational frequencies – Instrumentation -Finger print region.		CO2
III	<b>Raman spectroscopy:</b> Introduction - Theory of Raman spectra (Stoke's and antistoke's line) – Instrumentation - Conditions for Raman spectroscopy - Beer lambert law of absorption in Raman scattering - Difference between IR and Raman spectra - Applications of Raman spectroscopy.		CO3
IV	<b>Nuclear Magnetic Resonance Spectroscopy:</b> Introduction – basic principles – Relaxation process – Chemical shift - Number and position of signals – Instrumentation – Shielding & Deshielding effects – Factors influencing chemical shift – Spin-Spin coupling – coupling constant – TMS as NMR standard – Applications of NMR		CO4
V	<b>Mass spectroscopy:</b> Basic principles - Instrumentation - molecular ion peak, base peak, meta stable peak, isotopic peak their uses, determination of molecular formula. Fragmentation– Nitrogen rule - McLafferty rearrangements.		CO5

  
 PRINCIPAL  
 K. S. Rangasamy College of Arts & Science  
 (Autonomous)  
 TIRUCHENGODE - 637 215  
 Namakkal-Dt. Tamil Nadu, INDIA



9

  
 Mr. M. PRASAD, M.Sc., M.B.A., M.Phil.  
 Controller of Examinations  
 K.S. Rangasamy College of Arts & Science (Autonomous)  
 Tiruchengode - 637 215, Tamilnadu, India.



Text books:


1. *Sharma Y.R.* 2013. **Elementary Organic spectroscopy**, [Fifth revised edition], S. Chand & Co. Ltd., New Delhi.
2. *Sindhu P.S.* 1985. **Fundamentals of molecular spectroscopy**, New Age Int. Pvt. Ltd. New Delhi.

Reference books:

1. *Parikh V.M.* 2002. **Absorbtion spectroscopy of organic molecules**, Mehta publishers, Pune.
2. *Williams D.W.* and *Flemming I.* 1987. **Spectroscopic methods in organic chemistry**, McGraw-Hill, U.K.
3. *Kalsi P.S.* 2007. **Spectroscope of organic compounds**, New Age Int. Pvt. Ltd. New Delhi.

  
PRINCIPAL  
K. S. Rangasamy College of Arts & Science  
(Autonomous)  
TIRUCHENGODE - 637 215  
Namakkal-Dt. Tamil Nadu, INDIA



  
Mr. M. PRASAD, M.Sc., M.B.A., M.A. (Edu.)  
Controller of Examinations  
K.S. Rangasamy College of Arts & Science (Autonomous)  
Tiruchengode - 637 215, Tamilnadu, India.


## COURSE OUTCOMES (CO)

After completion of the course, the students will be able to


CO1	Reword the basics of spectroscopic techniques
CO2	Acknowledge the theory behind IR spectroscopy
CO3	Perceive the chemistry of NMR
CO4	Discern IR techniques with Raman spectroscopy
CO5	Agnize the concepts of Mass spectroscopy

### Mapping:

CO \ PSO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	H	H	M	H	L
CO2	L	M	L	M	H
CO3	M	M	H	H	L
CO4	M	L	M	H	M
CO5	M	M	L	L	H

  
**PRINCIPAL**  
K. S. Rangasamy College of Arts & Science  
(Autonomous)  
TIRUCHENGODE - 637 215  
Namakkal-Dt. Tamil Nadu, INDIA



  
**Mr. M. PRASAD**, M.Sc., M.B.A., M.Phil.  
Controller of Examinations  
K.S. Rangasamy College of Arts & Science (Autonomous)  
Tiruchengode - 637 215, Tamil Nadu, India





1.1.3 DG

**K. S. Rangasamy College of Arts and Science (Autonomous),  
Tiruchengode – 637 215  
Department of Chemistry  
B.Sc Chemistry**

**Courses focus on Employability/ Entrepreneurship/ Skill Development**

**Courses focus on Employability**

- Elective I: Spectroscopy I
- Elective I: Spectroscopy II
- Core X: Analytical chemistry

**Courses focus on Entrepreneurship**


- Core II: Industrial Chemistry
- Core IV: Pharmaceutical chemistry
- NMEC I: Applied chemistry I
- NMEC II: Applied chemistry II



**Courses focus on Skill Development**


- SBC I: Food Chemistry
- SBC II: Textile Chemistry
- SBC III: Polymer Chemistry
- SBC IV : Agricultural Chemistry

**Encls:**

1. Copy of Scheme of Examination
2. Syllabus copy of courses highlighting the focus on Skill Development along with course outcomes
3. Mapping of courses to Skill Development


  
HoD – Chemistry

  
PRINCIPAL  
K. S. Rangasamy College of Arts & Science  
(Autonomous)  
TIRUCHENGODE - 637 215  
Namakkal-Dt. Tamil Nadu, INDIA  
  
CONTROLLER  
OF  
EXAMINATIONS


  
CoE  
Mr. M. PRASAD, M.Sc., M.B.A.,  
Controller of Examinations  
K.S. Rangasamy College of Arts & Science (Autonomous)  
Tiruchengode - 637 215, Tamilnadu, India.

## SCHEME OF EXAMINATION

Subject Code	Subject	Hours of Instruction	Exam Duration (Hours)	Maximum Marks			Credit Points
				CA	CE	Total	
<b>FIRST SEMESTER</b>							
<b>PART-I</b>							
18UTALA101 18UHILA101 18UFRLA101	Tamil I / Hindi I / French I	5	3	25	75	100	3
<b>PART-II</b>							
18UENLA101	Foundation English I	5	3	25	75	100	3
<b>PART-III</b>							
18UCHM101	Core I: General Chemistry I	5	3	25	75	100	4
18UCHM102	Core II: Industrial Chemistry	5	3	25	75	100	4
18UMACHA101	Allied I: Algebra and Differential Calculus	5	3	25	75	100	4
18UCHMP101	Core Practical I: Volumetric and Inorganic Preparations	3	3	40	60	100	3
<b>PART-IV</b>							
18UVE101	Value Education I: Yoga	2	3	25	75	100	2
<b>Total</b>		<b>30</b>				<b>700</b>	<b>23</b>

  
**PRINCIPAL**  
 K. S. Rangasamy College of Arts & Science,  
 (Autonomous)  
 TIRUCHENGODE - 637 215  
 Namakkal-Dt. Tamil Nadu, INDIA



  
**Mr. M. PRASAD, M.Sc., M.B.A., M.Phil.**  
 Controller of Examinations  
 K.S. Rangasamy College of Arts & Science (Autonomous)  
 Tiruchengode - 637 215, Tamil Nadu, India.



Subject Code	Subject	Hours of Instruction	Exam Duration (Hours)	Maximum Marks			Credit Points
				CA	CE	Total	
<b>SECOND SEMESTER</b>							
<b>PART I</b>							
18UTALA201 18UHILA201 18UFRLA201	Tamil II / Hindi II / French II	5	3	25	75	100	3
<b>PART II</b>							
18UENLA201	Foundation English II	5	3	25	75	100	3
<b>PART III</b>							
18UCHM201	Core III: General Chemistry II	5	3	25	75	100	4
18UCHM202	Core IV: Pharmaceutical Chemistry	5	3	25	75	100	4
18UMACHA201	Allied II : Integral Calculus and Vector Calculus	5	3	25	75	100	4
18UCHMP201	Core Practical II: Organic Qualitative Analysis	3	3	40	60	100	3
<b>PART IV</b>							
18UVE201	Value Education II: Environmental Studies	2	3	25	75	100	2
<b>Total</b>		<b>30</b>				<b>700</b>	<b>23</b>

*[Signature]*  
**PRINCIPAL**  
 K. S. Rangasamy College of Arts & Science  
 (Autonomous)  
 TIRUCHENGODE - 637 215  
 Namakkal-Dt. Tamil Nadu, INDIA

3

*M.P.*

**Mr. M. PRASAD, M.Sc., M.B.A.,**  
 Controller of Examinations  
 K.S. Rangasamy College of Arts & Science (Autonomous)  
 Tiruchengode - 637 215, Tamilnadu, India.



### THIRD SEMESTER

#### PART I

18UTALA301	Tamil III /	5	3	25	75	100	3
18UHILA301	Hindi III /						
18UFRLA301	French III						

#### PART II

18UENLA301	Foundation English III	5	3	25	75	100	3
------------	------------------------	---	---	----	----	-----	---

#### PART III

18UCHM301	Core V: General Chemistry III	4	3	25	75	100	4
18UPHCHA301	Allied III: Physics I	3	3	25	75	100	2
18UCHMP301	Core Practical III: Inorganic Qualitative Analysis	3	3	40	60	100	3
18UPHCHAP301	Allied Practical I: Physics I	3	3	40	60	100	2

#### PART IV

18UCHSB301	SBC I: Food Chemistry	2	3	40	60	100	2
	NMEC I	2	3	25	75	100	2


#### NON CREDIT

18ULS301	Career Competency Skills I	1	-	-	-	-	-
	Add-on course	2	-	-	-	-	-
<b>Total</b>		<b>30</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>800</b>	<b>21</b>



**PRINCIPAL**  
K. S. Rangasamy College of Arts & Science  
(Autonomous)  
TIRUCHENGODE - 637 215  
Namakkal-Dt. Tamil Nadu. INDIA





**Mr. M. PRASAD, M.Sc., M.Ed.,**  
Controller of Examinations  
K.S. Rangasamy College of Arts & Science (Autonomous)  
Tiruchengode - 637/215, Tamilnadu, India.





**FOURTH SEMESTER**

**PART I**

18UTALA401 18UHILA401 18UFRLA401	Tamil IV / Hindi IV / French IV	5	3	25	75	100	3
--	---------------------------------------	---	---	----	----	-----	---

**PART II**

18UENLA401	Foundation English IV	5	3	25	75	100	3
------------	-----------------------	---	---	----	----	-----	---

**PART III**

18UCHM401	Core VI: General Chemistry IV	4	3	25	75	100	4
18UPHCHA401	Allied IV: Physics II	3	3	25	75	100	2
18UCHMP401	Core Practical IV: Physical Practical	3	3	40	60	100	3
18UPHCHAP401	Allied Practical II: Physics II	3	3	40	60	100	2

**PART IV**

18UCHSB401	SBC II: Textile Chemistry	2	3	25	75	100	2
	NMEC II	2	3	25	75	100	2

**NON CREDIT**

18ULS401	Career Competency Skills II	1	-	-	-	-	-
	Add-on Course	2	-	-	-	-	-
<b>Total</b>		<b>30</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>800</b>	<b>21</b>

**PRINCIPAL**  
K. S. Rangasamy College of Arts & Science  
(Autonomous)  
TIRUCHENGODE - 637 215  
Namakkal-Dt. Tamil Nadu, INDIA



**Mr. M. PRASAD, M.Sc., M.A.,**  
Controller of Examinations  
K.S. Rangasamy College of Arts & Science (Autonomous)  
Tiruchengode - 637 215, Tamilnadu, India.

Subject Code	Subject	Hours of Instruction	Exam Duration (Hours)	Maximum Marks			Credit Points
				CA	CE	Total	
<b>FIFTH SEMESTER</b>							
<b>PART III</b>							
18UCHM501	Core VII: Inorganic Chemistry I	5	3	25	75	100	4
18UCHM502	Core VIII: Organic Chemistry I	5	3	25	75	100	5
18UCHM503	Core IX: Physical Chemistry I	4	3	25	75	100	4
18UCHM504	Core X: Analytical Chemistry	4	3	25	75	100	4
	Elective I	4	3	25	75	100	4
19UCHMP501	Core Practical IV: Gravimetric Estimation and Organic Preparation	5	6	25	75	100	3
<b>PART IV</b>							
18UCHSB501	SBC III: Polymer Chemistry	2	3	25	75	100	2
18UCHE501	Extension Activity	-	-	-	-	-	2
<b>NON CREDIT</b>							
18ULS501	Career Competency Skills III	1	-	-	-	-	-
	<b>Total</b>	<b>30</b>				<b>700</b>	<b>28</b>

PRINCIPAL  
K. S. Rangasamy College of Arts & Science  
(Autonomous)  
TIRUCHENGODE - 637 215  
Namakkal-Dt. Tamil Nadu, INDIA



Mr. M. PRASAD, M.Sc., M.B.A., M.Phil.  
Controller of Examinations  
K.S. Rangasamy College of Arts & Science (Autonomous)  
Tiruchengode - 637 215, Tamilnadu, India.



Subject Code	Subject	Hours of Instruction	Exam Duration (Hours)	Maximum Marks			Credits Points
				CA	CE	Total	
<b>SIXTH SEMESTER</b>							
<b>PART III</b>							
18UCHM601	Core XI: Inorganic Chemistry II	6	3	25	75	100	5
18UCHM602	Core XII: Organic Chemistry II	6	3	25	75	100	5
18UCHM503	Core XIII: Physical Chemistry II	6	3	25	75	100	4
	Elective II	4	3	25	75	100	4
18UCHPR601	Project & Viva-Voce	5		25	75	100	4
<b>PART IV</b>							
18UCHSB601	SBC IV: Agricultural Chemistry	2	3	25	75	100	2
18ULS601	Career Competency Skills	1	-	-	-	-	-
<b>Total</b>		<b>30</b>				<b>600</b>	<b>24</b>

*(Handwritten signature)*  
**PRINCIPAL**  
 K. S. Rangasamy College of Arts & Science  
 (Autonomous)  
 TIRUCHENGODE - 637 215  
 Tamil Nadu, India



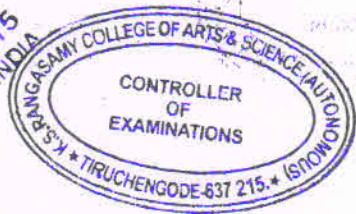
58




*(Handwritten signature)*  
**Mr. M. PRASAD, M.Sc., M.B.A., M.Phil.**  
 Controller of Examinations  
 K.S. Rangasamy College of Arts & Science (Autonomous)  
 Tiruchengode - 637 215, Tamilnadu, India

18UCHEL502	ELECTIVE I: SPECTROSCOPY II	SEMESTER V	
<b>COURSE OBJECTIVES:</b> The course aims <ul style="list-style-type: none"> <li>• To illustrate the principles and concepts of ESR spectroscopy</li> <li>• To paraphrase the concepts and applications of Mossbauer spectroscopy</li> <li>• To prognosticate the chemicals compounds using AAS techniques</li> <li>• To interpret the compounds using flame photometry techniques</li> <li>• To recognize the utilization of fluorescence and phosphorescence techniques</li> </ul>			
Credits: 4		Total Hours: 40	
Unit	Content	Hours	CO
I	<b>ESR Spectroscopy:</b> Introduction – Zeeman splitting – hyperfine splitting – g value – McConnell’s equation – Kramer’s degeneracy – spin orbital coupling – dipole-dipole interaction. Isotropic, rhombic and axial spectra of Copper II system		CO1
II	<b>Mossbauer Spectroscopy:</b> Introduction – Principle – basic concepts – Doppler shift – Resonance conditions - Recoil effect – Isomer shift – electric quadrupole splitting – magnetic dipole splitting – applications		CO2
III	<b>Atomic Absorption Spectroscopy:</b> Introduction – Principle – Grotrian Diagrams – Detection of non-metals by AAS – Difference between AAS & Flame emission spectroscopy – Instrumentation – Applications – Advantages and disadvantages.		CO3
IV	<b>Flame photometry:</b> Introduction – General principles – Instrumentation – Effect of Solvent – Factors affecting the intensity – Multielement analysis – Interferences- Applications – Limitations.		CO4
V	<b>Fluorimetry and Phosphorimetry:</b> Introduction – Comparison of Absorption and Fluorescence methods – Singlet and Triplet states – Excited state processes in molecules – Instrumentation – Application – Determination of Vitamins – Application of Phosphorimetry – Comparison of Fluorimetry and Phosphorimetry.		CO5

  
 PRINCIPAL  
 K. S. Rangasamy College of Arts & Science  
 (Autonomous)  
 TIRUCHENGODE - 637 215  
 Namakkal-Dt. Tamil Nadu, INDIA



  
 Mr. M. PRASAD, M.Sc., M.B.A., M.Phil.  
 Controller of Examinations  
 K.S. Rangasamy College of Arts & Science (Autonomous)  
 Tiruchengode - 637 215, Tamilnadu, India.



Text books:

1. *Gurdeep R. Chatwal, Sham K. Anand, 2017, Spectroscopy (Atomic and Molecular), Fifth Edition*, Himalaya Publishing House.
2. *Colin N. Banwell, Elaine M. McCash, 2016, Fundamentals of Molecular Spectroscopy [Fourth Edition]*, McGraw Hill Education


Reference books:

1. *Parikh V.M. 2002. Absorbion spectroscopy of organic molecules*, Mehta publishers, Pune.
2. *Williams D.W. and Flemming I. 1987. Spectroscopic methods in organic chemistry*, McGraw-Hill, U.K.
3. *Kalsi P.S. 2007. Spectroscope of organic compounds*, New Age Int. Pvt. Ltd. New Delhi.


### COURSE OUTCOMES (CO)

After completion of the course, the students will be able to

CO1	Utilize the ESR techniques to interpret the spectrum of unknown compounds
CO2	Recall the working principles of Mossbauer spectroscopy
CO3	Detect the metals and non-metals using AAS technique
CO4	Analyse the multiple types of elements by flame photometry
CO5	Determine the compounds like vitamins by the concepts of Fluorimetry and phosphorimetry

  
PRINCIPAL  
K. S. Rangasamy College of Arts & Science  
(Autonomous)  
TIRUCHENGODE - 637 215  
Namakkal-Dt. Tamil Nadu, INDIA



  
Mr. M. PRASAD, M.Sc., M.Phil.  
Controller of Examinations  
K.S. Rangasamy College of Arts & Science (Autonomous)  
Tiruchengode - 637 215, Tamilnadu, India

**Mapping:**

CO \ PSO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	H	L	H	M	L
CO2	L	M	M	H	H
CO3	L	H	L	M	H
CO4	H	L	H	M	L
CO5	M	H	M	L	H




**PRINCIPAL**  
**K. S. Rangasamy College of Arts & Science**  
**(Autonomous)**  
**TIRUCHENGODE - 637 215**  
**Namakkal-Dt. Tamil Nadu, INDIA**



**Mr. M. PRASAD, M.Sc., M.A., M.Phil., M.L.S., M.L.A.**  
**Controller of Examinations**  
**K.S. Rangasamy College of Arts & Science (Autonomous)**  
**Tiruchengode - 637 215, Tamilnadu, India**





1.1.3 DG

**K. S. Rangasamy College of Arts and Science (Autonomous),  
Tiruchengode – 637 215  
Department of Chemistry  
B.Sc Chemistry**

**Courses focus on Employability/ Entrepreneurship/ Skill Development**

**Courses focus on Employability**

- Elective I: Spectroscopy I
- Elective I: Spectroscopy II
- Core X: Analytical chemistry

**Courses focus on Entrepreneurship**


- Core II: Industrial Chemistry
- Core IV: Pharmaceutical chemistry
- NMEC I: Applied chemistry I
- NMEC II: Applied chemistry II



**Courses focus on Skill Development**


- SBC I: Food Chemistry
- SBC II: Textile Chemistry
- SBC III: Polymer Chemistry
- SBC IV : Agricultural Chemistry

**Encls:**

1. Copy of Scheme of Examination
2. Syllabus copy of courses highlighting the focus on Skill Development along with course outcomes
3. Mapping of courses to Skill Development


  
**HoD – Chemistry**

  
**PRINCIPAL  
K. S. Rangasamy College of Arts & Science  
(Autonomous)  
TIRUCHENGODE - 637 215  
Namakkal-Dt. Tamil Nadu, India**  



  
**CoE  
Mr. M. PRASAD, M.Sc., M.B.A.,  
Controller of Examinations  
K.S. Rangasamy College of Arts & Science (Autonomous)  
Tiruchengode - 637 215, Tamilnadu, India.**

## SCHEME OF EXAMINATION

Subject Code	Subject	Hours of Instruction	Exam Duration (Hours)	Maximum Marks			Credit Points
				CA	CE	Total	
<b>FIRST SEMESTER</b>							
<b>PART-I</b>							
18UTALA101 18UHILA101 18UFRLA101	Tamil I / Hindi I / French I	5	3	25	75	100	3
<b>PART-II</b>							
18UENLA101	Foundation English I	5	3	25	75	100	3
<b>PART-III</b>							
18UCHM101	Core I: General Chemistry I	5	3	25	75	100	4
18UCHM102	Core II: Industrial Chemistry	5	3	25	75	100	4
18UMACHA101	Allied I: Algebra and Differential Calculus	5	3	25	75	100	4
18UCHMP101	Core Practical I: Volumetric and Inorganic Preparations	3	3	40	60	100	3
<b>PART-IV</b>							
18UVE101	Value Education I: Yoga	2	3	25	75	100	2
<b>Total</b>		<b>30</b>				<b>700</b>	<b>23</b>

  
**PRINCIPAL**  
 K. S. Rangasamy College of Arts & Science,  
 (Autonomous)  
 TIRUCHENGODE - 637 215  
 Namakkal-Dt. Tamil Nadu, INDIA



  
**Mr. M. PRASAD, M.Sc., M.B.A., M.Phil.**  
 Controller of Examinations  
 K.S. Rangasamy College of Arts & Science (Autonomous)  
 Tiruchengode - 637 215, Tamil Nadu, India.



Subject Code	Subject	Hours of Instruction	Exam Duration (Hours)	Maximum Marks			Credit Points
				CA	CE	Total	
<b>SECOND SEMESTER</b>							
<b>PART I</b>							
18UTALA201 18UHILA201 18UFRLA201	Tamil II / Hindi II / French II	5	3	25	75	100	3
<b>PART II</b>							
18UENLA201	Foundation English II	5	3	25	75	100	3
<b>PART III</b>							
18UCHM201	Core III: General Chemistry II	5	3	25	75	100	4
18UCHM202	Core IV: Pharmaceutical Chemistry	5	3	25	75	100	4
18UMACHA201	Allied II : Integral Calculus and Vector Calculus	5	3	25	75	100	4
18UCHMP201	Core Practical II: Organic Qualitative Analysis	3	3	40	60	100	3
<b>PART IV</b>							
18UVE201	Value Education II: Environmental Studies	2	3	25	75	100	2
<b>Total</b>		<b>30</b>				<b>700</b>	<b>23</b>

*[Signature]*  
**PRINCIPAL**  
 K. S. Rangasamy College of Arts & Science  
 (Autonomous)  
 TIRUCHENGODE - 637 215  
 Namakkal-Dt. Tamil Nadu, INDIA

3

*M.P.*

**Mr. M. PRASAD, M.Sc., M.B.A.,**  
 Controller of Examinations  
 K.S. Rangasamy College of Arts & Science (Autonomous)  
 Tiruchengode - 637 215, Tamilnadu, India.



### THIRD SEMESTER

#### PART I

18UTALA301	Tamil III /	5	3	25	75	100	3
18UHILA301	Hindi III /						
18UFRLA301	French III						

#### PART II

18UENLA301	Foundation English III	5	3	25	75	100	3
------------	------------------------	---	---	----	----	-----	---

#### PART III

18UCHM301	Core V: General Chemistry III	4	3	25	75	100	4
18UPHCHA301	Allied III: Physics I	3	3	25	75	100	2
18UCHMP301	Core Practical III: Inorganic Qualitative Analysis	3	3	40	60	100	3
18UPHCHAP301	Allied Practical I: Physics I	3	3	40	60	100	2

#### PART IV

18UCHSB301	SBC I: Food Chemistry	2	3	40	60	100	2
	NMEC I	2	3	25	75	100	2


#### NON CREDIT

18ULS301	Career Competency Skills I	1	-	-	-	-	-
	Add-on course	2	-	-	-	-	-
<b>Total</b>		<b>30</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>800</b>	<b>21</b>



**PRINCIPAL**  
K. S. Rangasamy College of Arts & Science  
(Autonomous)  
TIRUCHENGODE - 637 215  
Namakkal-Dt. Tamil Nadu. INDIA





**Mr. M. PRASAD, M.Sc., M.Ed.,**  
Controller of Examinations  
K.S. Rangasamy College of Arts & Science (Autonomous)  
Tiruchengode - 637/215, Tamilnadu, India.





**FOURTH SEMESTER**

**PART I**

18UTALA401	Tamil IV /	5	3	25	75	100	3
18UHILA401	Hindi IV /						
18UFRLA401	French IV						

**PART II**

18UENLA401	Foundation English IV	5	3	25	75	100	3
------------	-----------------------	---	---	----	----	-----	---

**PART III**


18UCHM401	Core VI: General Chemistry IV	4	3	25	75	100	4
18UPHCHA401	Allied IV: Physics II	3	3	25	75	100	2
18UCHMP401	Core Practical IV: Physical Practical	3	3	40	60	100	3
18UPHCHAP401	Allied Practical II: Physics II	3	3	40	60	100	2

**PART IV**


18UCHSB401	SBC II: Textile Chemistry	2	3	25	75	100	2
	NMEC II	2	3	25	75	100	2

**NON CREDIT**


18ULS401	Career Competency Skills II	1	-	-	-	-	-
	Add-on Course	2	-	-	-	-	-
<b>Total</b>		<b>30</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>800</b>	<b>21</b>

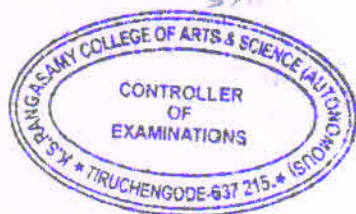
  
**PRINCIPAL**  
 K. S. Rangasamy College of Arts & Science  
 (Autonomous)  
 TIRUCHENGODE - 637 215  
 Namakkal-Dt. Tamil Nadu, INDIA




  
**Mr. M. PRASAD, M.Sc., M.A.,**  
 Controller of Examinations  
 K.S. Rangasamy College of Arts & Science (Autonomous)  
 Tiruchengode - 637 215, Tamilnadu, India.

Subject Code	Subject	Hours of Instruction	Exam Duration (Hours)	Maximum Marks			Credit Points
				CA	CE	Total	
<b>FIFTH SEMESTER</b>							
<b>PART III</b>							
18UCHM501	Core VII: Inorganic Chemistry I	5	3	25	75	100	4
18UCHM502	Core VIII: Organic Chemistry I	5	3	25	75	100	5
18UCHM503	Core IX: Physical Chemistry I	4	3	25	75	100	4
18UCHM504	Core X: Analytical Chemistry	4	3	25	75	100	4
	Elective I	4	3	25	75	100	4
19UCHMP501	Core Practical IV: Gravimetric Estimation and Organic Preparation	5	6	25	75	100	3
<b>PART IV</b>							
18UCHSB501	SBC III: Polymer Chemistry	2	3	25	75	100	2
18UCHE501	Extension Activity	-	-	-	-	-	2
<b>NON CREDIT</b>							
18ULS501	Career Competency Skills III	1	-	-	-	-	-
<b>Total</b>		<b>30</b>				<b>700</b>	<b>28</b>

  
**PRINCIPAL**  
**K. S. Rangasamy College of Arts & Science**  
**(Autonomous)**  
**TIRUCHENGODE - 637 215**  
**Namakkal-Dt. Tamil Nadu, INDIA**



  
**Mr. M. PRASAD, M.Sc., M.B.A., M.Phil.**  
**Controller of Examinations**  
**K.S. Rangasamy College of Arts & Science (Autonomous)**  
**Tiruchengode - 637 215, Tamilnadu, India.**



Subject Code	Subject	Hours of Instruction	Exam Duration (Hours)	Maximum Marks			Credits Points
				CA	CE	Total	
<b>SIXTH SEMESTER</b>							
<b>PART III</b>							
18UCHM601	Core XI: Inorganic Chemistry II	6	3	25	75	100	5
18UCHM602	Core XII: Organic Chemistry II	6	3	25	75	100	5
18UCHM503	Core XIII: Physical Chemistry II	6	3	25	75	100	4
	Elective II	4	3	25	75	100	4
18UCHPR601	Project & Viva-Voce	5		25	75	100	4
<b>PART IV</b>							
18UCHSB601	SBC IV: Agricultural Chemistry	2	3	25	75	100	2
18ULS601	Career Competency Skills	1	-	-	-	-	-
<b>Total</b>		<b>30</b>				<b>600</b>	<b>24</b>

*(Handwritten signature)*  
**PRINCIPAL**  
 K. S. Rangasamy College of Arts & Science  
 (Autonomous)  
 TIRUCHENGODE - 637 215  
 Tamil Nadu, India




58




*(Handwritten signature)*  
**Mr. M. PRASAD, M.Sc., M.B.A., M.Phil.**  
 Controller of Examinations  
 K.S. Rangasamy College of Arts & Science (Autonomous)  
 Tiruchengode - 637 215, Tamilnadu, India

18UCHSB401	SBC II: TEXTILE CHEMISTRY	SEMESTER-IV	
<b>COURSE OBJECTIVES:</b>			
The course aims			
<ul style="list-style-type: none"> <li>To impel knowledge about the textile terminology.</li> <li>To estimate the characteristics of different textile fibres, yarn and fabric</li> <li>To evaluate the purification techniques from impure fibre</li> <li>To cognize the dyeing processes of various fibres</li> <li>To evaluate the finishing processes in textile processing</li> </ul>			
<b>Credits: 2</b>		<b>Total hours: 25</b>	
UNIT	CONTENTS	Hrs	CO
I	General classification of fibres - Chemical structure - production - properties - uses of the following natural fibres - Natural cellulose fibres (cotton and jute) - natural protein fibre (wool and silk).	5	CO1
II	Chemical structure - production - properties - uses of the following synthetic fibres - Man made cellulose fibres (Rayon, modified cellulose fibres) - polyamide fibres (different types of nylons) - poly ester fibres.	5	CO2
III	Impurities in raw cotton and grey cloth - wool - silk - General principles of the removal - scouring - bleaching - Desizing - Kier boiling - Chemicking.	5	CO3
IV	Dyeing - Dyeing of wool and silk - fastness properties of dyed materials - dyeing of nylon, terylene and other synthetic fibres.	5	CO4
V	<b>Textile Finishes:</b> Mechanical and functional finishes and their importance; Finishing - finishes given to fabrics - Mechanical finishes on cotton, wool and silk - method used in process of mercerizing - Anti - crease and Anti-shrink finishes - water proofing.	5	CO5

  
 PRINCIPAL  
 K. S. Rangasamy College of Arts & Science  
 (Autonomous)  
 TIRUCHENGODE - 637 215  
 Namakkal-Dt. Tamil Nadu



  
 Mr. M. PRASAD, M.Sc., M.B.A., M.A., M.L.S., M.P.A.  
 Controller of Examinations  
 K.S. Rangasamy College of Arts & Science (Autonomous)  
 Tiruchengode - 637 215, Tamil Nadu, India.




Text Books:	
1	Hall, A. J., 1966. <b>Student Text book of Textile Science</b> . Allman and sons, Kingsley.
2	Kapur, K., 2011. <b>Text book of Applied Chemistry</b> . Macmillan Publishers India.
Reference Books:	
1	Sadov, F, Korchagin, M., and Matetshy, A. 1973. <b>Chemical Technology of Fibrous Materials</b> , Mir Publishers.
2	Marjory L. Joseph, Peyton Hudson, Anne Clapp. 1992. <b>Introduction to Textile Science</b> [Sixth edition] Holt, Rinehart and Winston, Incorporated.
3	Peters, R.H. 1963. <b>Textile Chemistry, Vol II</b> . Elsevier, Avesterdam.

### COURSE OUTCOMES (CO)


After completion of the course, the students will be able to

CO1	Recognize the source of fibres, Natural Cellulose fibre, Natural protein fibres
CO2	Explain the impurities of raw material fabrics
CO3	Illustrate the textile finishing of fabrics and methods
CO4	Discuss the Fastness properties of dyed material
CO5	Recognize the chemical structure, properties, production, uses of fibres

  
**PRINCIPAL**  
**K. S. Rangasamy College of Arts & Science**  
**(Autonomous)**  
**TIRUCHENGODE - 637 215**  
**Namakkal-Dt. Tamil Nadu, INDIA**



10

  
**Mr. M. PRASAD, M.Sc., M.Phil.,**  
**Controller of Examinations**  
**K.S. Rangasamy College of Arts & Science (Autonomous)**  
**Tiruchengode - 637 215, Tamilnadu, India.**

**MAPPING:**

PSO CO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	H	M	L	H	L
CO2	L	H	M	M	M
CO3	M	L	H	H	L
CO4	H	M	L	L	M
CO5	M	L	H	M	H

H-High M-Medium L-Low



**PRINCIPAL**  
K. S. Rangasamy College of Arts & Science  
(Autonomous)  
**TIRUCHENGODE - 637 215**  
Namakkal-Dt. Tamil Nadu, INDIA.




**Mr. M. PRASAD, M.Sc., M.B.A., M.Phil.**  
Controller of Examinations  
K.S. Rangasamy College of Arts & Science (Autonomous)  
Tiruchengode - 637 215, Tamilnadu, India.