C. Abdul Hakeem College (Autonomous), Melvisharam.

Syllabus for All First Year UG Courses effective from the year 2024-2025

Sem	Category	Course Code	Course Title	Hours	Credits	Int. Marks	Ext. Marks	Max. Marks
I	GEL	U24FTA101	TAMIL - I	60	3	25	75	100

OBJECTIVES

- தமிழ் மொழியின் பண்புகளை மாணவர் மனதில் பதிய வைத்தல் தாய்மொழியின் பழமை, சிறப்பு, விழுமியங்கள் ஆகியவற்றைக் கற்பித்தல்.செவ்வியல் இலக்கியங்களை அறியச் செய்தல்
- தமிழில் உள்ள இலக்கிய வடிவங்களை அறிமுகப்படுத்தி படைப்பாக்கத்திற்கு துணை நிற்றல்.இலக்கிய இலக்கணக் கற்றல் வழி போட்டித் தேர்வுகளுக்கு ஆயத்தப்படுத்தல்.

COURSE OUTCOME(S)

COs	CO Statement (After completing the course, the students will be able to)	Cognitive Level
CO1	செவ்வியல் இலக்கிய நெடிய வரலாறு, இலக்கணப் பயிற்சி வழி போட்டித் தேர்வுகளை எதிர்கொள்ளல்.	K3
CO2	சமூகச் நிலைப்பாடு,பண்டைய அரச வரலாறு போன்றவற்றை விளக்கி,வாசிப்பையும் உச்சரிப்பையும் மேம்படுத்தி புரியவைத்தல்	K2
CO3	நீதி இலக்கியங்களின் வழி ஒழுக்க விழுமியங்களை வலியுறுத்தி அறவுரைகளை மேற்கொள்ளல்.	K3
CO4	காப்பிய மாந்தர்களின் வாழ்வியல் வழி தனி மனித மன உணர்வுகளை வெளிக் கொணரல்	K4
CO5	பக்தி இயக்க காலத்தில் சமூகப் பண்பாட்டு வரலாற்றை இனம் காணல்.	K2

அலகு - 1	**இலக்கணம் & இலக்கிய வரலாறு அறிமுகம்** 1. ஐந்திலக்கணம் - அறிமுகம் 2. சங்க இலக்கியங்கள் - எட்டுத்தொகை, பத்துப்பாட்டு 3. நீதி இலக்கியங்கள் 4. காப்பியங்கள் 5. பக்தி இலக்கியங்கள்	(12 Hours)
அலகு - 2	**சங்க இலக்கியம்** 1. நற்றிணை - 3 பாடல்கள் (எண்கள் : 47,96,285) 2. குறுந்தொகை - 6 பாடல்கள் (எண்கள் : 18,27,58,371,399,400) 3. புறநானூறு - 6 பாடல்கள் (எண்கள் : 25,86,92,183) 4. முல்லைப் பாட்டு - (முழுவதும்)	(12 Hours)
அலகு - 3	**அற இலக்கியம்** 1. திருக்குறள் - அறன் வலியுறுத்தல் 2. நாலடியார் - 8 பாடல்கள் 3. பழமொழி நானூறு - 8 பாடல்கள் 4. இனியவை நாற்பது - 8 பாடல்கள்	(12 Hours)
அலகு - 4	**காப்பியம் & சமய இலக்கியம்** 1. சிலப்பதிகாரம் - வழக்குரை காதை (முழுவதும்) 2. கம்ப ராமாயணம் - குகப்படலம் (25 பாடல்கள்) 3. சீறாப்புராணம் - மானுக்குப் பிணை நின்ற படலம் (30 பாடல்கள்) 4. இயேசு காவியம் - ஊதாரிப் பிள்ளை (முழுவதும்)	(12 Hours)
அலகு - 5	**பக்தி & பகுத்தறிவு இலக்கியம்** 1. நாயன்மார் பாசுரங்கள் - சமயக்குரவர் நால்வர் (4 பாடல்கள்) 2. ஆழ்வார் பாசுரங்கள் - முதலாழ்வார்கள் மற்றும் ஆண்டாள் (4 பாடல்கள்) 3. திருமந்திரம் - திருமூலர் (7 பாடல்கள்) 4. இராவண காவியம் - புலவர் குழந்தை (5 பாடல்கள்)	(12 Hours)

பார்வை நூல்கள்

1 செய்யுள் திரட்டு - தமிழ்த்துறை,சி.அப்துல் ஹக்கீம் கல்லூரி வெளியீடு. 2024 சூன் வெளியீடு

2 தமிழ் இலக்கிய வரலாறு - பேரா.மது.ச.விமலானந்தம் அபிராமி பதிப்பகம், இராயபுரம், சென்னை -13 மறு பதிப்பு -2002

3 நற்றமிழ் இலக்கணம் - டாக்டர்.சொ.பரமசிவம், பட்டுப் பதிப்பகம், 1269, 32-ஆம் தெரு அண்ணாநகர் மேற்கு, கம்பர் குடியிருப்பு, சென்னை -40 பன்னிரண்டாம் பதிப்பு -2012

Web Sources

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- Tamil E-Books Downloads- tamilebooksdownloads. blogspot.com
- Tamil Books on line- books.tamil cube.com
- Catalogue of the Tamil books in the Library of British Congress archive.org
- Tamil novels on line - books.tamilcube.com

Cos	Programme Outcomes					Programme Specific Outcomes					Mean
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	
CO1	1	1	3	2	2	-	-	-	-	-	
CO2	1	2	2	3	3	-	-	-	-	-	
CO3	2	2	3	2	3	-	-	-	-	-	
CO4	3	2	2	2	3	-	-	-	-	-	
CO5	3	2	3	2	3	-	-	-	-	-	
Mean Overall Score											

3 – Strong; 2 – Medium; 1 – Low

Prepared by	Verified by

Sem	*Category*	*Course Code*	*Course Title*	*Hours*	*Credits*	*Int. Marks*	*Ext. Marks*	*Max. Marks*
II	*GEL*	***U24FTA201***	***TAMIL - I***	***60***	***3***	***25***	***75***	***100***

OBJECTIVES

- தமிழ் மொழியின் பண்புகளை மாணவர் மனதில் பதிய வைத்தல் தாய்மொழியின் பழமை, சிறப்பு, விழுமியங்கள் ஆகியவற்றைக்கற்பித்தல்.செவ்வியல் இலக்கியங்களை அறியச் செய்தல்
- தமிழில் உள்ள இலக்கிய வடிவங்களை அறிமுகப்படுத்தி படைப்பாக்கத்திற்கு துணை நிற்றல்.இலக்கிய இலக்கணக் கற்றல் வழி போட்டித் தேர்வுகளுக்கு ஆயத்தப்படுத்தல்.

COURSE OUTCOME(S)

COs	CO Statement (After completing the course, the students will be able to)	Cognitive Level
CO1	காலந்தோறும் தமிழ் இலக்கியங்களில் மாறுபடும் பாடுபொருள். வடிவம் முதலியவற்றை வரலாற்றின் வழி உணர்த்தல்.	**K4**
CO2	சிற்றிலக்கியங்களின் வழி இலக்கியச் சுவையினையும் பண்பாட்டு அறிவினையும் பெறுதல்	**K1**
CO3	கவிதை வழி சமூகச் சிந்தனைகளையும், தேவைகளையும் கவிதை வழி இயம்பல்.	**K2**
CO4	சிறுகதைகளின் வாயிலாக சமகால மனிதர்களின் பண்பு நலன்களை அறிய வைத்தல்.	**K4**
CO5	நடிப்பாற்றல், படைப்பாற்றல் மற்றும் கலைத் தன்மைகளை வளர்த்தல்.	**K6**

பாடத்திட்டம்

அலகு - 1	**இலக்கிய வரலாறு அறிமுகம்** 1. சிற்றிலக்கியங்கள் - அறிமுகம் 2. கவிதை - தோற்றமும் வளர்ச்சியும் 3. சிறுகதை - தோற்றமும் வளர்ச்சியும 4. நாடகம் - தோற்றமும் வளர்ச்சியும	(12 Hours)
அலகு - 2	**சிற்றிலக்கியங்கள் & தனிப்பாடல்கள்** 1. கலிங்கத்துப்பரணி - களம் பாடியது (7 பாடல்கள்) 2. குற்றாலக் குறவஞ்சி - வசந்தவல்லி பந்தடித்தல் (7 பாடல்கள்) 3. முக்கூடற்பள்ளு - பள்ளியர் ஏசல் (11 பாடல்கள்) 4. தனிப்பாடல்கள் - ஔவை, வீரராகவர், காளமேகம், சத்திமுத்திப் புலவர்,படிக்காசுப் புலவர், பட்டினத்தடிகள், சொக்கநாதப்புலவர் (7பா.)	(12 Hours)
அலகு - 3	**கவிதை** 1. பாரதியார் - பாரத தேசம் 2. பாரதிதாசன் - - குடும்ப விளக்கு 3. அப்துல் ரகுமான் - வீடு (பித்தன்) 4. வாலி - புத்தகச் சந்தை 5. ஈரோடு தமிழன்பன் - எட்டாவது சீர் (வணக்கம் வள்ளுவ)	(12 Hours)
அலகு - 4	**சிறுகதை** 1. புதுமைப்பித்தன் - கடவுளும் கந்தசாமிப்பிள்ளையும் 2. ஜெயகாந்தன் - வாய்ச்சொற்கள் 3. அ.விநாயகமூர்த்தி - பரிசு 4. வைரமுத்து - இப்படியும் ஒருவன் இறந்தான	(12 Hours)
அலகு - 5	**நாடகம்** 1. பேரறிஞர் அண்ணா - வேலைக்காரி 2. ஆறு.அழகப்பன் - கொல்லிப்பாவை	(12 Hours)

பார்வை நூல்கள்

1 செய்யுள் திரட்டு - சி.அப்துல் ஹக்கீம் கல்லூரி வெளியீடு. 2024 சூன் வெளியீடு

2 தமிழ் இலக்கிய வரலாறு - பேரா.மது.ச.விமலானந்தம் அபிராமி பதிப்பகம், இராயபுரம், சென்னை -13 மறு பதிப்பு -2002

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- Chennai Library- www.chennailibrary.com .
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- Tamil Books on line- books.tamil cube.com
- Catalogue of the Tamil books in the Library of British Congress archive.org
- Tamil novels on line - books.tamilcube.com

Cos	Programme Outcomes					Programme Specific Outcomes					Mean
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	
CO1	2	2	2	3	2	-	-	-	-	-	
CO2	2	2	3	2	2	-	-	-	-	-	
CO3	2	2	3	2	3	-	-	-	-	-	
CO4	2	2	3	2	3	-	-	-	-	-	
CO5	2	2	2	3	3	-	-	-	-	-	
Mean Overall Score											

3 – Strong; 2 – Medium; 1 – Low

Prepared by	Verified by

Sem	*Category*	*Course Code*	*Course Title*	*Hours*	*Credits*	*Int. Marks*	*Ext. Marks*	*Max. Marks*
I	*GEL*	*U24CSL201*	***SKILL LANGUAGE TAMIL திறன் வளர்தமிழ்***	***60***	***2***	***50***	***50***	***100***

OBJECTIVES

- மாணவர்கள் இலக்கணப் பிழையின்றி எழுதுதல், பேசுதல்
- ஊடகத் தமிழ்ச் செய்திகளை அறிதல்
- கட்டுரை, கவிதை மற்றும் நேர்காணலுக்கான விதிகள் அறிதல

COURSE OUTCOME(S)

COs	**CO Statement** (After completing the course, the students will be able to)	**Cognitive Level**
CO1	தமிழின் இயல்புகளை அறிதல்	**K2**
CO2	தமிழ்ச் சொற்களிடையே வேறுபாட்டை உணர்தல்	**K2**
CO3	நடைமுறை சார் மொழித்திறன்களை உணர்த்தல்	**K3**
CO4	மொழிப்பயிற்சியை வெளிக்கொணர்தல்	**K4**
CO5	திறன்களை வளர்க்கும் நெறிகளை அறிதல்	**K5**

பாடத்திட்டம்

அலகு - 1	**கற்றல் திறன் - 1** 1. எண்களை எழுத்தால் எழுதுதல் 2. குறில்,நெடில் வேறுபாடு அறிதல் 3. திணை,பால் வேறுபாடு அறிதல் 4. மயங்கொலி வேறுபாடு அறிதல் (ர-ற: ந-ண-ன: ல-ள-ழ) 5. இரு பொருள் அறிதல்	(12 Hours)
அலகு - 2	**கற்றல் திறன் - 2** 1. வாக்கியத்தில் அமைத்தல் 2. அகரவரிசைப்படுத்துதல் 3. பொருந்தாத சொல்லைக் கண்டறிதல் 4. சொற்களை ஒழுங்குபடுத்தி சொற்றொடராக்குதல்	(12 Hours)
அலகு - 3	**கேட்டல் திறன் - 1** 1. நூல், செய்தித்தாள் வாசித்தல் 2. பாடல் ஒப்புவித்தல் 3. நேர் காணல்	(12 Hours)
அலகு - 4	**கேட்டல் திறன் - 2** 1. நூல் மதிப்புரை 2. ஏதேனும் ஒரு தலைப்பில் பேசிப் பழகுதல்.	(12 Hours)
அலகு - 5	**உணர்தல் திறன்** 1. கட்டுரை, கவிதை, துணுக்கு இயற்றுதல் 2. அறிக்கை தயாரித்தல் 3. குழு நடிப்பு	(12 Hours)

பார்வை நூல்கள்

1 மேடைப் பேச்சுக்கலை - டேல் கார்னகி , கண்ணதாசன் பதிப்பகம் 2012 வெளியீடு

2 பேச்சுக்கலை - முனைவர் ப.இப்ராஹிம் என்.சி.பி.எச். வெளியீடு முதல் பதிப்பு,2021

3. நற்றமிழ் இலக்கணம் - டாக்டர்.சொ.பரமசிவம், பட்டுப் பதிப்பகம், 1269, 32-ஆம் தெரு அண்ணாநகர் மேற்கு, கம்பர் குடியிருப்பு, சென்னை -40 பன்னிரண்டாம் பதிப்பு -2012

Cos	Programme Outcomes					Programme Specific Outcomes					Mean
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	
CO1	2	2	3	3	2	-	-	-	-	-	
CO2	1	2	3	3	1	-	-	-	-	-	
CO3	2	2	3	3	2	-	-	-	-	-	
CO4	2	2	3	3	3	-	-	-	-	-	
CO5	2	2	3	3	2	-	-	-	-	-	
Mean Overall Score											

3 – Strong; 2 – Medium; 1 – Low

Prepared by	Verified by

C. Abdul Hakeem College (Autonomous), Melvisharam.

Syllabus for First Year UG Courses effective from the year 2024-2025

Sem	*Category*	*Course Code*	*Course Title*	*Hours*	*Credits*	*Int. Marks*	*Ext. Marks*	*Max. Marks*
I	*GEL*	***U24FUR101***	***URDU - I***	***60***	***3***	***25***	***75***	***100***

Objectives:

Course Outcomes (COs) and Cognitive Level Mapping:

COs	CO Statement (After completing the course, the students will be able to)	Cognitive Level
CO1	Describe the Basic Grammar Rules and Sentence Construction	**K5**
CO2	Identify and Classify the Nouns and Genders	**K4**
CO3	Comprehend and Analyze Historical Stories (Hikayat)	**K4**
CO4	Explore and Critique the Essays (Inshayiya)	**K6**
CO5	Analyze Biographies of Notable Personalities	**K5**

Cognitive Levels (K1-Remember**; K2-**Understand**; K3-**Apply**; K4-**Analyze**; K5-**Evaluate**; K6-**Create**)**

Syllabus:

UNIT – I [12 Hours]

- **Qawaid**
- Huroof, ki Tareef
- Huroof e Tahaji Aur Uske Aqsaam
- Jumla ki Tareef
- Jumla Banane ka Tariqah

UNIT – II [12 Hours]

- Ism Ki Tareef
- Ism ke Aqsaam Misalon Ke Sath
- Jins(Muzakkar aur Maunnas) ki Tareef
- Jins ke Aqsaam
- Muzakkar aur Muannas ki Tareef
- Muzakkar Se Muannas Banane ka Tariqah

UNIT – III [12 Hours]

- **Hikayat**
- Hikayat ki tareef
- Sahabi aur Khalifa ki tareef
- Hikayat-e-Sahaba (Khulafa e Raashidain - Sayeduna Abu Bakr Siddiq(R.A),Hazrat Umar(R.A),Hazrat Usman(R.A),Hazrat Ali(R.A)
- Shaikh Saadi ka taruf
- Hikayat-e-Shaik Saadi
- Ek Badsha
- Haroon Rasheed

یونٹ -I

- ✓ قواعد
- حروف کی تعریف
- حروف تہجی اوراس کے اقسام
- جملہ کی تعریف
- جملہ بنانے کا طریقہ

یونٹ-II

- اسم کی تعریف
- اسم کے اقسام مثالوں کے ساتھ
- جنس (مذکر اور مؤنث) کی تعریف
- جنس کے اقسام
- مذکر اور مؤنث کی تعریف
- مذکر سے مؤنث بنانے کا طریقہ

یونٹ-III

- ✓ حکایت
- حکایت کی تعریف
- صحابی اور خلیفہ کی تعریف
- حکایتِ صحابہ (خلفائے راشدین سیدنا ابوبکر صدیق رضی اللہ عنہ، حضرت عمر رضی اللہ عنہ، حضرت عثمان رضی اللہ عنہ، حضرت علی رضی اللہ عنہ)
- شیخ سعدی کا تعارف
- حکایتِ شیخ سعدی
- ایک بادشاہ
- ہارون رشید

یونٹ-IV

- ✓ انشائیہ
- انشایہ کی تعریف
- سر سید احمد خان کاتعار ف
- امید کی خوشی - سر سید احمد خان
- رشید احمد صدیقی کا تعارف
- ڈاکٹر عبدالحق مرحوم – رشید احمد صدیقی۔

یونٹ - V

- ✓ شخصیات کی سوانح
- سوانح کی تعریف

UNIT – IV [12 Hours] ➢ **Inshayiya** ❖ Inshayiya ki tareef ❖ Sir Syed Ahamed Khan ka taruf ❖ Umeed Ki Khushi – Sir Syed Ahamed Khan ❖ Rasheed Ahmed Siddiqi ka taruf ❖ Dr. Abdul Haq Marhoom – Rasheed Ahmed Siddiqi **UNIT – V [12 Hours]** ➢ **Shakhsiyat ki Sawaneh** ❖ Sawaneh ki tareef ❖ Allama Iqbal ki Sawaneh ❖ Moulana Abul Kalam Azad ki Sawaneh	❖ □□علامہ اقبال کی سوانح ❖ □□مولانا ابوالکلام آزاد کی سوانح

 # _____# Self Study Component for Seminar/Assignment:
(Questions should not be asked from self study component in the End Semester Examinations)

Text Books:

NISAB-E-JAMEEL EDITED BY Dr.S.MOHAMED YASSIR & Dr.S.MOHAMED MUDDASSIR

Reference Book:

- Qawayad Urdu– Maulvi Abdul Haq
- Hikayat e Sahaba – Maulana Yusuf Kandhalvi
- Mazameen e Sir Syed
- Inshayiya aur Inshayiye – Syed Muhammad Hasnain
- Mazhar-e- Adab – Edited by Dr.K.Habeeb Ahmed & Dr.K.H.Kaleemullah
- Adab-E-Jameel – Edited by Dr.K.Habeeb Ahmed , Dr.S.M.Yassir & Dr.S.M.Muddassir

Web Resources :

1. www.rekhta.org **2.** www.urduchannel.in **3.** www.urducouncil.nic.in

Mapping of Course Outcomes (COs) with Programme Outcomes (POs) and Programme Specific Outcomes (PSOs)

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	3	3	3	3							
CO2	3	3	3	3							
CO3	3	3	3	3							
CO4	3	3	3	3							
CO5	3	3	3	3							

3 – Strong; 2 – Medium; 1 – Low

Prepared by	Verified by

Sem	*Category*	*Course Code*	*Course Title*	*Hours*	*Credits*	*Int. Marks*	*Ext. Marks*	*Max. Marks*
II	*GEL*	***U24FUR201***	***URDU - II***	***60***	***3***	***25***	***75***	***100***

Objectives:

Course Outcomes (COs) and Cognitive Level Mapping:

COs	CO Statement (After completing the course, the students will be able to)	Cognitive Level
CO1	Describing Ghazals	**K2**
CO2	Analyze Urdu Poets' Contributions to Ghazal	**K4**
CO3	Evaluating Nazams and Its Themes	**K5**
CO4	Analyze and Critique Nazams by Various Poets	**K5**
CO5	Evaluate Literary Translations	**K6**

Cognitive Levels (K1-Remember**; K2-**Understand**; K3-**Apply**; K4-**Analyze**; K5-**Evaluate**; K6-**Create**)**

Syllabus:

UNIT – I [12 Hours]

- **Ghazliyat**
- Ghazal ki Tareef
- Mirza Ghalib ka taruf
- Mirza Ghalib ki Ghazal →Dil Hi toh Yeh Na Sang….
- Momin Khan Momin ka taruf
- Momin Khan Momin ki Ghazal →Adam Mein Rehte tu..

UNIT – II [12 Hours]

- Khaja Mir Dard ka tarruf
- Khaja Mir Dard →Tuhmatein Apne Zimme …..
- Jigar Muradabadi ka Tarruf
- Jigar Muradabadi ki Ghazal → Na Dunya ke Sitam….

UNIT – III [12 Hours]

- **Nazmein**
- Nazm ki Tareef
- Allama Iqbal ka tarruf
- Allama Iqbal ki Nazm →Khitab Ba Naujawan-e-Islam
- Khaja Altaf Hussain Hali ka tarruf
- Altaf Hussain Hali Ki Nazm →Taleem Ki Ahmiyat

UNIT – IV [12 Hours]

- Akbar Allahabadi ka tarruf
- Akbar Allahabadi ki Nazm Nagma e Hasrat
- Sahir Ludhyanavi ka tarruf
- Sahir Ludhyanvi Ki Nazm Taj Mahal
- Faiz Ahmad Faiz ka tarruf
- Faiz Ahmad Faiz ki Nazm Subh-e-Azadi

یونٹ – I

- ✓ □غزلیات
- ❖ □□غزل کی تعریف
- ❖ □□مرزا غالب کا تعارف
- ❖ □□مرزا غالب کی غزل□ دل ہی تو یہ نہ سنگ….
- ❖ □□مومن خان مومن کا تعارف
- ❖ □ □مومن خان مومن کی غزل □ عدم میں رہتے تو.

یونٹ -II

- ❖ □□خواجہ میر درد کا تعاوف
- ❖ خواجہ میر درد۔۔۔تہمتیں چند اپنے ذمے
- ❖ □□جگر مرادآبادی کا تعارف
- ❖ □□جگر مرادآبادی کی غزل □ نہ دنیا کے ستم….

یونٹ -III

- ✓ □ □نظمیں
- ❖ □□نظم کی تعریف
- ❖ □□علامہ اقبال کا تعارف
- ❖ علامہ اقبال کی نظم□□ خطابِ نو جوان اسلام
- ❖ □□خواجہ الطاف حسین حالی کا تعارف
- ❖ □□الطاف حسین حالی کی نظم□□ تعلیم کی اہمیت

یونٹ - IV

- ❖ □اکبر الہ آبادی کا تعارف
- ❖ □اکبر الہ آبادی کی نظم نغمۂ حسرت
- ❖ □ساحر لدھیانوی کا تعارف
- ❖ □ساحر لدھیانوی کی نظم تاج محل
- ❖ □فیض احمد فیض کا تعارف
- ❖ □فیض احمد فیض کی نظم صبح آزادی

یونٹ - V

- ✓ ترجمہ نگاری
- ❖ □ترجمہ نگاری کی تعریف

❖ تجارتی الفاظ (اردو اور انگریزی)
❖ پیاری اردو (ترجمہ اردو سے انگریزی)
❖ مکالمات (اردو اور انگریزی)

UNIT – V [12 Hours]

- Tarjama Nigari
- Tarjama Nigari Ki taareef
- Tijarati Alfaz (Urdu Aur Angrezi)
- Pyari Urdu (Tarjuma Urdu se Angrezi)
- Makalimat (Urdu Aur Angrezi

 # _____# Self Study Component for Seminar/Assignment:
(Questions should not be asked from self study component in the End Semester Examinations)

Text Books:
NISAB-E-JAMEEL EDITED BY Dr.S.MOHAMED YASSIR & Dr.S.MOHAMED MUDDASSIR

Reference Book:

- Deewan-e-Meer
- Deewan-e-Dard
- Deewan-e-Ghalib
- Kuliyath-e-Momin
- Kuliyath-e-Akbar
- Kuliyath-e- Iqbal
- Kuliyath-e- Jigar
- Kuliyath-e- Saher Ludhyanvi

Web Resources:
1. www.rekhta.org **2.** www.urduchannel.in **3.** www.urducouncil.nic.in

Mapping of Course Outcomes (COs) with Programme Outcomes (POs) and Programme Specific Outcomes (PSOs)

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	3	3	3	2							
CO2	2	3	3	2							
CO3	3	2	3	3							
CO4	3	2	2	2							
CO5	3	3	2	3							

3 – Strong; 2 – Medium; 1 – Low

Prepared by	Verified by

Sem	*Category*	*Course Code*	*Course Title*	*Hours*	*Credits*	*Int. Marks*	*Ext. Marks*	*Max. Marks*
II	*GEL*	***U24CSL201***	***SKILL LANGUAGE URDU LANGUAGE IDENTIFICATION AND COMPREHENSION***	***60***	***2***	***50***	***50***	***100***

Objectives:

Course Outcomes (COs) and Cognitive Level Mapping:

COs	CO Statement (After completing the course, the students will be able to)	Cognitive Level
CO1	Understanding Language Skills, Urdu Alphabets and Pronunciation	**K2**
CO2	Analyze Writing Proficiency in Urdu and Listening Skills	**K4**
CO3	Describe Compound Words in Urdu	**K4**
CO4	Constructing Basic Sentences and Reading Skills	**K5**
CO5	Enhancing Communication Skills and Writing Skills	**K6**

Cognitive Levels (K1-Remember**; K2-**Understand**; K3-**Apply**; K4-**Analyze**; K5-**Evaluate**; K6-**Create**)**

Syllabus:

UNIT – I [12 Hours]

- **Introduction about LSRW**
  - **Listening**
  - **Speaking**
  - **Reading and**
  - **Writing**

UNIT – II [12 Hours]

Listening:

- Huroof-e-Thaji (Urdu Alphabet)
- Murakab Alfaaz (Compound Words)
- Small Sentences

UNIT – III [12 Hours]

Speaking:

- Huroof-e-Thaji (Urdu Alphabet)
- Murakab Alfaaz (Compound Words)
- Small Sentences

UNIT – IV [12 Hours]

Reading:

- Huroof-e-Thaji (Urdu Alphabet)
- Murakab Alfaaz (Compound Words)
- Small Sentences

یونٹ – I [12 گھنٹے]

- ✓ LSRW کے بارے میں تعارف
- ✓ سمات
- ✓ تقریر
- ✓ قرات
- ✓ تحریر

یونٹ – I I [12 گھنٹے]

- ✓ سمات
- ✓ اردو حروف تہجی
- ✓ مرکب الفاظ
- ✓ چھوٹے جملے

یونٹ – I II [12 گھنٹے]

- ✓ تقریر
- ✓ اردو حروف تہجی
- ✓ مرکب الفاظ
- ✓ چھوٹے جملے

یونٹ – I V [12 گھنٹے]

- ✓ قرات
- ✓ اردو حروف تہجی
- ✓ مرکب الفاظ
- ✓ چھوٹے جملے

یونٹ – V [12 گھنٹے]

- ✓ تحریر
- ✓ اردو حروف تہجی
- ✓ مرکب الفاظ
- ✓ چھوٹے جملے

UNIT – V [12 Hours]

Writing:

- ❖ Huroof-e-Thaji (Urdu Alphabet)
- ❖ Murakab Alfaaz (Compound Words)
- ❖ Small Sentences

 # _____# Self Study Component for Seminar/Assignment:
(Questions should not be asked from self study component in the End Semester Examinations)

Text Books:

Urdu for All – Part -I & II published by NCPUL, New Delhi

Reference Books:

1. **"Urdu: An Essential Grammar" by Ruth Laila Schmidt**
2. **"Urdu-English English-Urdu Dictionary" by S. M. Salimuddin, Suhail Anjum, and Rauf Parekh**
3. **"Urdu ki Pehli Kitab" by Muhammad Sharif Baqa**
4. **"Learning Urdu: A Comprehensive Course" by Mahvash Shaheen**

Web Resources :

1. www.rekhta.org 2. www.urduchannel.in 3. www.urducouncil.nic.in 4. BBC Urdu 5. UrduPod101 6. YouTube Channels - Urdu Stories for Kids

Mapping of Course Outcomes (COs) with Programme Outcomes (POs) and Programme Specific Outcomes (PSOs)

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	3	3	3	3							
CO2	3	2	2	3							
CO3	3	3	3	3							
CO4	3	2	2	3							
CO5	3	3	2	2							

3 – Strong; 2 – Medium; 1 – Low

Prepared by	Verified by

C. Abdul Hakeem College (Autonomous), Melvisharam.

Syllabus for All I Year UG Courses effective from the year 2024-2025

Sem	*Category*	*Course Code*	*Course Title*	*Hours*	*Credits*	*Int. Marks*	*Ext. Marks*	*Max. Marks*
I	*GEL*	*U24FEN101*	*ENGLISH – I*	*60*	*3*	*25*	*75*	*100*

Course Objectives

CO1	To enable learners to acquire self-awareness required in various life situations.
CO2	To enable learners to inculcate positive thinking required in various life situations.
CO3	To help them acquire the attribute of empathy
CO4	To assist them in acquiring creative and critical thinking abilities
CO5	To enable them to learn the basic grammar

Unit I

Prose

a. At School - M. K. Gandhi

b. My Early Days - A.P.J. Abdul Kalam

Poetry

a. The Character of Happy Life - Henry Wotton

b. Stopping by the Woods on a Snowy Evening - Robert Frost

Unit II

Prose

a. My Financial Career - Stephen Leacock

b. Computeracy - Peter Lurie

Poetry

a. Where the Mind is Without Fear – Rabindranath Tagore

b. If – Rudyard Kipling

Unit III : Short Stories

a. The Happy Prince - Oscar Wilde

b. Engine Trouble - R.K. Narayan

Unit IV : Autobiography & Reader's Theatre

a. I am Malala (Chapter 1) - MalalaYousafzai,

b. The Refund – Fritz Karinthy

Unit V

Lexical Skills & Grammar

a. Synonyms and Antonyms

b. Homophones and Homonyms

c. Words often Confused

Grammar

a. Sentence
b. Subject and predicate
c. Parts of Speech
d. Noun and its kinds
e. Pronoun and its kinds
f. Articles and Prepositions

Prescribed Book: New Vistas in English – I, Board of Editors, Published by Hakeem Publication, Department of English, C. Abdul Hakeem College (Autonomous), Melvisharam-632509. www.cahc.ac.in, Mail: hakeemcollege@edu.in

Sem	*Category*	*Course Code*	*Course Title*	*Hours*	*Credits*	*Int. Marks*	*Ext. Marks*	*Max. Marks*
II	*GEL*	***U24FEN201***	***ENGLISH – II***	***60***	***3***	***25***	***75***	***100***

Course Objectives

CO1	To facilitate self-awareness for handling diverse life situations.
CO2	To cultivate positive thinking skills for various life scenarios.
CO3	To develop empathy as a core attribute.
CO4	To nurture creative and critical thinking abilities.
CO5	To apply acquired grammar knowledge to improve the quality and effectiveness.

Unit I

Prose

a. The Secret of Work - Swami Vivekananda
b. Uncle Podger Hangs a Picture – Jerome K Jerome

Poetry

a. Satan's Speech - John Milton
b. Night of the Scorpion - Nissim Ezekiel

Unit II

Prose

a. Mobile and Mixed Up – Anil Dharker
b. Words of Wisdom – Chetan Bhagat

Poetry

a. The Road Not Taken – Robert Frost
b. Alice Fell or Poverty – William Wordsworth

Unit III

Short Stories

a. The Lady or the Tiger - Frank Stockton
b. The Diamond Necklace – Guy de Maupassant

Unit IV

Biography & One Act Play

a. The Saga of a Philanthropist
b. The Never Never Nest – Cedric Mount

Unit V

Lexical Skills & Grammar

a. One Word Substitutes
b. Correct Usage of words
c. Formation of plurals

Parts of Speech

a. The Phrase and The Clause - Types
b. Adjective and its kinds
c. Verb and its kinds
d. Conjunction
e. Interjection

Prescribed Book: New Vistas in English–II, Board of Editors, Published by Hakeem Publication, Department of English, C. Abdul Hakeem College (Autonomous), Melvisharam-632509. www.cahc.ac.in, Mail: hakeemcollege@edu.in

Sem	*Category*	*Course Code*	*Course Title*	*Hours*	*Credits*	*Int. Marks*	*Ext. Marks*	*Max. Marks*
II	*GEL*	***U24FEN201***	***SKILLS FOR COMMUNICATION***	***60***	***3***	***25***	***75***	***100***

Course Objectives

CO1	To inculcate communicative proficiencies in the learners
CO2	To develop the essential aspects of effective written communication.
CO3	To implant essential emotions needed in professional life.
CO4	To enhance contextual communication in personal and professional situations with courtesy
CO5	To instill competences required in recruitment process

Unit I - Spoken Communication:

1. Communication Etiquette
2. Introducing Self and Others
3. Listening for Specific Information
4. Asking for Information and Giving Information
5. Giving and Following Instructions

Unit II - Written Communication:

1. Paragraph and Types of Paragraphs
2. Descriptive Writing – Writing a Short Descriptive Essays of Two to Three Paragraphs
3. Dialogue Writing
4. Preparing Agenda for the Meeting
5. Writing Minutes of the Meeting

Unit III - Intrapersonal Communication:

1. Emotional Intelligence
2. Goal Setting
3. Stress Management
4. Positive Attitude
5. Common Sense

Unit – IV - Interpersonal Communication:

1. Listening to Famous Speeches and Poems
2. Making Short Speeches – Welcome Address and Vote of Thanks
3. Making Short Presentation with PPT
4. Day - to - Day Communication
5. Communication with Fellow-Employee

Unit – V - Employment Communication:

1. Preparing Resume & Curriculum Vitae
2. Writing Covering Letter
3. Aptitude Test
4. Facing an Interview
5. Group Discussion

Prescribed Book: Skills for Communication, Board of Editors, Published by Hakeem Publication, Department of English, C. Abdul Hakeem College (Autonomous), Melvisharam-632509. www.cahc.ac.in, Mail: hakeemcollege@edu.in

C. Abdul Hakeem College (Autonomous), Melvisharam.

Syllabus for B.Sc., Chemistry effective from the year 2024-2025

Sem	*Category*	*Course Code*	*Course Title*	*Hours*	*Credits*	*Int. Marks*	*Ext. Marks*	*Max. Marks*
I	*CC*	***U24MCH101***	***GENERAL CHEMISTRY- I***	***75***	***5***	***25***	***75***	***100***

Objectives:

- To explain the various atomic models
- To understand the wave particle duality of matter
- To study the periodicity in properties and its application in explaining the chemical behavior
- To study the nature of chemical bonding
- To recall the fundamental concepts of organic chemistry

Course Outcomes (COs) and Cognitive Level Mapping:

COs	**CO Statement** (After completing the course, the students will be able to)	**Cognitive Level**
CO1	Illustrate the atomic structure, wave – particle nature of radiation and to arrive at the electronic structure of atom	**K2**
CO2	Discuss the importance of Schrodinger Wave equation to visualize orbitals and periodic trends	**K2**
CO3	Examine the structure and properties of ionic compounds, and identify the shapes of the molecule using VSEPR theory.	**K4**
CO4	Outline and compare the VB and MO theories.	**K3**
CO5	Summarize the basic concept of organic reactions, bond cleavage, inductive effect and resonance.	**K2**

Cognitive Levels (K1-Remember**; K2-**Understand**; K3-**Apply**; K4-**Analyze**; K5-**Evaluate**; K6-**Create**)**

UNIT I - Atomic Structure:

Black - Body Radiation and Planck's quantum theory - Bohr's model of atom. Interpretation of H - spectrum; Photoelectric effect, Compton effect; Dual nature of Matter- De- Broglie wavelength - Davisson and Germer experiment, Heisenberg's Uncertainty Principle; Electronic Configuration of Atoms and ions- Hund's rule, Pauli's exclusion principle and Aufbau principle.

Numerical problems involving the core concepts.

Unit II – Introduction to Quantum mechanics and Periodic Trends:

Classical mechanics, Formulation of Schrodinger wave equation –- visualizing the orbitals - Probability density and significance of Ψ and Ψ^2.

#Postulates of quantum mechanics#; #Probability and electron density#

Periodicity; Features of the periodic table; classification of elements – Periodic trends for atomic size- atomic radii, ionic, crystal and covalent radii; ionization energy, electron affinity, electronegativity-electronegativity scales, applications of electronegativity.

Problems involving the core concepts.

#Modern Periodic Table#

UNIT III - Structure and bonding – I:

Ionic bond

Lewis dot structure of ionic compounds; properties of ionic compounds; Energy involved in ionic compounds; Born Haber cycle – lattice energies, Madelung constant; relative effect of lattice energy and solvation energy; Ion polarization – polarizing power and polarizability; Fajans' rules - effects of polarization on properties of compounds; problems involving the core concepts.

Covalent bond

Shapes of orbitals, overlap of orbitals – σ and Π bonds; directed valency -hybridization; VSEPR theory - shapes of molecules of the type AB_2, AB_3, AB_4, AB_5, AB_6 and AB_7.

Partial ionic character of covalent bond-dipole moment, application to molecules of the type A_2, AB, AB_2, AB_3, AB_4; percentage ionic character- numerical problems based on calculation of percentage ionic character.

UNIT IV - Structure and bonding – II:

VB theory – application to hydrogen molecule; concept of resonance - resonance structures of some inorganic species – CO_2, NO_2, NO_3^- & CO_3^{2-} – limitations of VBT.

MO theory - bonding, antibonding and nonbonding orbitals, bond order; MO diagrams of H_2, C_2, O_2, O_2^+, O_2^-, O_2^{2-}, N_2, NO, HF, CO; magnetic characteristics, comparison of VB and MO theories.

Metallic bond-electron sea model, VB model; Band theory-mechanism of conduction in solids; conductors, insulator, semiconductor – types, applicationsof semiconductors.

Concept of H - bonding and weak chemical forces.

UNIT V - Basic concepts in Organic Chemistry and Electronic effects:

Types of organic reactions- addition, substitution, elimination and rearrangements.

Types of bond cleavage – heterolytic and homolytic; arrow pushing in organic reactions; reagents and substrates; types of reagents - electrophiles, nucleophiles, free radicals; reaction intermediates – carbanions, carbocations, carbenes, arynes and nitrenes.

Inductive effect - reactivity of alkyl halides, acidity of halo acids, basicity of amines; inductomeric and electromeric effects.

Resonance – resonance energy, conditions for resonance - acidity of phenols,basicity of aromatic amines, stability of carbonium ions, carbanions and free radicals. #reactivity of vinyl chloride, dipole moment of vinyl chloride andnitrobenzene, bond lengths; steric inhibition to resonance#

Hyperconjugation - stability of alkenes, bond length.

 # _____# Self Study Component for Seminar/Assignment:

(Questions should not be asked from self-study component in the End Semester Examinations)

Text Books:

1. Madan, R. D. and Sathya Prakash, Modern Inorganic Chemistry, 2nded.; S. Chand and Company: New Delhi, 2003.

2. Rao, C.N. R. University General Chemistry, Macmillan Publication: New Delhi, 2000.

3. Puri, B. R. and Sharma, L. R. Principles of Physical Chemistry, 38thed; Vishal Publishing Company: Jalandhar, 2002.

4. Bruce, P. Y. and Prasad K. J. R. Essential Organic Chemistry, Pearson Education: New Delhi, 2008.

Reference Books:

1. Maron, S. H. and Prutton C. P. Principles of Physical Chemistry,4th ed.; The Macmillan Company: Newyork,1972.

2. Lee, J. D. Concise Inorganic Chemistry, 4th ed.; ELBS William Heinemann: London,1991.

3. Gurudeep Raj, Advanced Inorganic Chemistry, Goel Publishing House: Meerut, 2001.

4. Atkins, P.W. & Paula, J. Physical Chemistry, Oxford University Press: New York, 2014.

5. Huheey J. E. Inorganic Chemistry: Principles of Structure and Reactivity, 4th ed.; Addison, Wesley Publishing Company: India,1993.

e-Resources:

1) https://ncert.nic.in/ncerts/l/kech102.pdf -Introduction to atomic structure
2) https://www.sciencegeek.net/APchemistry/APpdfs/chap07notes.pdf - Periodicity
3) https://youtu.be/uDFLHTDJ4XA?si=W30I_tXKW33DaLFe- Ionic and Covalent Bonding
4) https://youtu.be/nTujP4jCbsg?si=cDj6jweklf8T6sDI VB and MO theory
5) https://youtu.be/YfhaoRefogY?si=VwOHi6a9TcmfwDFe - Types of Organic Reactions

Mapping of Course Outcomes (COs) with Programme Outcomes (POs) and Programme Specific Outcomes (PSOs)

COs	Programme Outcomes						Programme Specific Outcomes		
	PO1	PO2	PO3	PO4	PO5	PO6	PSO1	PSO2	PSO3
CO1	3	3	3	-	-	-	3	3	1
CO2	3	3	3	-	-	-	3	3	1
CO3	3	3	3	-	-	-	3	3	1
CO4	3	3	3	-	-	-	3	3	1
CO5	3	3	3	-	-	-	3	3	1
Mean	3	3	3	-	-	-	3	3	1

3 – Strong; 2 – Medium; 1 – Low

Prepared by	Verified by
Dr. Z. Abdul Vaheith	Dr. S. Zaheer Ahmed

Sem	*Category*	*Course Code*	*Course Title*	*Hours*	*Credits*	*Int. Marks*	*Ext. Marks*	*Max. Marks*
I	*CC*	*U24MCHP11*	*TITRIMETRY AND INORGANIC PREPARATIONS*	*45*	*3*	*25*	*75*	*100*

Objectives:

- To understand laboratory safety
- To learn handling of glasswares
- To study quantitative estimation
- To prepare inorganic complexes

Course Outcomes (COs) and Cognitive Level Mapping:

COs	CO Statement (After completing the course, the students will be able to)	Cognitive Level
CO1	Demonstrate the safety usage of chemicals and common apparatus	**K2**
CO2	Explain the principles of volumetric analysis	**K2**
CO3	Develop the skill to estimate the amount of a substance present in a given solution.	**K6**
CO4	Calculate the concentrations of unknown solutions in different ways	**K5**
CO5	Prepare inorganic complexes and assess the yield	**K6**

Cognitive Levels (K1-Remember**; K2-**Understand**; K3-**Apply**; K4-**Analyze**; K5-**Evaluate**; K6-**Create**)**

Unit I

Chemical Laboratory Safety in Academic Institutions

Introduction - importance of safety education for students, common laboratory hazards, assessment and minimization of the risk of the hazards, prepare for emergencies from uncontrolled hazards; concept of MSDS; importance and care of PPE; proper use and operation of chemical hoods and ventilation system; fire extinguishers-types and uses of fire extinguishers, demonstration of operation; chemical waste and safe disposal.

Common Apparatus Used in Quantitative Estimation (Volumetric)

Description and use of burette, pipette, standard flask, measuring cylinder, conical flask, beaker, funnel, dropper, clamp, stand, wash bottle, watch glass, wire gauge and tripod stand.

Principle of Quantitative Estimation (Volumetric)

Equivalent weight of an acid, base, salt, reducing agent, oxidizing agent; concept of mole, molality, molarity, normality; primary and secondary standards, preparation of standard solutions; theories of acid-base, redox, complexometric, iodimetric and iodometric titrations**;** indicators – types, theory of acid–base, redox, metal ion and adsorption indicators, choice of indicators.

Unit II

Quantitative Estimation (Volumetric)

Preparation of standard solution, dilution from stock solution

Acidimetry - Alkalimetry

Estimation of Hydrochloric acid – Standard oxalic acid
Estimation of Sodium Hydroxide – Standard sodium carbonate

Permanganometry

Estimation of Ferrous sulphate – Standard Mohr's salt

Estimation of Oxalic acid – Standard oxalic acid

Complexometry

Estimation of hardness of water using EDTA

Demonstration Experiments

Iodometry

Estimation of copper in copper sulphate using standard dichromate

Dichrometry

Estimation of Ferrous Iron using standard dichromate

Unit III

Preparation of Inorganic compounds:
Potash alum
Tetramminecopper (II) Sulphate
Hexamminecobalt (III) Chloride
Mohr`s salt

 # _____# Self Study Component for Seminar/Assignment:
(Questions should not be asked from self study component in the End Semester Examinations)

Text Books:

1. Venkateswaran, V.; Veeraswamy, R.; Kulandivelu, A.R. Basic Principles of Practical Chemistry,2nd ed.; Sultan Chand &Sons: New Delhi, 1997.

2. Nad, A. K.; Mahapatra, B.; Ghoshal, A.; An advanced course in Practical *Chemistry,* 3rd ed.; New Central Book Agency: Kolkata, 2007.

Reference Books:

1. Mendham, J.; Denney, R. C.; Barnes, J. D.; Thomas, M.; Sivasankar, B.; Vogel's Textbook of Quantitative Chemical Analysis, 6th ed.; Pearson Education Ltd: New Delhi, 2000.

e-Resources:

1) https://olseh.iisc.ac.in/wp-content/uploads/2019/03/IIScSafetyManual_Ver1_01.pdf
2) https://chemdictionary.org/titration-indicator
3) https://youtu.be/kc0Nc77t5Ig?si=egmDsIw6W87AQhuo
4) https://youtu.be/4VltXjR64SU?si=RCqrQV8spBW8U5Zu

Mapping of Course Outcomes (COs) with Programme Outcomes (POs) and Programme Specific Outcomes (PSOs)

COs	Programme Outcomes						Programme Specific Outcomes		
	PO1	PO2	PO3	PO4	PO5	PO6	PSO1	PSO2	PSO3
CO1	3	3	3	-	-	3	3	3	3
CO2	3	3	3	-	-	3	3	3	3
CO3	3	3	3	-	-	3	3	3	3
CO4	3	3	3	-	-	1	3	3	3
CO5	3	3	3	-	-	1	3	3	3
Mean	3	3	3	-	-	2.2	3	3	3

3 – Strong; 2 – Medium; 1 – Low

Prepared by	Verified by
Dr. S. Khaleel Basha	Dr. S. Zaheer Ahmed

Sem	*Category*	*Course Code*	*Course Title*	*Hours*	*Credits*	*Int. Marks*	*Ext. Marks*	*Max. Marks*
I	*SEC*	***U24SCH101***	***FOUNDATION COURSE IN CHEMISTRY (FC)***	***30***	***2***	***25***	***75***	***100***

Objectives:

- To create general awareness about the handling of chemicals and apparatus
- To recall the basic concepts of organic chemistry
- To recall the principles of inorganic chemistry
- To understand the fundamental concepts of physical Chemistry
- To know the basics of redox reactions

Course Outcomes (COs) and Cognitive Level Mapping:

COs	CO Statement (After completing the course, the students will be able to)	Cognitive Level
CO1	Explain the safety usage of chemicals and common apparatus	**K2**
CO2	Outline the basic concepts of organic chemistry	**K2**
CO3	Describe the importance of periodic table	**K2**
CO4	Explain the fundamentals of concepts in Physical chemistry	**K4**
CO5	Identify the importance of Analytical chemistry	**K3**

Cognitive Levels (K1-Remember**; K2-**Understand**; K3-**Apply**; K4-**Analyze**; K5-**Evaluate**; K6-**Create**)**

UNIT I: Chemistry Lab- General Awareness and First Aid Techniques:

Safety in Chemistry Lab - Introduction to Laboratory glass wares - storage and handling of chemicals - carcinogenic Chemical's - handling of ethers - toxic and poisonous chemicals. Burns and damages due to organic substances - acids, alkalis - burns in the eye-inhalation of toxic vapours - hazardous chemicals - dealing with bromine, Phenol and hot objects.

UNIT II: Introduction to Organic Chemistry:

Catenation - classification - Homologous series - General molecular formula - functional groups - General and IUPAC Nomenclature - Modern Concept of bonding in organic molecules, sp^3, sp^2, and sp hybridization in carbon by taking methane, ethane and benzene as examples. Electrophilic, Nucleophilic, free radical reactions.

UNIT III: Introduction to Inorganic chemistry:

Concept of atomic orbitals - Shape of s, p, & d orbitals - periodic table and the classification of elements and quantum numbers - Electronic Configuration of elements up to atomic number 30 - Types of chemical bonds - Schematic Illustration of bonds.

UNIT IV: Introduction to Physical Chemistry:

Atomic model - J.J. Thomson and Rutherford, Moseley's work on atomic number

Acid-base indicators Theory. – Action of phenolphthalein and methyl orange, titration curves, uses.

Degree of freedom of gaseous molecule - Principle of equipartition of energy.

States of matter: Basic Concepts of solid, liquid, Gaseous and colloidal state.

Unit V: Basic concepts of Mathematical relations and Analytical chemistry:

Equation of a straight Line - Trigonometric functions, Hyperbolic functions, Differentiation formulas, Integration – Integration formulas, Permutation and combination - Probability- vectors metrics and Determinants.

Concentration Units: Molality, Molarity, Normality, active mass and mole fraction

Oxidation Reduction Reactions: calculation of equivalent weight of acids, bases and salts

Basic Concept of Electrodes, Electrode potential and cells.

 # _____# Self Study Component for Seminar/Assignment:

(Questions should not be asked from self study component in the End Semester Examinations)

Reference Books:

1. B.R Puri, L. R. Sharma and K.C. Kalia, Principles of Inorganic Chemistry, 33rd Edition, Milestone Publishers and Distributors, New Delhi, India (2020).
2. Arun Bahl, B.S. Bahl, A Text Book of Organic Chemistry, 22nd Edition, S. Chand & Co. (2019).
3. B.R. Puri, L.R. Sharma & M.S. Pathania, Principles of Physical Chemistry, 48th Edition, Vishal Publishing Co. (2020).

e-Resources:

1) https://safetydocs.safetyculture.com/blog/handling-andstorage-of-chemicals-in-the-workplace
2) https://youtu.be/B_ketdzJtY8?si=sB0eyMkl-GDhkLgB
3) https://sciencenotes.org/types-of-chemical-bonds/
4) https://chem-textbook.ucalgary.ca/version2/chapter-14-main/acid-base-titrations/acid-base-indicators/
5) https://www.chem.fsu.edu/chemlab/chm1045/molarity.html

Mapping of Course Outcomes (COs) with Programme Outcomes (POs) and Programme Specific Outcomes (PSOs)

COs	Programme Outcomes						Programme Specific Outcomes		
	PO1	PO2	PO3	PO4	PO5	PO6	PSO1	PSO2	PSO3
CO1	3	3	3	-	-	3	3	3	-
CO2	3	3	3	-	-	-	3	3	-
CO3	3	3	3	-	-	-	3	3	-
CO4	3	2	3	-	-	2	3	3	-
CO5	3	3	3	-	-	-	3	3	-
Mean	3	2.8	3	-	-	1	3	3	-

3 – Strong; 2 – Medium; 1 – Low

Prepared by	Verified by
Dr. Z. Abdul Vaheith	Dr. S. Zaheer Ahmed

Sem	*Category*	*Course Code*	*Course Title*	*Hours*	*Credits*	*Int. Marks*	*Ext. Marks*	*Max. Marks*
I	*ISEC*	***U24SCH102***	***ROLE OF CHEMISTRY IN DAILY LIFE (SBS - I)***	***30***	***2***	***25***	***75***	***100***

Objectives:

- To discuss the importance of chemistry in everyday life
- To study the chemistry of building materials and food
- To understand the chemistry of drugs and pharmaceuticals

Course Outcomes (COs) and Cognitive Level Mapping:

COs	CO Statement (After completing the course, the students will be able to)	Cognitive Level
CO1	Explain the importance of chemistry in daily life	**K2**
CO2	Illustrate the development of material chemistry	**K2**
CO3	Analyze the significance of balanced diet in daily life	**K4**
CO4	Discuss the chemicals used for food production	**K2**
CO5	Explain the application of chemistry in pharmaceutical drugs, dyes and explosives	**K4**

Cognitive Levels (K1-Remember**; K2-**Understand**; K3-**Apply**; K4-**Analyze**; K5-**Evaluate**; K6-**Create**)**

UNIT-I

General survey of chemicals used in everyday life. Air - components and their importance; photosynthetic reaction, air pollution, green - house effect and the impact on our life style. Water - Sources of water, qualities of potable water, soft and hard water, methods of removal of hardness-water pollution

Unit-II

Building materials - cement, ceramics, glass and refractories - definition, composition and application only. Plastics - polythene, PVC, bakelite, polyesters, melamine-formaldehyde resins -preparation and uses only.

UNIT-III

Food and Nutrition - Carbohydrates, Proteins, Fats - definition and their importance as food constituents – balanced diet – Calories, minerals and vitamins (sources and their physiological importance). Cosmetics – tooth paste, face powder, soaps and detergents, shampoos, nail polish, perfumes - general formulation and preparations - possible hazards of cosmetic use.

UNIT-IV

Chemicals in food production – fertilizers - need, natural sources; urea, NPK fertilizers and super phosphate. Fuel – classification - solid, liquid and gaseous; nuclear fuel examples and uses.

UNIT-V

Pharmaceutical drugs - analgesics and antipyretics - paracetamol and aspirin. Colour chemicals - pigments and dyes - examples and applications. Explosives - classification and examples.

 # _____# Self Study Component for Seminar/Assignment:

(Questions should not be asked from self study component in the End Semester Examinations)

Text Books:

1.Food chemistry, H. K. Chopra, P. S. Panesar, Narosa publishing house, 2010.

2. A textbook of pharmaceutical chemistry by Jayashree Ghosh, S Chand publishing, 2012.

3. S. Vaithyanathan, Text book of Ancillary Chemistry; Priya Publications, Karur, 2006.

4. B. K, Sharma, Industrial Chemistry; GOEL publishing house, Meerut,

sixteenth edition, 2014.

5. Introduction to forensic chemistry, Kelly M. Elkins, CRC Press Taylor & Francis Group, 2019.

6. Jayashree Ghosh, Fundamental Concepts of Applied Chemistry, S. Chand & Co. Publishers, second edition, 2006.

Reference Books:

1.Randolph. Norris Shreve, Chemical Process Industries, McGraw-Hill, Texas, fourth edition, 1977.

2.W.A. Poucher, Joseph A. Brink, Jr. Perfumes, Cosmetics and Soaps, Springer, 2000.

3. A. K. De, Environmental Chemistry, New Age InternationalPublicCo.,1990.

e-Resources:

1) https://ebooks.inflibnet.ac.in/esp05/chapter/physical-chemical-and-biological-characteristics-of-water/
2) https://www.pdfdrive.com/ceramics-science-and-technology-volume-2-materials-and-properties-e187241944.html
3) https://www.academia.edu/28676594/Barel_Paye_Maibach_Handbook_of_Cosmetic_Science_and_Technology
4) https://www.sciencedirect.com/science/article/pii/S0956713523004401
5) https://www.intechopen.com/chapters/76561

Mapping of Course Outcomes (COs) with Programme Outcomes (POs) and Programme Specific Outcomes (PSOs)

COs	Programme Outcomes						Programme Specific Outcomes		
	PO1	PO2	PO3	PO4	PO5	PO6	PSO1	PSO2	PSO3
CO1	3	3	3	-	3	-	3	3	3
CO2	3	3	3	-	3	-	3	3	3
CO3	3	3	3	-	3	-	3	3	3
CO4	3	3	3	-	3	-	3	3	3
CO5	3	3	3	-	3	-	3	3	3
Mean	3	3	3	-	3	-	3	3	3

3 – Strong; 2 – Medium; 1 – Low

Prepared by	Verified by
Dr. Z. Abdul Vaheith	Dr. S. Zaheer Ahmed

Sem	Category	Course Code	Course Title	Hours	Credits	Int. Marks	Ext. Marks	Max. Marks
II	CC	U24MCH201	GENERAL CHEMISTRY- II	75	5	25	75	100

Objectives:

- To know the basic concepts of acids, bases and ionic equilibrium
- To study the properties of s and p-block elements
- To understand the chemistry of hydrocarbons

Course Outcomes (COs) and Cognitive Level Mapping:

COs	CO Statement (After completing the course, the students will be able to)	Cognitive Level
CO1	Explain the concept of acids, bases, ionic equilibria and salt hydrolysis	K2
CO2	Summarize the periodic properties of s and p- block elements.	K2
CO3	List the general characteristics of N, O, halogen and noble gases group elements	K4
CO4	Describe the nomenclature, preparation and properties of Aliphatic and Alicyclic hydrocarbons.	K4
CO5	Illustrate the aromaticity and basic reactions of benzene, naphthalene and anthracene	K2

Cognitive Levels (K1-Remember**; K2-**Understand**; K3-**Apply**; K4-**Analyze**; K5-**Evaluate**; K6-**Create**)**

UNIT I - Acids, bases and Ionic equilibria:

Concepts of Acids and Bases - Arrhenius concept, Bronsted-Lowry concept, Lewis concept; Relative strengths of acids, bases and dissociation constant;dissociation of poly basic acids, ionic product of water, pH scale, pH of solutions; Degree of dissociation, common ion effect, factors affecting degree of dissociation.

Buffer solutions – types, mechanism of buffer action in acid and basic buffer, Henderson-Hasselbalch equation;

Salt hydrolysis - salts of weak acids and strong bases, weak bases and strong acids, weak acids and weak bases - hydrolysis constant, degree of hydrolysis and relation between hydrolysis constant and degree of hydrolysis;

Solubility product - Principle and applications.

Unit II - Chemistry of s - Block Elements:

Hydrogen: Position of hydrogen in the periodic table. Alkali metals: Comparative study of the elements with respect to oxides, hydroxides, halides, carbonates and bicarbonates. Diagonal relationship of Li with Mg.

Alkaline earth metals - Anomalous behaviour of Be.

Chemistry of p- Block Elements (Group 13 & 14)

Preparation and structure of diborane and borazine. Chemistry of borax.

Extraction of Al and its uses. Alloys of Al.

Comparison of carbon with silicon. Carbon-di-sulphide – Preparation, properties, structure and uses. Percarbonates, permonocarbonates and perdicarbonates.

UNIT III - Chemistry of p- Block Elements (Group 15-18):

General characteristics of elements of Group 15; chemistry of $H_2N\text{-}NH_2$, NH_2OH, HN_3 and HNO_3. Chemistry of PH_3, PCl_3, PCl_5, $POCl_3$, P_2O_5 and oxy acids of phosphorous (H_3PO_3 and H_3PO_4).

General properties of elements of group16 - Structure and allotropy of elements - oxides of sulphur and selenium – Oxy acids of sulphur (Caro's and Marshall's acids).

Chemistry of Halogens: General characteristics of halogen with reference to electro-negativity, electron affinity, oxidation states and oxidizing power. Peculiarities of fluorine.

Inter-halogen compounds (ICl, ClF_3, BrF_5 and IF_7), pseudo halogens [$(CN)_2$ and $(SCN)_2$] and basic nature of Iodine.

Noble gases: Position in the periodic table. Preparation, properties and structure of XeF_2, XeF_4, XeF_6 and $XeOF_4$; uses of noble gases.

UNIT IV – Chemistry of Hydrocarbons - I:

Petroproducts: Fractional distillation of petroleum; cracking, isomerisation,alkylation, reforming and uses.

Alkenes-Nomenclature, general methods of preparation – Reactions of alkenes – addition reactions – mechanisms – Markownikoff's rule, Kharasch effect (Peroxide effect), oxidation reactions – hydroxylation, oxidative degradation, epoxidation, ozonolysis.

Alkadienes

Nomenclature - classification – isolated, conjugated and cumulated dienes; stability of conjugated dienes; mechanism of electrophilic addition to conjugated dienes - 1, 2 and 1, 4 additions; free radical addition to conjugated dienes– Diels–Alder reactions – polymerisation – polybutadiene, polyisoprene (natural rubber), vulcanisation, polychloroprene.

Alkynes

Nomenclature; general methods of preparation, properties and reactions; acidic nature of terminal alkynes and acetylene, polymerisation and isomerisation.

Cycloalkanes: Nomenclature, Relative stability of cycloalkanes, Bayer'sstrain theory and its limitations. Conformational analysis of cyclohexane, mono and di substituted cyclohexanes. Geometrical isomerism in cyclohexanes.

UNIT V - Chemistry of Hydrocarbons – II:

Benzene: Source, structure of benzene, stability of benzene ring, molecular orbital picture of benzene, aromaticity, Huckel's (4n+2) rule and its applications. Electrophilic substitution reactions - General mechanism of aromatic electrophilic substitution - nitration, sulphonation, halogenation, Friedel-Craft's alkylation and acylation. Mono substituted and disubstituted benzene - Effect of substituent – orientation and reactivity.

Polynuclear Aromatic hydrocarbons: Naphthalene – nomenclature, Haworth synthesis; physical properties, reactions – electrophilic substitution reaction, nitration, sulphonation, halogenation, Friedel – Crafts acylation & alkylation, preferential substitution at β - position – reduction, oxidation – uses.

Anthracene – synthesis by Elbs reaction, Diels – Alder reaction and Haworth synthesis; physical properties; reactions, preferential substitution at C-9 and C-10; uses.

 # _____# Self Study Component for Seminar/Assignment:
(Questions should not be asked from self study component in the End Semester Examinations)

Text Books:

1. Madan R D, Sathya Prakash, (2003), Modern Inorganic Chemistry, 2nded, S.Chand and Company, New Delhi.

2. Sathya Prakash, Tuli G D, Basu S K and Madan R D, (2003), Advanced Inorganic Chemistry, 17th ed., S. Chand and Company, New Delhi.

3. Bahl B S, Arul Bhal, (2003), Advanced Organic Chemistry, 3rd ed., S.Chand and Company, New Delhi.

4. Tewari K S, Mehrothra S N and Vishnoi N K, (1998), Text book of Organic Chemistry, 2nd ed., Vikas Publishing House, New Delhi.

5. Puri B R, Sharma L R, (2002), Principles of Physical Chemistry, 38th ed., Vishal Publishing Company, Jalandhar.

Reference Books:

1. Maron S H and Prutton C P, (1972), Principles of Physical Chemistry, 4th ed., The Macmillan Company, Newyork.

2. Barrow G M, (1992), Physical Chemistry, 5th ed., Tata McGraw Hill, New Delhi.

3. Lee J D, (1991), Concise Inorganic Chemistry, 4thed., ELBS William Heinemann, London.

4. Huheey J E, (1993), Inorganic Chemistry: Principles of Structure and Reactivity, 4th ed., Addison Wesley Publishing Company, India.

5. Gurudeep Raj, (2001), Advanced Inorganic Chemistry Vol – I, 26th ed., Goel Publishing House, Meerut.

6. Agarwal O P, (1995), Reactions and Reagents in Organic Chemistry, 8thed., Goel Publishing House, Meerut.

e-Resources:

1. https://chem.libretexts.org/Bookshelves/Inorganic_Chemistry/Map%3A_Inorganic_Chemistry_(Housecroft)/07%3A_Acids_bases_and_ions_in_aqueous_solution/7.01%3A_Introduction/7.1A%3A_Acid-Base_Theories_and_Concepts
2. https://www.youtube.com/live/XjeaQzl_Wr8?si=AafwRCuqjS2qQiWk
3. https://www.britannica.com/science/noble-gas
4. https://www.pdfdrive.com/the-chemistry-of-alkenes-v2-e186696063.html
5. https://ncert.nic.in/textbook/pdf/kech206.pdf

Mapping of Course Outcomes (COs) with Programme Outcomes (POs) and Programme Specific Outcomes (PSOs)

COs	Programme Outcomes						Programme Specific Outcomes		
	PO1	PO2	PO3	PO4	PO5	PO6	PSO1	PSO2	PSO3
CO1	3	3	3	-	-	-	3	3	3
CO2	3	3	3	-	-	-	3	3	3
CO3	3	3	3	-	-	-	3	3	3
CO4	3	3	3	-	-	-	3	3	3
CO5	3	3	3	-	-	-	3	3	3
Mean	3	3	3	-	-	-	3	3	3

3 – Strong; 2 – Medium; 1 – Low

Prepared by	Verified by
Dr. V. Saleem Malik	Dr. S. Zaheer Ahmed

Sem	*Category*	*Course Code*	*Course Title*	*Hours*	*Credits*	*Int. Marks*	*Ext. Marks*	*Max. Marks*
II	*CC*	***U24MCHP21***	***QUALITATIVE ORGANIC ANALYSIS AND PREPARATIONS OF ORGANIC COMPOUNDS***	***45***	***3***	***25***	***75***	***100***

Objectives:

- To understand the laboratory safety
- To know the handling of glass wares
- To analyze and prepare the organic compounds

Course Outcomes (COs) and Cognitive Level Mapping:

COs	CO Statement (After completing the course, the students will be able to)	Cognitive Level
CO1	Demonstrate the safe handling of apparatus	**K2**
CO2	Analyze an organic compound using appropriate test	**K4**
CO3	Identify the presence of special elements and functional groups in an unknown organic compound	**K5**
CO4	Prepare organic compounds	**K6**
CO5	Describe the various separation and purification techniques	**K2**

Cognitive Levels (K1-Remember**; K2-**Understand**; K3-**Apply**; K4-**Analyze**; K5-**Evaluate**; K6-**Create**)**

UNIT I

Safety rules, symbols and first-aid in chemistry laboratory

Basic ideas about Bunsen burner, its operation and parts of the flame. Chemistry laboratory glassware –basis information and uses

UNIT II

Qualitative Organic Analysis

Preliminary examination, detection of special elements - nitrogen, sulphur and halogens

Aromatic and aliphatic nature, Test for saturation and unsaturation,identification of functional groups using solubility tests

Confirmation of functional groups

- monocarboxylic acid, dicarboxylic acid
- monohydric phenol, polyhydric phenol
- aldehyde, ketone, ester
- carbohydrate (reducing and non-reducing sugars)
- primary, secondary, tertiary amine
- monoamide, diamide, thioamide
- anilide, nitro compound
- Preparation of derivatives for functional groups

UNIT III

Preparation of Organic Compounds

i. Nitration - picric acid from Phenol
ii. Halogenation - p-bromo acetanilide from acetanilide
iii. Oxidation - benzoic acid from Benzaldehyde
iv. Microwave assisted reactions in water:
v. Methyl benzoate to Benzoic acid
vi. Salicylic acid from Methyl Salicylate
vii. Rearrangement - Benzil to Benzilic Acid
viii. Hydrolysis of benzamide to Benzoic Acid.

Separation and Purification Techniques (Not for Examination)

1. Purification of organic compounds by crystallization from (water/alcohol)and distillation

2. Determination of melting and boiling points of organic compounds.

3.Steam distillation - Extraction of essential oil from citrus fruits/eucalyptusleaves.

4. Chromatography (any one) (Group experiment)

(i) Separation of amino acids by Paper Chromatography

(ii) Thin Layer Chromatography - mixture of sugars / plant pigments / Permanganate dichromate.

(iii) Column Chromatography - extraction of carotene, chlorophyll and xanthophyll from leaves / separation of anthracene - anthracene picrate.

5. Electrophoresis – Separation of amino acids and proteins. (Demonstration)

6. Isolation of casein from milk/Determination of saponification value of oil orfat/Estimation of acetic acid from commercial vinegar. (Any one Group experiment)

 # _____# Self Study Component for Seminar/Assignment:
(Questions should not be asked from self study component in the End Semester Examinations)

Reference Books:

1. Venkateswaran, V.; Veeraswamy, R.; Kulandaivelu, A.R. Basic Principles of Practical Chemistry, 2nd ed.; Sultan Chand: New Delhi, 2012.

2. Manna, A.K. Practical Organic Chemistry, Books and Allied: India, 2018.

3. Gurtu, J. N; Kapoor, R. Advanced Experimental Chemistry (Organic), Sultan Chand: New Delhi, 1987.

4. Furniss,B. S.; Hannaford, A. J.; Smith, P. W. G.; Tatchell, A.R. Vogel's Textbook of Practical Organic Chemistry, 5th ed.; Pearson: India,1989.

e-Resources:

1. https://microbenotes.com/laboratory-safety-symbols/
2. https://www.vlab.co.in/broad-area-chemical-sciences
3. https://byjus.com/chemistry/steam-distillation/
4. https://youtu.be/SnbXQTTHGs4?si=zhbFDrA5i1Txu6Ae

Mapping of Course Outcomes (COs) with Programme Outcomes (POs) and Programme Specific Outcomes (PSOs)

COs	Programme Outcomes						Programme Specific Outcomes		
	PO1	PO2	PO3	PO4	PO5	PO6	PSO1	PSO2	PSO3
CO1	3	3	3	-	-	-	3	3	3
CO2	3	3	3	-	-	-	3	3	3
CO3	3	3	3	-	-	-	3	3	3
CO4	3	3	3	-	-	-	3	3	3
CO5	3	3	3	-	-	-	3	3	3
Mean	3	3	3	-	-	-	3	3	3

3 – Strong; 2 – Medium; 1 – Low

Prepared by	Verified by
Dr. K. Abdul Wasi	Dr. S. Zaheer Ahmed

Sem	Category	Course Code	Course Title	Hours	Credits	Int. Marks	Ext. Marks	Max. Marks
II	ISEC	U24SCH201	DAIRY CHEMISTRY (SBS - II)	30	2	25	75	100

Objectives:

- To understand the chemistry of milk and milk products
- To know the processing of milk
- To study about preservation and formation of milk products.

Course Outcomes (COs) and Cognitive Level Mapping:

COs	CO Statement (After completing the course, the students will be able to)	Cognitive Level
CO1	Describe the composition of milk – constituents and its physical properties.	K2
CO2	Discuss the pasteurization of Milk and various types of pasteurization - Bottle, Batch and HTST Ultra High Temperature Pasteurization.	K2
CO3	Distinguish the Cream and Butter with their composition	K4
CO4	Explain about Homogenized milk, flavored milk, vitaminized milk and toned milk.	K2
CO5	Illustrate the preparation of milk powder and its drying process	K2

Cognitive Levels (K1-Remember**; K2-**Understand**; K3-**Apply**; K4-**Analyze**; K5-**Evaluate**; K6-**Create**)**

Syllabus:

UNIT I - Composition of Milk:

Milk-definition-general composition of milk- constituents of milk - lipids, proteins, carbohydrates, vitamins and minerals - physical properties of milk - colour, odour, acidity, specific gravity, viscosity and conductivity -Factors affecting the composition of milk - adulterants, preservatives with neutralizer - examples and their detection- estimation of fat, acidity and total solids in milk.

Unit II - Processing of Milk:

Microbiology of milk - destruction of micro - organisms in milk, physico – chemical changes taking place in milk due to processing - boiling, pasteurization – types of pasteurization -Bottle, Batch and HTST (High Temperature Short Time) – Vacuum pasteurization – Ultra High Temperature Pasteurization

UNIT III - Major Milk Products:

Cream - definition - composition - chemistry of creaming process - gravitational and centrifugal methods of separation of cream - estimation of fatin cream. Butter - definition -composition - theory of churning – desi butter - salted butter, estimation of acidity and moisture content in butter. Ghee - major constituents - common adulterants added to ghee and their detection – rancidity - definition - prevention - antioxidants and synergists - natural and synthetic.

UNIT IV - Special Milk:

Standardised milk - definition - merits - reconstituted milk - definition - flowdiagram of manufacture - Homogenised milk - flavoured milk – vitaminized milk - toned milk -Incitation milk - Vegetable toned milk - humanized milk - condensed milk - definition, composition and nutritive value.

UNIT V - Fermented and other Milk Products:

Fermented milk products – fermentation of milk - definition, conditions, cultured milk - definition of culture - example, conditions - cultured cream,butter milk - Bulgarious milk - acidophilous milk – Yoheer Indigenous products- khoa and chhena definition - Ice cream-definition-percentagecomposition-types-ingredients-manufacture of ice-cream stabilizers - emulsifiers and their role – milk powder - definition-need for making milk powder - drying process-types of drying.

 # _____# Self Study Component for Seminar/Assignment:
(Questions should not be asked from self study component in the End Semester Examinations)

Text Books:

1. K. Bagavathi Sundari, Applied Chemistry, MJP Publishers, first edition, 2006.
2. K. S. Rangappa and K.T. Acharya, Indian Dairy Products, Asia Publishing House New Delhi, 1974.
3. Text book of dairy chemistry, M.P. Mathur, D. Datta Roy, P. Dinakar, Indian Council of Agricultural Research, 1 st edition, 2008.
4. A Text book of dairy chemistry, Saurav Singh, Daya Publishing house, 1 st edition,2013.
5. Text book of dairy chemistry, P. L. Choudhary, Bio-Green book publishers, 2021.

Reference Books:

1. Robert Jenness and S. Patom, Principles of Dairy Chemistry, S.Wiley, New York, 2005.
2. F.P.Wond, Fundamentals of Dairy Chemistry,Springer,Singapore,2006.
3. Sukumar De, Outlines of Dairy Technology, Oxford University Press, New Delhi, 1980.
4. P.F.Fox and P.L.H. Mcsweeney, Dairy Chemistry and Biochemistry, Springer, Second edition, 2016.
5. Dairy chemistry and biochemistry, P. F. Fox, T. Uniacke-Lowe, P.L.H.
McSweeney, J.A. OMahony, Springer, Second edition, 2015.

e-Resources:

1. https://www.ndvsu.org/images/StudyMaterials/LPT/Milk-Composition-and-its-constituents.pdf
2. https://www.thoughtco.com/what-is-pasteurization-4177326
3. https://www.basu.org.in/wp-content/uploads/2020/08/Standardization-of-Milk.pptx
4. https://www.afsuter.com/product-category/application/emulsifiers-stabilisers-thickeners-gelling-agents/

Mapping of Course Outcomes (COs) with Programme Outcomes (POs) and Programme Specific Outcomes (PSOs)

COs	Programme Outcomes						Programme Specific Outcomes		
	PO1	PO2	PO3	PO4	PO5	PO6	PSO1	PSO2	PSO3
CO1	3	3	3	-	-	-	3	3	-
CO2	3	3	3	-	-	-	3	3	-
CO3	3	3	3	-	-	-	3	3	-
CO4	3	3	3	-	-	-	3	3	-
CO5	3	3	3	-	-	-	3	3	-
Mean	3	3	3	-	-	-	3	3	-

3 – Strong; 2 – Medium; 1 – Low

Prepared by	Verified by
Dr. K. Abdul Wasi	Dr. S. Zaheer Ahmed

Sem	*Category*	*Course Code*	*Course Title*	*Hours*	*Credits*	*Int. Marks*	*Ext. Marks*	*Max. Marks*
II	*DSSEC*	***U24SCH202***	***COSMETICS AND PERSONAL CARE PRODUCTS (SBS - III)***	***30***	***2***	***25***	***75***	***100***

Objectives:

- To study the formulations of various types of cosmetics and their significance
- To understand about hair, skin and dental care
- To know about cosmetics preparations and personal grooming

Course Outcomes (COs) and Cognitive Level Mapping:

COs	CO Statement (After completing the course, the students will be able to)	Cognitive Level
CO1	Describe the composition of various cosmetic products	**K2**
CO2	Discuss chemical aspects and applications of hair care, dental care and skin care products	**K2**
CO3	Illustrate the chemical aspects and applications of perfumes and skin care products.	**K2**
CO4	Describe the methods of beauty treatments their advantages and disadvantage	**K2**
CO5	Relate the hazards of cosmetic products.	**K1**

Cognitive Levels (K1-Remember**; K2-**Understand**; K3-**Apply**; K4-**Analyze**; K5-**Evaluate**; K6-**Create**)**

Unit I - Skin care:

Nutrition of the skin, skin care and cleansing of the skin; face powder – ingredients; creams and lotions – cleansing, moisturizing all purpose, shavingand sunscreen (formulation only); Gels – formulation and advantages; astringent and skin tonics – key ingredients, skin lightness, depilatories.

Unit II - Hair care:

Shampoos – types – powder, cream, liquid, gel – ingredients; conditioner –types – ingredients

Dental care

Tooth pastes – ingredients – mouth wash

Unit III - Make up:

Base – foundation – types – ingredients; lipstick, eyeliner, mascara, eyeshadow, concealers, rouge

Unit IV - Perfumes:

Classification - Natural – plant origin – parts of the plant used, chief constituents; animal origin – amber gries from whale, civetone from civet cat, musk from musk deer; synthetic – classification emphasizing characteristics – esters – alcohols – aldehydes – ketones.

Unit V - Beauty treatments:

Facials - types – advantages – disadvantages; face masks – types; bleach -types – advantages– disadvantages; shaping the brows; eyelash tinting; perming – types; hair colouring and dyeing; permanent waving – hair straightening; wax – types – waxing; pedicure, manicure - advantages – disadvantages

 # _____# Self Study Component for Seminar/Assignment:

(Questions should not be asked from self study component in the End Semester Examinations)

Text Books:

1. Thankamma Jacob, (1997) Foods, drugs and cometics – A consumer guide, Macmillan publication, London.

Reference Books:

1. Wilkinson J B E and Moore R J, (1997) Harry's cosmeticology, 7th ed., Chemical Publishers, London.
2. George Howard, (1987) Principles and practice of perfumes and cosmetics, Stanley Therones, Chettenham

e-Resources:

1. https://consumeraffairs.nic.in/sites/default/files/fileuploads/ctocpas/SkinMoisturizers_13.pdf
2. https://oms.bdu.ac.in/ec/admin/contents/66_P16CHE4B_2020063010232422.pdf
3. https://www.researchgate.net/publication/327813959_Sustainable_Application_of_Natural_Dyes_in_Cosmetic_Industry

Mapping of Course Outcomes (COs) with Programme Outcomes (POs) and Programme Specific Outcomes (PSOs)

COs	Programme Outcomes						Programme Specific Outcomes		
	PO1	PO2	PO3	PO4	PO5	PO6	PSO1	PSO2	PSO3
CO1	3	3	3	-	-	-	3	3	-
CO2	3	3	3	-	-	-	3	3	-
CO3	3	3	3	-	-	-	3	3	-
CO4	3	3	3	-	-	-	3	3	-
CO5	3	3	3	-	-	-	3	3	-
Mean	3	3	3	-	-	-	3	3	-

3 – Strong; 2 – Medium; 1 – Low

Prepared by	Verified by
Dr. Z. Abdul Vaheith	Dr. S. Zaheer Ahmed

C. Abdul Hakeem College (Autonomous), Melvisharam.

Syllabus for B.Sc., Mathematics & Chemistry effective from the year 2024-2025

Sem	*Category*	*Course Code*	*Course Title*	*Hours*	*Credits*	*Int. Marks*	*Ext. Marks*	*Max. Marks*
I	*GEL*	***U24APH101***	***PHYSICS - I (ALLIED)***	***60***	***4***	***25***	***75***	***100***

Objectives:

To provide students with a solid foundation in the principles of physics, focusing on mechanics, fluid properties, heat transfer and sound.

Course Outcomes (COs) and Cognitive Level Mapping:

COs	CO Statement (After completing the course, the students will be able to)	Cognitive Level
CO1	Recall the concepts of elasticity and mechanical properties of materials	**K1**
CO2	Explain the surface tension and viscosity of liquids	**K2**
CO3	Outline the Newton's and Kepler's laws of motion	**K4**
CO4	Recognize the transmission of heat by conduction and radiation	**K4**
CO5	Focus on transverse waves and ultrasonic waves in real life situations	**K4**

Cognitive Levels (K1-Remember**; K2-**Understand**; K3-**Apply**; K4-**Analyze**; K5-**Evaluate**; K6-**Create**)**

UNIT I: Properties of Matter 12 Hours

Elasticity – Hooke's Law – Young's modulus – Rigidity modulus – Bulk modulus – Bending of beams – Expression for bending moment – Non-uniform bending – Determination of Young's modulus – Expression for Couple per unit twist – Work done in twisting a wire – Determination of Rigidity modulus of a wire by torsion pendulum.

UNIT II: Viscosity and Surface tension 12 Hours

Viscosity – Viscous force – Co-efficient of viscosity – Poiseuille's formula – Determination of coefficient of viscosity using burette.

Surface tension – Definition – Molecular theory of surface tension – Excess pressure inside a drop and bubble – Drop weight method – Interfacial surface tension – Capillary rise – Variation of surface tension with temperature.

UNIT-III: Mechanics 12 Hours

Newton's Laws – forces – equations of motion – frictional force – motion of a particle in a uniform gravitational field.

Gravitation – Classical theory of gravitation – Kepler's laws, Newton's law of gravitation – Determination of G by Boy's method – Earth-moon system – weightlessness – earth satellites – parking orbit – earth density – mass of the Sun – gravitational potential – escape velocity – satellite potential and kinetic energy.

UNIT IV: Transmission of heat 12 Hours

Thermal conduction – Coefficient of thermal conductivity – Lee's Disc method for bad conductors – Convection and its applications – Black body – Stefan Boltzmann law – Wien's displacement law – Rayleigh-Jeans law – Derivation and experimental verification of Stefan's law.

UNIT V: Sound 12 Hours

Transverse waves – Expression for the velocity of transverse waves in a stretched string – Frequency of transverse vibration of stretched strings – Verification of laws of transverse vibration of string using sonometer.

Acoustics of buildings – Reverberation – Factors affecting acoustics of building. Introduction to ultrasonic – Piezoelectric effect – Production of ultrasonic waves by piezoelectric method – Applications of ultrasonic waves.

Text Books:

1. Properties of matter – Brijlal and Subrahmanyam – Eurasia Publishing Co., New Delhi, III Edition 1983
2. Element of properties of matter – D.S.Mathur – S.Chand & Company Ltd, New Delhi, 10th Edition 1976
3. Heat and Thermodynamics – Brijlal & Subramanyam, S.Chand & Co, 16th Edition 2005
4. Heat and Thermodynamics – D.S. Mathur, SultanChand & Sons, 5th Edition 2014.
5. Allied Physics, R. Murugesan, S. Chand and Co, New Delhi, Edition 2001.

Reference Books:

1. Fundamentals of Physics, Resnick Halliday and Walker, John Wiley and Sons, Asia Pvt. Ltd., Singapore,11thedition, 2018.
2. Textbook of Sound, V.R. Khanna and R.S. Bedi, Kedharnaath Publishers and Co, Meerut , First edition, 1998.

e-Resources:

1. https://youtu.be/M_5KYncYNyc
2. https://youtu.be/ljJLJgIvaHY
3. https://youtu.be/7mGqd9HQ_AU
4. https://youtu.be/h5jOAw57OXM
5. https://learningtechnologyofficial.com/category/fluid-mechanics-lab/

Mapping of Course Outcomes (COs) with Programme Outcomes (POs) and Programme Specific Outcomes (PSOs)

COs	Programme Outcomes						Programme Specific Outcomes			**Mean**
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PSO1**	**PSO2**	**PSO3**	
CO1	3	3	3	2	1	1	3	3	3	2.44
CO2	3	3	3	1	-	-	3	3	3	2.11
CO3	3	3	3	2	1	1	3	3	3	2.44
CO4	3	3	3	1	-	-	3	3	3	2.11
CO5	3	3	3	1	1	1	3	3	3	2.33
Mean Overall Score										**2.29**

3 – Strong; 2 – Medium; 1 – Low

Prepared by	Verified by
Dr. S. FATHHOOR RABBANI	Mr. J. FAYAJUL ARIFEEN

Sem	*Category*	*Course Code*	*Course Title*	*Hours*	*Credits*	*Int. Marks*	*Ext. Marks*	*Max. Marks*
II	*GEL*	***U24APH201***	***PHYSICS - II (Allied)***	***60***	***4***	***25***	***75***	***100***

Objectives:
To provide students with a solid foundation in the principles of physics, focusing on optics, electricity, magnetism, modern physics and electronics.

Course Outcomes (COs) and Cognitive Level Mapping:

COs	CO Statement (After completing the course, the students will be able to)	Cognitive Level
CO1	Recall the principles and properties of optics	**K2**
CO2	Describe the principle of potentiometer and characteristics of alternating currents	**K2**
CO3	Apply the principles of quantum mechanics to atomic structure and photoelectric effect	**K3**
CO4	Apply the principles of nuclear physics for generation of energy	**K3**
CO5	Summarize the working of semiconductor devices and logic gates for simple circuit applications	**K3**

Cognitive Levels (K1-Remember**; K2-**Understand**; K3-**Apply**; K4-**Analyze**; K5-**Evaluate**; K6-**Create**)**

UNIT I: OPTICS 12 Hours

Interference – Conditions for interference – Air wedge – Thickness of a thin wire – Newton's rings – Determination of wavelength using Newton's rings.

Diffraction – Theory of transmission grating – Normal incidence – Determination of wavelength.

Optical activity – Biot's law – Specific rotatory power – Determination of specific rotatory power using Laurent's half shade polarimeter

UNIT II: ELECTRICITY AND MAGNETISM 12 Hours

Potentiometer – principle – Calibration of low range voltmeter – measurement of thermo emf using potentiometer – magnetic field due to a current carrying conductor – Biot-Savart's law – field along the axis of the coil carrying current – peak, average and RMS values of ac current and voltage – power factor and current values in an AC circuit.

UNIT III: ATOMIC PHYSICS 12 Hours

Vector atom model – various quantum numbers – Pauli's exclusion principle – electronic configuration – periodic classification of elements – Bohr magneton – Stark effect – Zeeman effect (elementary ideas only) – photo electric effect – Einstein's photoelectric equation – applications of photoelectric effect: solar cells, solar panels.

UNIT-IV: NUCLEAR PHYSICS 12 Hours

Nuclear models – liquid drop model – mass defect – binding energy – radioactivity – half life – mean life - radio isotopes and uses –controlled and uncontrolled chain reaction – nuclear fission – energy released in fission – chain reaction – critical size- atom bomb – nuclear reactor – nuclear fusion – thermonuclear reactions.

UNIT V: ELECTRONICS 12 Hours

SEMICONDUCTOR PHYSICS: p-n junction diode – forward and reverse biasing – characteristic of diode – bridge rectifier – construction and working – advantages – Zener diode – characteristic of Zener diode – voltage regulator.

DIGITAL ELECTRONICS: logic gates, OR, AND, NOT, NAND, NOR, EXOR logic gates – universal building blocks using NAND and NOR gates – Binary and decimal number system – conversion – De Morgan's theorem – verification.

Text Books:

1. R.Murugesan (2005), Allied Physics, S.Chand and Co, New Delhi.
2. K.Thangaraj and D.Jayaraman(2004), Allied Physics, Popular Book Depot, Chennai.
3. Brijlal and N.Subramanyam (2002), Textbook of Optics, S.Chand and Co, New Delhi.
4. R.Murugesan (2005), Modern Physics, S.Chand and Co, New Delhi.
5. A.Subramaniyam, Applied Electronics, 2nd Edn., National Publishing Co., Chennai.
6. Optics and Spectroscopy – R. Murugeshan, S.Chand and co., New Delhi, 6th Edition 2008.

Reference Books:

1. Fundamentals of Physics, Resnick Halliday and Walker, JohnWilleyand Sons, Asia Pvt.Ltd., Singapore,11thedition, 2018.

Web Resources:

1. https://youtu.be/M_5KYncYNyc
2. https://youtu.be/ljJLJgIvaHY
3. https://youtu.be/7mGqd9HQ_AU
4. https://youtu.be/h5jOAw57OXM
5. https://learningtechnologyofficial.com/category/fluid-mechanics-lab/

Mapping of Course Outcomes (COs) with Programme Outcomes (POs) and Programme Specific Outcomes (PSOs)

COs	Programme Outcomes						Programme Specific Outcomes			Mean
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PSO1**	**PSO2**	**PSO3**	
CO1	3	2	1	-	-	-	3	3	3	1.66
CO2	3	3	2	-	-	1	3	3	3	2
CO3	3	3	3	-	2	-	3	3	3	2.22
CO4	3	2	2	-	1	1	3	3	3	2
CO5	3	3	3	-	1	1	3	3	3	2.22
	Mean Overall Score									**2.02**

3 – Strong; 2 – Medium; 1 – Low

Prepared by	Verified by
Mr. J. FAYAJUL ARIFEEN	Mr. J. FAYAJUL ARIFEEN

Sem	*Category*	*Course Code*	*Course Title*	*Hours*	*Credits*	*Int. Marks*	*Ext. Marks*	*Max. Marks*
II	*GEL*	***U24APHP21***	***ALLIED PRACTICAL - PHYSICS***	***30***	***2***	***25***	***75***	***100***

Objectives:

Apply several physics concepts to understand properties of matter, heat, sound waves, characteristics of electronic devices, set up experimentation to verify theories and interpret the results.

Course Outcomes (COs) and Cognitive Level Mapping

COs	CO Statement	Cognitive Level
CO1	Express the scientific methods and study the process of measuring different Physical variables	**K2**
CO2	Practice to explore the field of properties of matter, acoustics, heat and light	**K3**
CO3	Demonstrate the experiments in electricity and electromagnetics circuits	**K4**
CO4	Determine the frequency of tuning fork and specific heat capacity of liquid	**K4**
CO5	Construct the basic logic gates using diodes, transistors and ICs	**K5**

Cognitive Levels (K1-Remember**; K2-**Understand**; K3-**Apply**; K4-**Analyze**; K5-**Evaluate**; K6-**Create**)**

(Any 15 Experiments)

1. Young's modulus – Non-uniform bending - Optic lever method (Scale and telescope).
2. Young's modulus - Non-uniform bending - Pin and microscope.
3. Rigidity Modulus – Torsional pendulum method (Without masses).
4. Surface tension and Interfacial Surface Tension - Drop weight method.
5. Coefficient of viscosity of a liquid - Burette method (Radius of capillary tube is given).
6. Sonometer – Frequency of A.C mains using steel wire.
7. Frequency of the Tuning fork - Sonometer.
8. Specific heat capacity of a liquid - method of cooling.
9. Air wedge – Thickness of a thin wire.
10. Radius of curvature of lens - Newton's rings method.
11. Spectrometer – Refractive index of a liquid using hallow prism.
12. Potentiometer – calibration of low range voltmeter.
13. Potentiometer - Internal resistance of a cell.
14. Figure of Merit – Table galvanometer.
15. Determination of m and B_H using deflection magnetometer in Tan C position and vibration magnetometer.
16. Voltage regulation using Zener diode.
17. Construction of AND, OR using diodes and NOT by transistor.
18. NAND as universal logic gate.
19. NOR as universal logic gate.
20. De Morgan's theorem – verification.

Books for study:

1. M. N. Srinivasan, S. Balasubramanian and R. Renganathan, A Text book of Practical Physics, Sultan Chand & Sons, New Delhi, 2015.
2. C.C Ouseph, G.Rangarajan - A Text Book of Practical Physics- S. Viswanathan Publisher- Part I (1990) & II (1996).
3. C.C Ouseph, U.J. Rao, V. Vijayendran, Practical Physics and Electronics, S. Viswanathan, Printers & Publishers Private Ltd, Chennai, 2018.

Books for reference:

1. S.L Gupta and V.Kumar- Practical Physics- Pragati Prakashan – 25th Edition (2002).
2. C.L. Arora, B.Sc., Practical Physics, S. Chand and Company, New Delhi.
3. Gupta & Kumar, Practical Physics, Pragati Prakashan, Meerut.

Mapping of Course Outcomes (COs) with Programme Outcomes (POs) and Programme Specific Outcomes (PSOs)

COs	PO1	PO2	PO3	PO4	PO5	PO6	PSO1	PSO2	PSO3	Mean
CO1	2	2	3	1	2	3	3	3	2	2.33
CO2	2	3	2	-	2	2	3	3	2	2.11
CO3	2	3	2	-	2	3	3	3	2	2.22
CO4	2	3	3	-	2	2	3	3	2	2.22
CO5	2	2	3	-	2	3	3	3	2	2.22
Mean Overall Score										**2.22**

3 – Strong; 2 – Medium; 1 – Low

Prepared by	Verified by
Mr. A. K. ASLAM TABREZ	Mr. J. FAYAJUL ARIFEEN