

## TEACHING PLAN : TERM 1

Table For Available Teaching Periods For Each Month

Class	Subject/ Course	Aug <small>June</small>	Sept. <small>July</small>	Oct <small>August</small>	Nov <small>September</small>	Dec. <small>October</small>
FYBSc	Chem. II USCH102	-	01	03	04	04
SYBSc	Chem. I USCH301	02	04	03	04	02
SYBA & SYBSc	FC	02	04	03	04	02
TYBSc	Chem III USCH503	05	08	06	08	04
TYBSc	Chem - DD (AC) USACDDSC	02	04	03	04	01

Principal

Ms. Juliet. Miranda  
Chem. Dept.  
Yellow Book

## TEACHING PLAN

### Term I

Class: TYBSc

Paper: Chemistry III

Code: USCH 503

No. of periods / week: 02

Month	Topics to be taught during the month	Mode of teaching*
Aug 4:1	Spectroscopy	
4:1:1	Introduction: Electromagnetic spectrum, units of wavelength & frequency.	PPT on Zoom.
4:1:2	UV-Visible Spectroscopy: Basic theory, solvents, nature of UV-Visible spectrum, concept of chromophore, auxochrome, bathochromic & hypsochromic shifts, hyperchromic & hypochromic effects, chromophore - chromophore interaction & chromophore - auxochrome interaction	Immediate mastery quiz CO assessment test (live in chat box)
Sept 4:1:3	Mass Spectrometry: Basic theory, nature of spectrum, general rules of fragmentation, importance of molecular ion peak, nitrogen rule, rule of 13 for determination of empirical formula and molecular formula. Fragmentation of alkanes & aliphatic carbonyl compounds.	PPT on Zoom. Class Assignment
Aug 1:2	Photochemistry	
1:2:1	Introduction: Difference b/w thermal & photochemical reactions. Jablonski	PPT (Zoom lecture)

\*Tutorial (T), Ppt, / Any other # star question.

Reading / Instructional material Prescribed / Additional Resource provided	No. of lectures engaged	Whether completed all topics as per the planner? If not, encircle the topics not completed and write the reason for the same	Teacher's Signature with Date	Head / incharge Remarks if any, and Signature with Date
* Class notes (pdf)				
* Spectroscopic Identification of Org. Compd - R.L. Silverstein	06	<u>Yes</u> CO1: Explain underlying principles of UV Spectroscopy & Mass Spectrometry	<u>7/3/19</u>	
* Organic Spectroscopy - William Kemp		CO2: Interpret spectra of some simple molecules.		
* Organic Spectroscopy - Jagmohan				
* Applications of Absorption Spectroscopy - John Dyer.		<u>Yes</u>	<u>7/7/19</u>	
* Intro. to Molecular Spectroscopy - Vimal Kumar Jain				
* Class notes (pdf) on Google Classroom	05	<u>Yes</u>	<u>7/3/19</u>	
* Organic Photochem - Gurdeep Chahal		CO1: Explain fate of a photochemically		

Principal 7/3/19

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Month	Topics to be taught during the month	Mode of teaching*
	diagram; Singlet & Triplet states; Allowed & Forbidden transitions; Fate of excited molecules; photosensitisation	whiteboard & digital tablet
1:2:2	Photochemical reactions of olefins: Photoisomerisation, photochemical, rearrangement of 1,4-dienes (di- $\pi$ methane)	tablet
1:2:3	Photochemistry of Carbonyl compounds: Norrish Type I & II cleavages, photooxidation (benzophenone to benzpinacol)	trivia
Oct	1:1 Mechanism of Organic Reactions	
	1:1:1 Basic terms & concepts - bond fission; Reaction intermediates; electrophiles, nucleophiles, ligand, base; electrophilicity vs acidity; nucleophilicity vs basicity	PPT (Zoom) Quiz (MCQ)
	1:1:2 NGP in nucleophilic substitution reactions: participation of lone pair, kinetics & stereochemical outcome.	Home Assignment # Class
	1:1:3 Acyl nucleophilic substitution: Tetrahedral mechanism; acid catalysed esterification ( $A_{AC}2$ ) & base promoted hydrolysis of	Assignment # HDTS Ques.

\*Tutorial (T), Ppt, / Any other

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* Fundamentals of Photochemistry - K.K. Rohatgi & Mukherjee.		excited molecule. CO2: Distinguish b/w Singlet & Triplet states; Allowed & Forbidden Transitions CO3: Predict the product of some photochemical reactions.		
* Classnotes (pdf) on Google Classroom	10	Yes.		
* Organic Reaction & their Mechanism - P.S. Kalsi		CO1: Apply fundamentals of mechanism to some org rxns. CO2: Explain the mechanism of some reactions & apply the knowledge to other similar reactions for synthesis		
* Advanced Org. Chem - Jerry March				
* Org. Rxn Mech. - P.N. Mukherjee				
* Org Rxn Mech. - Raj K. Bansal				

Principal *[Signature]*

Class: TYBSc

Paper: Chemistry III

Month	Topics to be taught during the month	Mode of teaching*
	ester ( $B_{Ac2}$ )	
11-4	Pericyclic reactions, classification & nomenclature. Electrocyclic reactions (ring opening & ring closing); cyclo-addition, sigmatropic rearrangements, group transfer reactions, cheletropic reactions (definition & one example of each)	
11-4-2	Pyrolytic elimination: Cope; Chugaev; <sup>Ⓢ</sup> Trivia. pyrolysis of acetates.	
Oct 2-1	Stereochemistry	
2-1-1	Molecular chirality & elements of symmetry: Mirror plane symmetry; inversion centre; rotation-reflection axis of symmetry modd.	PPT (Zoom) Use of 3-D
2-1-2	Chirality of compounds without a stereogenic centre - cumulenes & biphenyls	#CA (Problem Solving)
Nov-4-2	Natural Products	
Dec 4-1-1	Terpenoids: Introduction, isoprene rule, special isoprene rule & gem-dialkyl rule	PPT (Zoom)
4-1-2	Citral: a) structural determination	lecting

\*Tutorial (T), Ppt, / Any other CA (Class Assignment)

Code: USCH503

No. of periods / week: 02

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		CO3: Explain types of Pericyclic rxns with examples. CO4: Explain NGP & correlate the kinetics & stereochem of the rxn. with the mech.		
* Class notes (pdf) on Google Classroom	04	Yes CO: Identify elements of symmetry & predict chirality in cummulenes & biphenyls.	<i>[Signature]</i> 11/11	
* Stereochem - P.S. Kalsi				
* Stereochem - D. Nasipuri				
* Stereochem of C Compds - I.L. Eliel				
* Class notes (pdf) on Google Classroom	08	Yes CO1: Understand the importance of terpenoids	<i>[Signature]</i> 20/12	
* Natural Products - O.P. Agrawal (Vol. I)		alkaloids and hormones		

Principal *[Signature]*

Class: TYBSc

Paper: Chemistry II

Month	Topics to be taught during the month	Mode of teaching*
	b) synthesis from methyl heptenone c) isomerism	Ⓢ Trivia
4-23	Alkaloids: Introduction & occurrence; Hoffmann's exhaustive methylation & degradation in simple open chain N-substituted monocyclic amines.	# CA
4-24	Nicotine: a) structural determination including Pinner's work; b) synthesis from nicotinic acid; c) harmful effects.	Ⓢ HA
4-25	Hormones: Introduction, structure of adrenaline, physiological action & synthesis from a) catechol b) Ott's synthesis	

\*Tutorial (T), Ppt, / Any other Class Assignment (CA) Home Assignment (HA)

Code: USCH503

No. of periods / week: 02

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* Org Chem of Natural Products - Gurdeep Chahal (Vol I & II)		in everyday life. Ⓢ Determine structure of simple terpenoids and alkaloids using analytical and synthetic evidence		
* Natural Products Chemistry & Applications - Sujata Bhatt & B.A. Nacarampudi		Ⓢ Synthesize adrenaline & explain its physiological action		
* Organic Chemistry - I.L. Finas (Vol I)				

Principal

**TEACHING PLAN : TERM 1**

Table For Available Teaching Periods For Each Month

Class	Subject/ Course	June Aug	July Sept	August Oct	September NOV	October Dec
TMBSc	Micro I USMB 501	14	16	12	10	4
TMBSc	A.C.	4	5	5	4	2
SMBSc	Micro II USMB302	6	10	10	10	2
FMBSc	Micro II USMB102	-	2	5	3	2

Principal *[Signature]*

**TEACHING PLAN  
Term I**

Class: SYBSc.

Paper: II

Month	Topics to be taught during the month	Mode of teaching*
Aug 6	<p><u>Unit I: Air Microbiology</u></p> <ul style="list-style-type: none"> <li>- Aeromicrobiological pathway</li> <li>- Extra &amp; Intramural aeromicrobiology</li> <li>- Sampling devices, Air Sanitation</li> <li>- Air Quality Stds, Fomites.</li> </ul>	Online
Sept 10	<p><u>Unit II a: Fresh water Microbiology</u></p> <ul style="list-style-type: none"> <li>- Fresh water environments</li> <li>- Potable water &amp; water analysis.</li> </ul> <p><u>Unit II b: Sewage Microbiology</u></p> <ul style="list-style-type: none"> <li>- Modern waste water Treatment</li> </ul>	Online
Oct 10	<ul style="list-style-type: none"> <li>- BOD, COD, Removal of pathogens,</li> <li>- Sludge processing &amp; disposal.</li> </ul>	Online
	<p><u>Unit III: Soil &amp; Geo Microbiology.</u></p> <ul style="list-style-type: none"> <li>- Terrestrial Environment</li> </ul>	
Nov-Dec 12	<ul style="list-style-type: none"> <li>- Methods of studying soil organisms</li> <li>- Bio-geochemical cycles.</li> <li>- Soil Bioremediation.</li> </ul>	Online

\*Tutorial (T), Ppt, / Any other

Code: MSMB302

No. of periods / week: 3

Reading / Instructional material Prescribed / Additional Resource provided	No. of lectures engaged	Whether completed all topics as per the planner? If not, encircle the topics not completed and write the reason for the same	Teacher's Signature with Date	Head / incharge Remarks if any, and Signature with Date
Notes provided	6	Yes	[Signature]	
Notes provided	10	Yes	[Signature]	
Virtual visit Notes provided	10	Yes	[Signature]	
Notes provided	12	Yes	[Signature]	

Class: FYBSc

Paper: II

Code: MSMB102

No. of periods / week: 1

Month	Topics to be taught during the month	Mode of teaching*
Sept	<u>Unit I: Microscopy.</u>	<u>Online</u>
2	- History, lenses, mirrors - simple microscope.	
Oct	- Compound microscope	<u>Online</u>
5	- Dark field - Phase-Contrast	
	<u>Staining Procedures.</u>	
	- Dyes & stains	
Nov	- Simple & differential staining	<u>Online</u>
3	- Special staining: - Capsule	
Dec	- Cell wall	<u>Online.</u>
2	- Endospore - Metachromatic.	

\*Tutorial (T), Ppt, / Any other

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<u>Notes provided</u>				
	<u>2</u>	<u>Yes</u>	<u>H/10/20</u>	
<u>Notes provided</u>	<u>5</u>	<u>Yes</u>	<u>H/10/20</u>	
<u>Notes provided</u>	<u>3</u>	<u>Yes</u>	<u>H/10/20</u>	
<u>Notes provided.</u>	<u>2</u>	<u>Yes</u>	<u>H/10/20</u>	

Principal \_\_\_\_\_