



FACULTY: NILANJAN GHOSH

PROGRAM: M. PHARM

Course Code: MPT 1061/1081

Course Name: Advanced Instrumentation Technique

Faculty: SVB

Date	Item as per Lesson Plan	Video Link	Power Point Link	Study Material	Book (if any)
04.11.2020	Introduction to Spectroscopy, different types of spectra, electronic, molecular and vibrational spectroscopy, Einstein equation, Atomic structure to spectroscopy, Jablonski diagram	https://www.youtube.com/watch?v=HsuA1YdzSMs&feature=youtu.be	Live demonstration	https://drive.google.com/file/d/1n_gEuXB-trEfPUbzscVnHxz2aVIX4KBb/view?usp=sharing https://drive.google.com/file/d/1YDOmbEgsMwBEPZokAdwTyv63quw8xocn/view?usp=sharing https://drive.google.com/file/d/1JrzLKt81ETYJfo6LjmTbzv5_y5Vwsoet/view?usp=sharing	



05.11.2020	Introduction to UV Visible Spectroscopy , Beers Law, Lambert's Law, UV-Vis wavelength, Auxochrome, Chromophore, Conjugated system, Energy levels for spectroscopy	https://www.youtube.com/watch?v=bcanOfDkgVU&feature=youtu.be	Live demonstration	https://drive.google.com/file/d/1TpyvH9reNrJKIPafAxecVMKHzyvNGtxZ7/view?usp=sharing	
11.11.2020	Electronic transitions, Allowed and forbidden transitions, Different kind of shifts, Solvatochromism, Effect of electronic and donating groups on λ_{max}	https://www.youtube.com/watch?v=nTnruyrPhH4&feature=youtu.be	do	https://drive.google.com/file/d/1JrzLk81ETYJfo6LjmTbzv5_y5Vwsoet/view?usp=sharing https://drive.google.com/file/d/1yS4pr7pmCKdJTThlyvnnCgMz6dkclpS/view?usp=sharing	
12.11.2020	Woodward fischer rule, more problems and solutions	https://www.youtube.com/watch?v=-U1fQnnrtEU&feature=youtu.be	do	https://drive.google.com/drive/folders/1svR8o1ktR6XPiwGK2ufhIXABr4BNnFW?usp=sharing	



18.11.2020	Wood fisher rule, continued, IR spectroscopy -introduction	http://www.youtube.com/watch?v=CUsNnwAHVPA	do	https://drive.google.com/drive/folders/1svR8o1ktR6XPiWgK2ufhIXABr_4BNnFW?usp=sharing https://drive.google.com/drive/folders/1LULYBQ6djmKt5c5kZYFotDy0W3eeEMuR?usp=sharing
19.11.2020	IR spectroscopy -theory continued	https://youtu.be/cw_sOzpefk0	do	https://drive.google.com/drive/folders/1LULYBQ6djmKt5c5kZYFotDy0W3eeEMuR?usp=sharing
2.12.2020	FT-IR, Michelson Interferometer, interpretation of IR spectroscopy	https://youtu.be/H2RLir_v6us	do	https://drive.google.com/drive/folders/1LULYBQ6djmKt5c5kZYFotDy0W3eeEMuR?usp=sharing
3.12.2020	FT-IR interpretation (continued)	https://youtu.be/je7D1rNXhOg	do	https://drive.google.com/drive/folders/1LULYBQ6djmKt5c5kZYFotDy0W3eeEMuR?usp=sharing



9.12.2020	NMR, theory, instrumentation and introduction	https://www.youtube.com/watch?v=ilaqr-hC_78&feature=youtu.be	do	https://drive.google.com/drive/folders/1W5H07sx-16ydK_Brba_mpmMroiw_T8jhKO?usp=sharing	
10.12.2020	NMR theory continued	https://www.youtube.com/watch?v=ckBckDT-Rpg&feature=youtu.be	do	https://drive.google.com/drive/folders/1W5H07sx-16ydK_Brba_mpmMroiw_T8jhKO?usp=sharing	
16.12.2020	Introduction to interpretation of NMR spectroscopy	https://youtu.be/-DjpyW6eud0	do	do	
17.12.2020	Interpretation of NMR spectroscopy (Continued)	https://youtu.be/zA_efUbcgvE	do	do	



13.01.2021	C13NMR+2D NMR+ introduction to Mass spectroscopy	https://youtu.be/o3hcFWoRjI4	do	https://drive.google.com/file/d/1iyZERskS-sgHqV_Qc9zXzvD6P59g-DXD/view?usp=sharing https://drive.google.com/file/d/1ozD4t8GrFK-trFodgvYFxFtCaEGAFle-g/view?usp=sharing https://drive.google.com/file/d/1PvOXkneA3lwHlhWbteSch7eZckamTal3/view?usp=sharing
14.01.2021	Mass Spectroscopy (Continued)	http://www.youtube.com/watch?v=qUXWw6LPL-M		https://drive.google.com/file/d/1VrxIsj9PmuJmsNIVy-OioTHqUX4vcQA/view?usp=sharing
20.01.2021	Mass spectroscopy concluded	http://www.youtube.com/watch?v=QXiPzK2u5pY	do	https://drive.google.com/drive/folders/1adkH54Q7VLF-l-4N7KY6ZIY1QdtlCZqDA?usp=sharing



21.01.2021	Mass spectroscopy (practice problems), introduction to Atomic absorption and emission spectroscopy	http://www.youtube.com/watch?v=-1LPrbEWVRs	do	https://drive.google.com/drive/folders/1adkH54Q7VLF-l-4N7KY6ZIY1QdtlCZqDA?usp=sharing https://drive.google.com/file/d/1BxHfSm6B06ErSdgstCQH1LqnpzGa0sQs/view?usp=sharing
27.01.2021	Atomic Absorption Spectroscopy and Spectrofluorimetry	http://www.youtube.com/watch?v=EHra43clEoY	do	https://drive.google.com/drive/folders/1Lx0SGxTyle8JCLgpMcgHIPRN7XMdH9Zm?usp=sharing
28.01.2021	Spectrofluorimetry	http://www.youtube.com/watch?v=lc9INUtxfLI	do	https://drive.google.com/drive/folders/1Lx0SGxTyle8JCLgpMcgHIPRN7XMdH9Zm?usp=sharing
3.02.2021	Bioanalytical estimation: introduction, Gel electrophoresis, Agarose Gel electrophoresis	http://www.youtube.com/watch?v=kiSZWxT7N0Y		https://drive.google.com/drive/folders/1lm57r1HyBZGHtYtP9Xwcv2RrFWIzePSC?usp=sharing



4.02.2021	SDS PAGE, Isoelectric focussing	http://www.youtube.com/watch?v=knB69G1VcSE		https://drive.google.com/drive/folders/1!m57r1HyBZGHtYtP9Xwcv2RrFWizePSC?usp=sharing	
10.01.2021	Capillary gel electrophoresis	http://www.youtube.com/watch?v=x7gqZpHm2Xs		do	
11.01.2021	Ion exchange chromatography for proteins and hard water	http://www.youtube.com/watch?v=27Yu6sG_cvw		do	



18.01.2021	ELISA, Radio Immuno Assay, Introduction to Chromatography	https://www.youtube.com/watch?v=xd7Q6_37s7s		https://drive.google.com/file/d/1AAW0YJpXpJtDrYx0ql5mkDQTqyv7QnxX/view?usp=sharing THE ABOVE MATERIAL IS FOR ELISA. Also see the following link for further material and some pictorial representation of ELISA https://ruo.mbi.co.jp/bio/e/support/method/elisa.html For Radio immuno assay study material please download https://drive.google.com/file/d/1IB8_ylYuVwP-N9b07cRtcxmk4urHjIX7/view?usp=sharing For chromatography, you may study Remington's book or Beckett and Stanlake's Practical Pharmaceutical Chemistry	
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24.02.2021	TLC, general principles of Chromatography, stationary phase, mobile phase, problems and solutions of TLC	https://www.youtube.com/watch?v=YkZtigTROCA		For study material please go through Remington's Book of Pharmacy, read the chapter of chromatography. Or read Beckett and Stanlake's Practical Pharmaceutical Chemistry, Vol II and go to the chapter of Chromatography. For TLC purpose, you may visit to Stahl's book of Thin Layer Chromatography for a detailed understanding of it.	
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25.02.2021	HPTLC, demonstration, principles and applications, general principles of column chromatography, A brief enumeration of HPLC, its problems and troubleshooting, normal and reverse phase HPLC	https://youtu.be/X9FIHb48uw0		Read the above study materials as posted. Plus, go through different HPLC manuals of relevant companies such as Agilent, Shimadzu, Waters as well as industries such as Thermo Fisher Scientific to understand different realistic problems that occur during HPLC, their possible causes and solutions. For video supplemental materials please visit: https://drive.google.com/drive/folders/1C4M0akW0xgoQzjfF7osY9f1bZuzWewiV?usp=sharing	
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03.03.2021	Gas chromatography, introduction, principle, stationary phase, column, mobile phase, temp. Programming, elution, detection, type of detectors, qualitative and quantitative analysis	https://youtu.be/ihAPx2ywpqI		https://drive.google.com/drive/folders/1p9qdAdl-DuEo-q2Da8BHAjrMiy7mGB9s?usp=sharing Also see the videos inside	
04.03.2021	Thermal analysis, DSC, TGA, DTA	https://youtu.be/9mA5ZkOWOE		https://drive.google.com/drive/folders/1CL0loWsFzkcvHoYPeq52kXvImYub-9yx?usp=sharing	Practical Pharmaceutical Chemistry- Beckett and Stanlake Vol II
05.03.2021	X-Ray Diffraction	https://youtu.be/7puteEdkbyI		https://drive.google.com/file/d/11U_U5TZr8O7I4CUlzulV4k377Bwgu2ih/view?usp=sharing	do