Estd. 1962
NAAC 'A' Grade

SHIVAJI UNIVERISTY, KOLHAPUR-416 004. MAHARASHTRA
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FAX 0091-0231-2691533 & 0091-0231-2692333 – BOS - 2609094
शिवाजी विद्यापीठ, कोल्हापूर – 416004.
दुरध्वनी (ईपीएबीएक्स) २६०९००० (अभ्यास मंडळे विभाग– २६०९०९४)
फॅक्स : ००९१-०२३१-२६९१५३३ व २६९२३३३.e-mail:bos@unishivaji.ac.in

Ref../SU/BOS/Science/ No 00443 Date : 25/06/2021

25 JUN 2021

To,

The Principal All Affiliated Colleges/ Institutions, Shivaji University, Kolhapur	The Head/Co-ordinator/Director All Concerned Department (Science) Shivaji University, Kolhapur

Subject : Regarding Online Laboratory Experiement under the Faculty of Science and Technology

Sir/Madam,

With reference to the subject mentioned above, I am directed to inform you that the university authorities have accepted and granted approval to the **Online Laboratory Experiement** under the Faculty of Science and Technology.

This **Online Laboratory Experiement** shall be implemented for the academic year 2020-2021. A soft copy containing the **Subject wise Online Laboratory Experiement** is attached herewith and it is also available on university website www.unishivaji.ac.in (Student - Online Syllabus).

You are therefore, requested to bring this to the notice of all students and teachers concerned.

Thanking you,

Yours faithfully,

25/6/21

Dy. Registrar

Encl : As above

Copy to,

1. I/c Dean, Faculty of Science and Technology
2. Chairman, Board of Studies

} for information

3. Director, BOEE
4. Appointment Section
5. P. G. Admission Section
6. B.Sc and O. E. 4 Section
7. Affiliation Section (U.G./P.G.)
8. Computer Center/I.T.
9. Eligibility Section
10. Distance Education
11. P.G. Seminer Section

} for information and necessary action.

SHIVAJI UNIVERSITY, KOLHAPUR.

Faculty of Science & Technology

Online Laboratory Experiments

(To be implemented Academic Year 2020 - 2021)

(Subject to the modifications that will be made from time to time)

Follow up of Meeting and Submission of information

External
Inbox

Dr. R.K. Kamat Tue, 8 Jun, 18:27 (6 days ago)

to Harinath, ymghugal, Prasad, Neela, Thakar, G.S., K.Y., Dattatraya, Mrs.A.S., (Mrs.), mahendra, Akhtar, Vishwas, S.D., ashokpise, Akshaya, J.P., Uday, pklimaye, Keshav, Coordinator,, me, K.D., Hon'ble, Hon'ble

Dear Chairperson, Board of Studies in Science & Technology,

Thank you all for attending the meeting this morning. We covered many important issues regarding the conduct of online experiments in the backdrop of Covid – 19 pandemic. It was indeed a rich experience of learning by sharing our experiences.

Hon'ble Vice-Chancellor and Hon'ble Pro-Vice-Chancellor have appreciated your insight into streamlining the implementation plan for the online experiments.

As all of you know during the meeting itself, Hon'ble Vice-Chancellor Sir prepared and shared the key points on which we can strategize the conduct and evaluation of the Laboratory Experiments. On his directions, I am sharing the same with you with a request to provide your inputs in the format attached to this mail. You may consult other BoS members for finalizing the same.

Given the scheduled date of the Academic Council meeting on 18th of this month, please submit the document by 10th of June.

I am requesting your kind cooperation on this.

With warm regards.

Prof. R. K. Kamat

Copy for kind information to Hon'ble Vice-Chancellor and Hon'ble Pro-Vice-Chancellor

Name of the Board of Studies:

1. Extent of Laboratory Experiments to be conducted: How many (or percentage of) laboratory experiments be conducted?
2. Preparedness of the students: In what manner the explanation of the Laboratory experiment will be given by the concerned teacher? Whether synchronous or asynchronous? How much time to be allotted by the concerned teacher for conduct or for demo for individual laboratory experiment?
3. How to make sure that the student has actually done the laboratory experiment? Assessing the difficulties in doing the laboratory experiments.
4. Whether the submission of the laboratory experiment should be done experiment wise or after completion of stipulated number of experiments? Indicate the technical platforms for collecting the soft copy of the journals.
5. Is it possible to provide soft copy of workbook to students ? so that there will be uniformity in structure of journal
6. How to conduct practical examination? What percentage of practicals to be assessed during the examination?
7. What is time duration for practical examination? Should it be conducted internally or invite external examiner(s)?
8. Will there be oral examination? Indicate the subheads for assessment of the laboratory experiment during the examination.
9. Indicate the sub division of Practical Examination marks. E.g. oral+Journal+Exam
10. How to submit marks to University?
11. How to take care of Project work/Industrial visit/internship and such other things for which marks are to be given to students?
12. Please mention the technological platforms to be used for conducting the laboratory experiments.
13. Please mention the bandwidth requirement / data pack requirement at student's end for conduct of practicals.
14. Do you envisage any difficulty? If yes how they will be addressed?
15. Any other point you wish to share (not covered above)

Biochemistry and Biotechnology

1. We will conduct all the 100% practical's which are included in the syllabus with the help of online material available as well as material available with the teacher like books, reference books, lab manuals, research articles, etc.

2. Most of the experiments are preparatory and lengthy of about 2 to 3 days each and as per the requirements of experiments every teacher spending their time in the synchronized manner.

3. During and completion of laboratory experiment explanation teacher will discuss and take assignments form students and also writing material will be taken in the form of journals. In addition, teachers will continuously interact with the student some question-answer sessions and viva-voce will also be taken.

4. Soft copy of journals will be submitted after completion of stipulated number of experiments. The students should mail the PDF copy of journal/project to respective teacher.

5. Not actually workbook but some format of journals we have with the help of that definite sequence only one should submit the journal.

6.100% of practicals will be considered for examination according to syllabus and examination will be conducted online mode.

7. Examinations will be conducted online with internal examiners only for 2 or 3 days.

8. Yes rigorous oral examinations of students will be conducted on theory papers, practicals as well as on project work.

9. The allotment of marks for oral, exam and journal and other things is done as per the every year assessment and will be decided by chairman/HOD/examiners only.

10. Practicals marks will be submitted through online marks entry portal of University as well as hard copy.

11. Wet lab experiments/ dry lab experiments and review articles were allotted to the students as their project work and the marks will be given as per the syllabus.

12. Technological platforms like, lab manuals, reference books, journals, published articles, provided links for simulation, you-tube videos, demos etc.

13. More than 1 GB data will be preferentially required and care should be taken that every student may be able open the link and take the advantage of online material available. If any case any difficulty/problem occurs students are asked to make an alternative arrangement.

14. All the faculty members will discuss about any difficulty if occurs and solution is provided to the students.

15. We are trying to complete entire practical's programme and project work satisfactorily in a online mode without any problem.

Name of the Board of Studies: **PHARMACY**

1. **Extent of Laboratory Experiments to be conducted: How many (or percentage of) laboratory experiments be conducted?**

   The extent of laboratory experiments to be conducted should not be less than 80%, but if possible 100% of practical experiments as per the syllabus may be conducted.

2. **Preparedness of the students: In what manner the explanation of the Laboratory experiment will be given by the concerned teacher? Whether synchronous or asynchronous? How much time to be allotted by the concerned teacher for conduct or for demo for individual laboratory experiment?**

   Explanation of theory/principle part of the experiments will be through (both synchronous and asynchronous modes) suitable online platform.

   Use of Flipped Classroom approach, where links of the demo videos/ online material of practical will be provided to individual students.

   Assessment of students by giving assignments and then asking them to upload it on suitable online LMS Platform.

   Time allotted per experiment will be: 2 hrs

3. **How to make sure that the student has actually done the laboratory experiment? Assessing the difficulties in doing the laboratory experiments.**

   Virtual mode will not allow us to see that students do experiments actually.

   Solution to this is to get practical experiments done physically by the students in small groups once situation improves and government allows, following COVID-19 protocols, so that hands-on-skills can be imbibed. Extra practical hours in next semester could be used to for practical skills enhancement.

4. **Whether the submission of the laboratory experiment should be done experiment wise or after completion of stipulated number of experiments? Indicate the technical platforms for collecting the soft copy of the journals.**

The submission of the laboratory experiment should be done experiment wise, the soft copy of handwritten/typed experiments will have to be uploaded by the students, experiment-wise; using suitable LMS platforms like Vmedulife. Teacher will be assessing these uploaded files to continually evaluate students' progress and will also be grading them accordingly.

5. **Is it possible to provide soft copy of workbook to students? so that there will be uniformity in structure of journal.**

Yes, it's possible to provide soft copy of workbook(s)/ laboratory journal(s) to students to have uniformity in structure of journals.

6. **How to conduct practical examination? What percentage of practical's to be assessed during the examination?**

Practical examination should be conducted using suitable online mode by giving MCQs related with practical experiments.

80 % of practical experiments should be assessed during the examination. Subject teacher can select 80 % of practical experiments from the syllabus on which examination will be conducted after the same is informed to students.

7. **What is time duration for practical examination? Should it be conducted internally or invite external examiner(s)?**

Time duration for conducting online practical examination will be: 4 hrs per batch. External examiner should be appointed, to maintain the sanctity of the examinations.

8. **Will there be oral examination? Indicate the subheads for assessment of the laboratory experiment during the examination.**

Yes, there shall be oral examination. The subheads of assessment will be as follows;

- MCQs related to major and minor experiments: 30 Marks
- Viva-voce (Oral): 5 Marks

9. **Indicate the sub division of Practical Examination marks. E.g. oral+Journal+Exam**

The sub division of practical examination of marks will be as follows;

- Total Marks of the Exam: 35
- MCQs related to major and minor experiments: 30 Marks
- Viva-voce (Oral): 5 Marks
- Journals and other daily assignments will be used for continuous assessment of students' progress.

10. How to submit marks to University?

Marks will be submitted to the University through current system of online marks submission on Portal of University.

11. How to take care of Project work/Industrial visit/internship and such other things for which marks are to be given to students?

Links for Videos of virtual animated industrial processes, instruments/equipment functioning etc. can be shared with students

For, UG Project – students can be made to work online and either do review on important concepts of research work of their interests and or they can do survey-based research. The report of which will have to be submitted in soft copy and shall be assessed by appointing external examiner along with the project guide.

For, M. Pharm. thesis – Students will be allowed to work in laboratories once situation subsides and government allows, following COVID-19 protocols and then submit the thesis in soft copy, which will be then assessed jointly by guide and external examiner appointed by the University. If the conditions do not improve then students should be permitted to submit the soft copy of thesis on the basis of more than 50% of work completed earlier (Oct. 2020 to March 2021).

12. Please mention the technological platforms to be used for conducting the laboratory experiments.

The technological platforms that teacher can use includes –

- Online demonstration using platforms like ZOOM, Microsoft teams etc

- Providing links to all virtual laboratories, online e-contents made available by MoE, UGC, IIT's and institutions of national importance.
- LMS Platforms like Vmedulife will be used to submit and assess laboratory journals and assignments.

13. Please mention the bandwidth requirement/ data pack requirement at student's end for conduct of practicals.

2 GB/day data is sufficient to conduct virtual practical experiments along with theory lecture sessions.

14. Do you envisage any difficulty? If yes how they will be addressed?

No such difficulty is found, except in some circumstances when there is power-cuts or loss of internet connectivity. To address this issue asynchronous mode will also be used.

15. Any other point you wish to share (not covered above)

No.

Dr. H. N. More
Chairman
BOS Pharmacy

Videos Uploaded by Solution with Their Direct Link

S.No.	Topic	Subject	Direct Link
01	Analytical Balance- HINDI	All Subjects	https://www.youtube.com/watch?v=b3yAlI8OcHM
02	Desiccator- Working Principle	All Subjects	https://www.youtube.com/watch?v=dMB0eZlKc9k
03	Digital pH Meter- Working & Calibration	All Subjects	https://www.youtube.com/watch?v=6BJlmA0M4Jo
04	Glassware and Apparatus used in Pharmacy	All Subjects	https://www.youtube.com/watch?v=vkNfz5UuJYc
05	How to Balance Analytical Balance- English	All Subjects	https://www.youtube.com/watch?v=ASKu1FQ6yxg
06	How to Make Scientific Poster Presentation	All Subjects	https://www.youtube.com/watch?v=JBzAEHtOmQQ
07	Microscope- Basic Parts and their Functions	All Subjects	https://www.youtube.com/watch?v=ArVJO6AaY3c
08	How to Calculate Percent Concentration	All Subject	https://www.youtube.com/watch?v=yelq1sMUBlQ
09	How to Calculate Percent Concentration W/W`	All Subject	https://www.youtube.com/watch?v=USubEsiL2UE
10	How to Use Magnetic Stirrer	All Subject	https://www.youtube.com/watch?v=RiFDGC2Ceg8
11	How to Use Litmus Paper	All Subject	https://www.youtube.com/watch?v=TwcNyYx00bQ
12	How to Use Pestle Mortar	All Subject	https://www.youtube.com/watch?v=wREohl8-FYQ
13	How to Prepare ORS Solution	All Subject	https://www.youtube.com/watch?v=Jwk5pCyrVTQ
14	How to Calculate Molarity	All Subjects	https://www.youtube.com/watch?v=vUTsk91WShg
15	How to Check pH of given Samples	All Subjects	https://www.youtube.com/watch?v=A7e6bo_0oPY
16	How to Fold Filter Paper	All subjects	https://www.youtube.com/watch?v=1upWav-Fn1I
17	Working and Calibration of pH meter	All subjects	https://www.youtube.com/watch?v=LzE-cwRFuoA
18	Benedict Test for – Urine Sugar Test	APHE	https://www.youtube.com/watch?v=-atHARq0JbQ
19	Bleeding Time Determination	APHE	https://www.youtube.com/watch?v=pTfsZ6pFW0A
20	Blood Group Determination	APHE	https://www.youtube.com/watch?v=3oUvqNuWzPg
21	Clotting Time Determination by- Capillary	APHE	https://www.youtube.com/watch?v=TSlHOCPrKIo
22	Clotting Time Determination by Slide Method.	APHE	https://www.youtube.com/watch?v=Ukf2nvX1Ub0
23	Estimation of Haemoglobin by $CuSo_4$ Methods	APHE	https://www.youtube.com/watch?v=9_old-bHDYg
24	Fehling Test for – Urine Sugar Test	APHE	https://www.youtube.com/watch?v=kMyx68jVRB0
25	Haemoglobin Estimation by Colour Scale	APHE	https://www.youtube.com/watch?v=ZTHCAX3MRlk
26	Haemoglobin Estimation by Sahli's Method	APHE	https://www.youtube.com/watch?v=mWAEIvu1mV8
27	How to fill Blood in Capillary Tube	APHE	https://www.youtube.com/watch?v=rDDsWYsKYhE
28	Identification of Albumin in Urine	APHE	https://www.youtube.com/watch?v=rq8AhBoF74Y
29	Ketone-Body Test of Urine	APHE	https://www.youtube.com/watch?v=DOjiIZoZCtU
30	Osmosis Explanation in Egg	APHE	https://www.youtube.com/watch?v=_saiMdcdkNk
31	Pulse Rate/Heart Rate- How to Check	APHE	https://www.youtube.com/watch?v=ijJ1cEp9ofY
32	Specific Gravity of Urine by- Urinometer	APHE	https://www.youtube.com/watch?v=86wrOQybCNA
33	Cell- Parts and Function	APHE	https://www.youtube.com/watch?v=9ezyjlTwcxM
34	Determination of Haemoglobin by Advance Machine	APHE	https://www.youtube.com/watch?v=JnUr2xpiCCQ
35	Isolation of Casein protein from Milk	Biochemistry	https://www.youtube.com/watch?v=Agc4S5hTb6g
36	Protein Digestion by Pepsin	Biochemistry	https://www.youtube.com/watch?v=_BPEuLcR4_I
37	Qualitative Test for Carbohydrate	Biochemistry	https://www.youtube.com/watch?v=ulqwH9m-0v4
38	Limit Test for Chloride	Biochemistry	https://www.youtube.com/watch?v=FbRLLdbbjFQ
39	Limit Test for Iron	Biochemistry	https://www.youtube.com/watch?v=r98cjAmzNCY
40	Limit Test for Sulphate	Biochemistry	https://www.youtube.com/watch?v=FAkbYY9Y_vQ
41	Alcohol Fermentation by Yeast	Biotechnology	https://www.youtube.com/watch?v=lcXnWrDZV6Q

42	Confirmation of Fermentation Process	Biotechnology	https://www.youtube.com/watch?v=MalOS500gJA
43	Enzyme Immobilization Techniques	Biotechnology	https://www.youtube.com/watch?v=CSDnJvTufDI
44	Immobilization of Yeast Cell	Biotechnology	https://www.youtube.com/watch?v=7lK1l__ovmM
45	Isolation of DNA from Onion	Biotechnology	https://www.youtube.com/watch?v=MBTxC89tniY
46	Isolation of DNA from Papaya	Biotechnology	https://www.youtube.com/watch?v=j2-uX7z1v0I
47	Isolation of DNA from Tomato	Biotechnology	https://www.youtube.com/watch?v=aCdY-BuFZz4
48	Isolation of Gluten from Wheat Flour	Biotechnology	https://www.youtube.com/watch?v=N9SXHzSZuSg
49	Isolation of Lecithin from Egg Yolk	Biotechnology	https://www.youtube.com/watch?v=LCI5IoGciMg
50	How to Prepare Vanishing Cream	Cosmetic Tech	https://www.youtube.com/watch?v=eA9I2MkWMW0
51	How to Prepare Calamine lotion	Cosmetic Tech	https://www.youtube.com/watch?v=cbw-aQhbYyE
52	How to Make Cold Cream	Cosmetic Tech	https://www.youtube.com/watch?v=k9C8cS3zBg8
53	How to Make Dusting Powder	Cosmetic Tech	https://www.youtube.com/watch?v=5xPoGXQGpuA
54	How to Make aloe Vera Gel	Cosmetic Tech	https://www.youtube.com/watch?v=La7ZPF7pNds
55	How to Prepare Pain Balm	Cosmetic Tech	https://www.youtube.com/watch?v=erCNIHJUBas
56	New Aloe Vera Gel at Home	Cosmetic Tech	https://www.youtube.com/watch?v=_vcum99diY8
57	Autoclave- Moist Heat Sterilization Process	Microbiology	https://www.youtube.com/watch?v=y_EhCERWzfs
58	Autoclave- Parts and Functions	Microbiology	https://www.youtube.com/watch?v=j23s_cxwxSE
59	Colony Counter- Working Procedures	Microbiology	https://www.youtube.com/watch?v=F_fCBfOSAUo
60	Curd Formation by Bacteria	Microbiology	https://www.youtube.com/watch?v=5sx03mrSdYI
61	Hot Air Oven- Parts and Functions	Microbiology	https://www.youtube.com/watch?v=KRL7Bt3F38k
62	Microbial Staining- Lecture	Microbiology	https://www.youtube.com/watch?v=5V52RzM84TM
63	Scope of Microbiology	Microbiology	https://www.youtube.com/watch?v=QCsYM3Y0kfI
64	Microbial Assay- Animation	Microbiology	https://www.youtube.com/watch?v=WYQQ4JiBPrs
65	Microbial Assay- Turbidity Method- Animation	Microbiology	https://www.youtube.com/watch?v=TNywoD6djqg
66	Angle of Repose Determination	Pharmaceutics	https://www.youtube.com/watch?v=4J61a6-zBDA
67	Crystallization Technique for Copper Sulphate	Pharmaceutics	https://www.youtube.com/watch?v=HmvoUsjd10A
68	How to Observe Upper and Lower Meniscus	Pharmaceutics	https://www.youtube.com/watch?v=BRjT0qpTUp8
69	How to do Clarity Test of Ampules	Pharmaceutics	https://www.youtube.com/watch?v=d8e43DCEEwM
70	Determination of Viscosity by Viscometer	Pharmaceutics	https://www.youtube.com/watch?v=68bo-h3Kf7s
71	Ash Value Determination	Pharmacognosy	https://www.youtube.com/watch?v=SR5Ti89TP-Y
72	Determination of Moisture Content of Crud Drug	Pharmacognosy	https://www.youtube.com/watch?v=FfxHot6BLZk
73	Extraction of Caffeine from Tea Leaves	Pharmacognosy	https://www.youtube.com/watch?v=lmf8gWbDLxc
74	Identification of Adulteration in Ghee	Pharmacognosy	https://www.youtube.com/watch?v=djoHMaPKDck
75	Isolation of Starch from Potato	Pharmacognosy	https://www.youtube.com/watch?v=tBo8DSrw53Q
76	Paper Chromatography- Separation Technique	Pharmacognosy	https://www.youtube.com/watch?v=8wmQ_xWqZbo
77	Phytochemical Test for- Alkaloids	Pharmacognosy	https://www.youtube.com/watch?v=uMxdSkKcO7U
78	Phytochemical Test for- Flavonoids	Pharmacognosy	https://www.youtube.com/watch?v=CC3t67e2GsU
79	Phytochemical Test for Saponin	Pharmacognosy	https://www.youtube.com/watch?v=s0FdnCCQzvg
80	Phytochemical Test for- Tannins	Pharmacognosy	https://www.youtube.com/watch?v=KozFN-mkNLY
81	Saponin Test for Lipids	Pharmacognosy	https://www.youtube.com/watch?v=VzR6j_7rE-U
82	Section Cutting of Clove	Pharmacognosy	https://www.youtube.com/watch?v=96iv2yDMfB0
83	Section Cutting of Leaf	Pharmacognosy	https://www.youtube.com/watch?v=-bLBHiqlmOU
84	Swelling Index of Crude Drugs	Pharmacognosy	https://www.youtube.com/watch?v=kPFUWYFjq0w
85	Thin Layer Chromatography (TLC)	Pharmacognosy	https://www.youtube.com/watch?v=ED8LHLQJvWU
86	Water Soluble Extractive Value	Pharmacognosy	https://www.youtube.com/watch?v=RU4nr0xxMo0

87	How to Prepare Stomata Slide	Pharmacognosy	https://www.youtube.com/watch?v=ViBJMfBmSXo
88	How to Check Adulteration in Chilli Powder	Pharmacognosy	https://www.youtube.com/watch?v=TUn08AisE74
89	How to Use Separating Funnel	Pharmacognosy	https://www.youtube.com/watch?v=CMFvSq9BdXc
90	How to Prepare Onion Stained Slide	Pharmacognosy	https://www.youtube.com/watch?v=UyP3-ICurVk
91	Glycogen Metabolism	Pharmacognosy	https://www.youtube.com/watch?v=wRSl7pX8xXQ
92	Glycogenesis Simple Explanation	Pharmacognosy	https://www.youtube.com/watch?v=UOyVVPUnFyM
93	How to Prepare Molish Reagents	Pharmacognosy	https://www.youtube.com/watch?v=pgmQif7JSdM
94	How to Make Fehling A and Fehling B	Pharmacognosy	https://www.youtube.com/watch?v=b5gvTu7MV5U
95	How to Make Barfod Reagents	Pharmacognosy	https://www.youtube.com/watch?v=Thcu8Es-Wu8
96	How to Prepare Benedict Reagents	Pharmacognosy	https://www.youtube.com/watch?v=11yW9i_neYY
97	How to Prepare Seliwanoff's Reagents	Pharmacognosy	https://www.youtube.com/watch?v=lxIX3Z55pSE
98	Actophotometer- Antianxiety	Pharmacology	https://www.youtube.com/watch?v=3rJxYmbuvcY
99	Anaesthesia- New Way for Classification	Pharmacology	https://www.youtube.com/watch?v=7MMxlIF_2KM
100	Angina- Introduction and Symptoms	Pharmacology	https://www.youtube.com/watch?v=nlk9qE_MxhE
101	Asthma- New way for Classification	Pharmacology	https://www.youtube.com/watch?v=Ri7cYbMoIzE
102	Atherosclerosis- Cause, Symptoms and Treatment	Pharmacology	https://www.youtube.com/watch?v=0mGZeb_Y85E
103	Bioavailability & Factors Affecting it	Pharmacology	https://www.youtube.com/watch?v=FZQ5WCiUEKE
104	Cough- New way for Classification	Pharmacology	https://www.youtube.com/watch?v=5_QsxqC6gvc
105	CPCSEA Guidelines	Pharmacology	https://www.youtube.com/watch?v=Qy7B0uF10uA
106	Dark-Light Chamber for Antianxiety	Pharmacology	https://www.youtube.com/watch?v=rp3a6Sd4oRI
107	Diabetes Mellitus- Types, Cause & Treatment	Pharmacology	https://www.youtube.com/watch?v=o0-qB83YplE
108	Hole Board Test for Antianxiety	Pharmacology	https://www.youtube.com/watch?v=QoKH5FtPMZA
109	Hot-Plate Method for Analgesic Activity	Pharmacology	https://www.youtube.com/watch?v=xQqbGAZqyhw
110	Hypertension- New way for Classification	Pharmacology	https://www.youtube.com/watch?v=NIW4AOox8KM
111	NSAID- New Way for Classification	Pharmacology	https://www.youtube.com/watch?v=TuAZq7A5Di8
112	Pharmacokinetics and Pharmacodynamics	Pharmacology	https://www.youtube.com/watch?v=e-YPi50ermc
113	Pharmacology- In Vivo, Invitro & Insilco	Pharmacology	https://www.youtube.com/watch?v=LG3VS7InLBk
114	Plethysmometer for Inflammation Evaluation	Pharmacology	https://www.youtube.com/watch?v=e5sFWeDP1bQ
115	Pole Climbing Apparatus- Antianxiety	Pharmacology	https://www.youtube.com/watch?v=lzuiZq-X3-A
116	Receptor Pharmacology- Lecture Video	Pharmacology	https://www.youtube.com/watch?v=udp-nbKHSy0
117	Rotarod Apparatus- Muscle Relaxant	Pharmacology	https://www.youtube.com/watch?v=HuFBaOGBpH0
118	Route of Drug Administration	Pharmacology	https://www.youtube.com/watch?v=8F56YR3wPt0
119	Sexually Transmitted Disease- Introduction	Pharmacology	https://www.youtube.com/watch?v=ePl013bejuQ
120	Student Organ Bath- Parts and Functions	Pharmacology	https://www.youtube.com/watch?v=LlM3OuwhjOE
121	Tail- Flick Analgesiometer	Pharmacology	https://www.youtube.com/watch?v=Ixa_XoaaYJI
122	Urinary Tract Infections (UTI)	Pharmacology	https://www.youtube.com/watch?v=DwjOBcIe_vU
123	Hot Plate Analgesiometer- Animation	Pharmacology	https://www.youtube.com/watch?v=_j2DjN5k6nE
124	Receptor- Subtract Interaction- Animation	Pharmacology	https://www.youtube.com/watch?v=WDtv06pOnPQ
125	Actophotometer- Animated Explanation	Pharmacology	https://www.youtube.com/watch?v=h8XcbVdOw1s
126	Parkinson Disease- Animated Explanation	Pharmacology	https://www.youtube.com/watch?v=olM7r5W-Tso
127	Antibiotics- Animated Explanation	Pharmacology	https://www.youtube.com/watch?v=TRD31geVFuY
128	G-Protein Receptor- Animated Video	Pharmacology	https://www.youtube.com/watch?v=0GRvI4r0x0o
129	Cholinergic Receptors	Pharmacology	https://www.youtube.com/watch?v=qchIOnMg2iE
130	How to Make Slide of Chick Cell	Pharmacology	https://www.youtube.com/watch?v=biGYmUPQaoA
131	Antiviral Mechanism- Animation	Pharmacology	https://www.youtube.com/watch?v=cDvYBP2jNiw

132	Blood Glucose level and Role	Pharmacology	https://www.youtube.com/watch?v=b-OJoTO6hJ4
133	Myasthenia Gravis- Animated Explanation	Pharmacology	https://www.youtube.com/watch?v=VFtcD0aAOmY
134	Parkinson Disease- Animated Video	Pharmacology	https://www.youtube.com/watch?v=dRuyTTXdIM0
135	Antidepressant mechanism- Animation	Pharmacology	https://www.youtube.com/watch?v=THmpP-g6HRM
136	Parkinson Etiology	Pharmacology	https://www.youtube.com/watch?v=wQ5wJCX94-4
137	Opioid Analgesic- Animation	Pharmacology	https://www.youtube.com/watch?v=CTs1OIjQq60
138	Opioid Antagonist- Animation Mechanism	Pharmacology	https://www.youtube.com/watch?v=xYH4rwi0G2Y
139	HMG- Co Enzyme A- Animation	Pharmacology	https://www.youtube.com/watch?v=L8EAkIO1wL4
140	Etiology of Shock- Animation	Pharmacology	https://www.youtube.com/watch?v=oK2_RCkqBAg

Lecture Video with Their Direct Link

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Please Subscribe our new channel- "Pharmacy Dictionary By Solution Pharmacy"

S.No.	Topic	Subject	Direct Link
01	Scope and Carrier in Pharmacy	All Subject	https://www.youtube.com/watch?v=a0-XnaYfS1k
02	Introduction and Scope of Microbiology	Microbiology	https://www.youtube.com/watch?v=BEKyDNLM1q8
03	Sterilization in Microbiology- Introduction	Microbiology	https://www.youtube.com/watch?v=stvOgtPD1hs
04	Sterilization process by Chemical Method	Microbiology	https://www.youtube.com/watch?v=C3CJYMi9A38
05	Sterilization by Autoclave- Moist Heat	Microbiology	https://www.youtube.com/watch?v=RN7mcvosGMA
06	Introduction to Pharmacognosy	Pharmacognosy	https://www.youtube.com/watch?v=uMUWBPJu7dc
07	Pharamcognostic Study of Crude Drugs	Pharmacognosy	https://www.youtube.com/watch?v=mguLp_DGo38
08	History and development of Pharmacognosy -01	Pharmacognosy	https://www.youtube.com/watch?v=QZZ0LACJz1s
09	History and development of Pharmacognosy- 02	Pharmacognosy	https://www.youtube.com/watch?v=MSabeRbl7fA
10	Scope of Pharmacognosy- Part 01	Pharmacognosy	https://www.youtube.com/watch?v=1-xLW9VFkuY
11	Scope of Pharmacognosy- Part 02	Pharmacognosy	https://www.youtube.com/watch?v=bghuam36D18
12	Natural Source of Drugs- Part 01	Pharmacognosy	https://www.youtube.com/watch?v=oRrvILZfJqs
13	Natural Source of Drugs- Part 02	Pharmacognosy	https://www.youtube.com/watch?v=0B1SlR5irug
14	Organized and Unorganized Crude Drugs	Pharmacognosy	https://www.youtube.com/watch?v=_bCd-4w9_VU
15	Classification of Crude Drug- Part 01	Pharmacognosy	https://www.youtube.com/watch?v=NpukQtaAIls
16	Classification of Crude Dug- Part 02	Pharmacognosy	https://www.youtube.com/watch?v=AnYe-RG_o9c
17	Classification of Crude Drugs- Part 03	Pharmacognosy	https://www.youtube.com/watch?v=OxZ3F2rzr5Y
18	Classification of Crude Drug- Part 04	Pharmacognosy	https://www.youtube.com/watch?v=5fcuHvJX6iY
19	Adulteration- Types and Introduction	Pharmacognosy	https://www.youtube.com/watch?v=Pz6i1EMc6mo
20	Quality control of drug of Natural Origin	Pharmacognosy	https://www.youtube.com/watch?v=F4cNoAUIMYI
21	Quality Control of Crude Drug Part 02	Pharmacognosy	https://www.youtube.com/watch?v=yHUxoyxdEZI
22	Chemical Evaluation of Crud Drugs	Pharmacognosy	https://www.youtube.com/watch?v=TZMz8_fzlPI
23	Biological Evaluation of Drugs	Pharmacognosy	https://www.youtube.com/watch?v=Br5hXtnT1Mk
24	Cultivation and Collection of drugs	Pharmacognosy	https://www.youtube.com/watch?v=6VtveQOqRb4
25	Processing and Storage of Drugs	Pharmacognosy	https://www.youtube.com/watch?v=qEBjPKn-so0
26	Factors Influencing Cultivation of Drugs	Pharmacognosy	https://www.youtube.com/watch?v=tEFPVdnfev0
27	Plant Hormone and its Application, Part 01	Pharmacognosy	https://www.youtube.com/watch?v=mJPwZcDrsoY
28	Plant Hormone and its Application, part 03	Pharmacognosy	https://www.youtube.com/watch?v=yu7pZt3L1Xo
29	Plant Hormone and Application, Part 04	Pharmacognosy	https://www.youtube.com/watch?v=LtSXGh_nTTI
30	Plant Hormone and Application, Part 05	Pharmacognosy	https://www.youtube.com/watch?v=6NYnMWWGptM
31	Plant hormone and Application, Part 06	Pharmacognosy	https://www.youtube.com/watch?v=Rg2LvU7fBEg
32	Mutation, Part 01	Pharmacognosy	https://www.youtube.com/watch?v=C3e7K-qSJkA
33	Mutation, Part 02	Pharmacognosy	https://www.youtube.com/watch?v=2lV28Kg8vjI
34	Polyploidy	Pharmacognosy	https://www.youtube.com/watch?v=miQrtLduIt4
35	Polyploidy Part 02	Pharmacognosy	https://www.youtube.com/watch?v=fPYA0z_PQTg
36	Hybridization	Pharmacognosy	https://www.youtube.com/watch?v=oeLYwtS9_bU
37	Introduction to Plant Tissue Culture	Pharmacognosy	https://www.youtube.com/watch?v=K_7-L072eSA
38	Nutritional Requirements for Plant Tissue Culture	Pharmacognosy	https://www.youtube.com/watch?v=EtQnhoNXzS8
39	Historical Development of Plant Tissue Culture	Pharmacognosy	https://www.youtube.com/watch?v=5clm7Tawy_I

40	Different Types of Plant Tissue Culture. Part 01	Pharmacognosy	https://www.youtube.com/watch?v=LHuUvUpXWto
41	Different Types of Plant Tissue Culture. Part 02	Pharmacognosy	https://www.youtube.com/watch?v=QjpSmKprfOo
42	Callus Culture- Growth and Maintenance	Pharmacognosy	https://www.youtube.com/watch?v=0u_iB60Fn4A
43	Suspension Culture	Pharmacognosy	https://www.youtube.com/watch?v=Ahd6qUgb92E
44	Application of Plant Tissue Culture	Pharmacognosy	https://www.youtube.com/watch?v=5Z93vtgcR04
45	Introduction to Primary and Secondary Metabolites	Pharmacognosy	https://www.youtube.com/watch?v=EvZZxDb7VpE
46	Introduction to Plant Alkaloid	Pharmacognosy	https://www.youtube.com/watch?v=beAZS_b9P8o
47	Physical and Chemical property of Alkaloids	Pharmacognosy	https://www.youtube.com/watch?v=vKkx-0vJfKQ
48	Classification of Alkaloid, Part 01	Pharmacognosy	https://www.youtube.com/watch?v=mH1UggSv47k
49	Classification of Alkaloid, Part 02	Pharmacognosy	https://www.youtube.com/watch?v=p48U4pk2ei0
50	Classification of Alkaloid, Part 03	Pharmacognosy	https://www.youtube.com/watch?v=bWrOTfJPcCo
51	Identification test for Alkaloid	Pharmacognosy	https://www.youtube.com/watch?v=2dwPvmItSPs
52	Introduction to Glycoside	Pharmacognosy	https://www.youtube.com/watch?v=AA1RO-7oQ1g
53	Properties of Glycoside	Pharmacognosy	https://www.youtube.com/watch?v=bC1fB22n6v0
54	Classification of Glycoside- Part 01	Pharmacognosy	https://www.youtube.com/watch?v=VeiOQ5zjJ6s
55	Classification of Glycoside	Pharmacognosy	https://www.youtube.com/watch?v=2Im7CuNgDGQ
56	Chemical Identification Test for Glycoside	Pharmacognosy	https://www.youtube.com/watch?v=bI8JUsdL4SM
57	Drug used in the Treatment of Shock-Part 02	Pharmacognosy	https://www.youtube.com/watch?v=lcALAoihDAE
58	Introduction to Tannins	Pharmacognosy	https://www.youtube.com/watch?v=SZrXbt7e1EU
59	Introduction to Basic Metabolic Pathway	Pharmacognosy	https://www.youtube.com/watch?v=v1vqV7YHKWg
60	Introduction to Shkimic Acid pathway	Pharmacognosy	https://www.youtube.com/watch?v=AresORA0bwQ
61	Basic Introduction to Pharmacology	Pharmacology	https://www.youtube.com/watch?v=fWFaBF34pHE
62	Pharmacokinetic and Pharmacodynamics	Pharmacology	https://www.youtube.com/watch?v=EjhJJRQW4Yo
63	Sources of Drugs	Pharmacology	https://www.youtube.com/watch?v=W9P0RlQ3ec4
64	Route of Drug Administration	Pharmacology	https://www.youtube.com/watch?v=lJRx4mn7g-w
65	Principle of Drug Action	Pharmacology	https://www.youtube.com/watch?v=_nOtG-lsP_Q
66	Bioavailability and Bioavailability Curve	Pharmacology	https://www.youtube.com/watch?v=AcbgYSyIwVc
67	Mechanism of Drug Action	Pharmacology	https://www.youtube.com/watch?v=M_2g1dSzfDE
68	Receptor Pharmacology- Part 01	Pharmacology	https://www.youtube.com/watch?v=BCeO9wq-mTo
69	Receptor Pharmacology Part- 02	Pharmacology	https://www.youtube.com/watch?v=R2sQFexTRXk
70	Receptor Pharmacology Part- 03	Pharmacology	https://www.youtube.com/watch?v=wvK9mICG5xE
71	Combined Effect of Drugs- Additive Effect	Pharmacology	https://www.youtube.com/watch?v=K4mVj1rAR-c
72	Factors Modifying Drug Action	Pharmacology	https://www.youtube.com/watch?v=O3b3KrqL9u0
73	Drug Tolerance and Dependence	Pharmacology	https://www.youtube.com/watch?v=hVjKFXDsG9U
74	Drug transport Mechanism	Pharmacology	https://www.youtube.com/watch?v=WMxOXhovDw4
75	Pharmacokinetic Part 01- Introduction	Pharmacology	https://www.youtube.com/watch?v=-9YWHXmHBEI
76	Pharmacokinetic- Part 02	Pharmacology	https://www.youtube.com/watch?v=i7Whx-B1AC8
77	Landmark and Scope of Pharmacology	Pharmacology	https://www.youtube.com/watch?v=6_qLMonueV8
78	How to study Pharmacology Effectively	Pharmacology	https://www.youtube.com/watch?v=UTWfcX8toPs
79	Metabolism of Drugs- Part 01	Pharmacology	https://www.youtube.com/watch?v=guJeisEYM2I
80	Metabolism of Drugs Part 02	Pharmacology	https://www.youtube.com/watch?v=ITc_lRtipQQ
81	Essential Drug Concept	Pharmacology	https://www.youtube.com/watch?v=wAdQsNIDGis
82	Drug Addiction- Introduction	Pharmacology	https://www.youtube.com/watch?v=rP_JRGvRSaM
83	Metabolism of Drug – Part 03	Pharmacology	https://www.youtube.com/watch?v=SwqCggXNTQo

84	Enzyme Induction- Introduction	Pharmacology	https://www.youtube.com/watch?v=9rn-_BgCSD0
85	Enzyme Inhibition	Pharmacology	https://www.youtube.com/watch?v=Wi-q1-VNDys
86	Pharmacokinetic- Part 03- Elimination	Pharmacology	https://www.youtube.com/watch?v=y6jzCNsPGdk
87	Tachyphylaxis	Pharmacology	https://www.youtube.com/watch?v=eN8ncQIT_OQ
88	Ligand gated Ion Channel	Pharmacology	https://www.youtube.com/watch?v=O4AiYjSHyys
89	Trans membrane Enzyme Linked receptor	Pharmacology	https://www.youtube.com/watch?v=qYHCjLiTaWw
90	Idiosyncratic Reaction	Pharmacology	https://www.youtube.com/watch?v=m25DGIu7EBQ
91	Therapeutics Index- Introduction	Pharmacology	https://www.youtube.com/watch?v=m-915T9183Q
92	Adverse Drug Reaction- Part- 01	Pharmacology	https://www.youtube.com/watch?v=3tBhF_shGs0
93	Adverse Drug Reaction- Part 02	Pharmacology	https://www.youtube.com/watch?v=GARgLtFtHIc
94	Drug Interaction- Pharmacokinetic. Part 01	Pharmacology	https://www.youtube.com/watch?v=Z_vON8oOxH0
95	Drug Interaction- Pharmacokinetic. Part 02	Pharmacology	https://www.youtube.com/watch?v=48CD2ZbzPmU
96	Drug Discovery Process	Pharmacology	https://www.youtube.com/watch?v=rQZmJz8VW7I
97	Preclinical Trial	Pharmacology	https://www.youtube.com/watch?v=MZn0tGvc0Yg
98	Clinical Trial- Introduction	Pharmacology	https://www.youtube.com/watch?v=Hv5Wq0JyWJI
99	Pharmacovigilance	Pharmacology	https://www.youtube.com/watch?v=1LKA7EpfruE
100	Pharmacology of Peripheral Nervous System	Pharmacology	https://www.youtube.com/watch?v=vDF8ASrV2fo
101	Organization and Function of ANS	Pharmacology	https://www.youtube.com/watch?v=xhawgAdtgQM
102	Neurohumoral Transmission	Pharmacology	https://www.youtube.com/watch?v=ceczDegqk0o
103	Cholinergic Transmission and Cholinergic Drugs	Pharmacology	https://www.youtube.com/watch?v=zLyOlbpvKvw
104	Cholinergic Drugs	Pharmacology	https://www.youtube.com/watch?v=Qb8ZX-jDlFM
105	Cholinergic receptors	Pharmacology	https://www.youtube.com/watch?v=Qb8ZX-jDlFM
106	Cholinergic Drugs- Anticholinesterase	Pharmacology	https://www.youtube.com/watch?v=zVzBXJe5D0Y
107	Anticholinergic Drugs	Pharmacology	https://www.youtube.com/watch?v=wdU0L3QFpuc
108	Adrenergic System Part 01	Pharmacology	https://www.youtube.com/watch?v=U1zrpN2jRqE
109	Adrenergic Receptors	Pharmacology	https://www.youtube.com/watch?v=n3nSGXQlP3M
110	Adrenergic Drugs- Introduction	Pharmacology	https://www.youtube.com/watch?v=MmWO4YtEMnU
111	Antiadrenergic Drugs Part 01	Pharmacology	https://www.youtube.com/watch?v=LeHl7zEgJlA
112	Antiadrenergic Drugs, Part 02	Pharmacology	https://www.youtube.com/watch?v=HOkU0GxuBoc
113	Neuromuscular Blocking Agents	Pharmacology	https://www.youtube.com/watch?v=dd-l3F_HZis
114	Local Anaesthetic- Part 01	Pharmacology	https://www.youtube.com/watch?v=EkdnXPsgCe8
115	Local Anaesthetic, Part 02	Pharmacology	https://www.youtube.com/watch?v=lU2e8T05bQI
116	Local Anaesthetic Part 03	Pharmacology	https://www.youtube.com/watch?v=hEYoGxPaz7w
117	Glaucoma- Introduction	Pharmacology	https://www.youtube.com/watch?v=jkN02Nn00Qw
118	Myasthenia Gravis- Introduction	Pharmacology	https://www.youtube.com/watch?v=kSpXypXqokg
119	How to prepare for Pharmacology Exams	Pharmacology	https://www.youtube.com/watch?v=9-JLkZYrvAM
120	Neurohumoral Transmission in CNS	Pharmacology	https://www.youtube.com/watch?v=gd1aEamWIAo
121	Types of Neurotransmitter in CNS	Pharmacology	https://www.youtube.com/watch?v=5VmGXhgARgg
122	General Anaesthetic, Part 01	Pharmacology	https://www.youtube.com/watch?v=lgNmJBSrejE
123	Plant Hormone and Its Application, Part 02	Pharmacology	https://www.youtube.com/watch?v=EqIwYAc0I1c
124	General Anaesthetics- Part 03	Pharmacology	https://www.youtube.com/watch?v=pwspOSwMvV0
125	General Anaesthesia, Part 04	Pharmacology	https://www.youtube.com/watch?v=VGusMYOAyYw
126	General Anaesthetics, Part 05	Pharmacology	https://www.youtube.com/watch?v=FaO_kedZ1C0
127	Sedative-Hypnotics- Part 01	Pharmacology	https://www.youtube.com/watch?v=nxQfrctHxIM
128	Sedative- Hypnotics- Part 02	Pharmacology	https://www.youtube.com/watch?v=TkZcHSi6hTA

129	Action potential- Introduction	Pharmacology	https://www.youtube.com/watch?v=2Plv1bu2alY
130	Sedative-Hypnotics- Part 03	Pharmacology	https://www.youtube.com/watch?v=5g8gvq1gJ78
131	Epilepsy Part 01	Pharmacology	https://www.youtube.com/watch?v=j1x3wzIPqX8
132	Epilepsy, Part 02	Pharmacology	https://www.youtube.com/watch?v=aVc2J3O1Vbw
133	Alcohol and Disulfiram , Part 01	Pharmacology	https://www.youtube.com/watch?v=TjeOKPAsIVc
134	Alcohol and Disulfiram , Part 02	Pharmacology	https://www.youtube.com/watch?v=Su7jNsJGhaA
135	Psychopharmacological Agent- Introduction	Pharmacology	https://www.youtube.com/watch?v=c_8YI-6uzYg
136	Antipsychotic Drugs, Part 01	Pharmacology	https://www.youtube.com/watch?v=0BD5JxYC4Xk
137	Antidepressant Part 01	Pharmacology	https://www.youtube.com/watch?v=SEl7V3jrim0
138	Antidepressant Part 02	Pharmacology	https://www.youtube.com/watch?v=ryKf9D2gm2c
139	Antidepressant Part 03	Pharmacology	https://www.youtube.com/watch?v=bqFgFCPW-LQ
140	Antianxiety Part 01	Pharmacology	https://www.youtube.com/watch?v=sfzxeZOcyA8
141	Bipolar Disorder	Pharmacology	https://www.youtube.com/watch?v=4t4gekgy984
142	Parkinson Disease, Part 01	Pharmacology	https://www.youtube.com/watch?v=nD7Laqy2KyI
143	Parkinson Disease, part 02	Pharmacology	https://www.youtube.com/watch?v=QXFNMWm4HTc
144	Alzheimer's Disease Part	Pharmacology	https://www.youtube.com/watch?v=Dy2Vb9HtT-A
145	CNS Stimulant Part	Pharmacology	https://www.youtube.com/watch?v=9xAod4o2CNA
146	Nootropic Agents	Pharmacology	https://www.youtube.com/watch?v=Hnrn0vevBP4
147	Opioid Analgesic, Part 01	Pharmacology	https://www.youtube.com/watch?v=dadz21o3VKI
148	Opioid Analgesic, Part 02	Pharmacology	https://www.youtube.com/watch?v=n2mIYfpIR1Y
149	Opioid Analgesic Part 03	Pharmacology	https://www.youtube.com/watch?v=SImcfopEU-E
150	Opioid Analgesic- Part 04	Pharmacology	https://www.youtube.com/watch?v=xNFvpsvh4Ss
151	Drug Abuse- Basic Introduction	Pharmacology	https://www.youtube.com/watch?v=iQIjHDAHZNQ
152	B.Pharma 5th Semester- Syllabus Introduction	Pharmacology	https://www.youtube.com/watch?v=R9vJ8p7cRD4
153	Drug acting on CVS- Introduction	Pharmacology	https://www.youtube.com/watch?v=CyK7jCgu56s
154	Electrophysiology of Heart	Pharmacology	https://www.youtube.com/watch?v=sTJzVBdJPsE
155	Drug Used in CHF- Part 01	Pharmacology	https://www.youtube.com/watch?v=zPa52haKQxI
156	Drug used in CHF-Part 02	Pharmacology	https://www.youtube.com/watch?v=FR7tBM-5oZM
157	Drug used in CHF-Part 03	Pharmacology	https://www.youtube.com/watch?v=nf-VsxUd_Ps
158	Drug Used in CHF-Part 04	Pharmacology	https://www.youtube.com/watch?v=Z2Jcixos6FU
159	Drug Used in CHF- Part 05	Pharmacology	https://www.youtube.com/watch?v=L1PjvEB8IlE
160	Drug used in CHF- Part 06	Pharmacology	https://www.youtube.com/watch?v=dzmlaDC-qHY
161	Antihypertensive Drugs, Part 01	Pharmacology	https://www.youtube.com/watch?v=JxXgScoK5_M
162	Antihypertensive Drugs, Part 02	Pharmacology	https://www.youtube.com/watch?v=xcglh0WZUCc
163	Antihypertensive Drugs, Part 03	Pharmacology	https://www.youtube.com/watch?v=3268YLj9VQE
164	Antihypertensive Drugs, Part 04	Pharmacology	https://www.youtube.com/watch?v=30jEYJXmOb4
165	Antihypertensive Drug, Part 05	Pharmacology	https://www.youtube.com/watch?v=QcxaG7OpdAU
166	Antihypertensive Drug, Part 06	Pharmacology	https://www.youtube.com/watch?v=i_uM09BHwv0
167	Antihypertensive Drugs, Part 07	Pharmacology	https://www.youtube.com/watch?v=NQyHkAtM20A
168	Antihypertensive Drugs, Part 08	Pharmacology	https://www.youtube.com/watch?v=s22D4YSscO4
169	Antianginal Drugs- Part 01	Pharmacology	https://www.youtube.com/watch?v=-znHCAu5OnY
170	Antianginal Drugs- Part 02	Pharmacology	https://www.youtube.com/watch?v=0Wxatvfp12w
171	Antianginal Drugs, Part- 03	Pharmacology	https://www.youtube.com/watch?v=ZD6NTMmkVdM
172	Antianginal Drugs, Part 04	Pharmacology	https://www.youtube.com/watch?v=tKLVoUxfykA
173	Antianginal Drugs, Part 05	Pharmacology	https://www.youtube.com/watch?v=Yp-Lhgu4IYs

174	Antianginal Drugs, Part- 06	Pharmacology	https://www.youtube.com/watch?v=aj-tRD7ot2s
175	Antiarrhythmic Drugs, Part 01	Pharmacology	https://www.youtube.com/watch?v=p8_E4NKMYPc
176	Antiarrhythmic Drugs, Part 02	Pharmacology	https://www.youtube.com/watch?v=QH5_Do4A44g
177	Antiarrhythmic Drugs, Part 03	Pharmacology	https://www.youtube.com/watch?v=yBn9LrtjeSs
178	Antiarrhythmic Drugs Part 04	Pharmacology	https://www.youtube.com/watch?v=3fCcnGS7OSQ
179	Antiarrhythmic Drugs Part 05	Pharmacology	https://www.youtube.com/watch?v=wl7_UdKCxHE
180	Antihyperlipidemic Drugs, Part 01	Pharmacology	https://www.youtube.com/watch?v=lYiinKs1mG0
181	Antihyperlipidemic Drugs, Part 02	Pharmacology	https://www.youtube.com/watch?v=md0Dqb2RMnI
182	Antihyperlipidemic Drugs, Part 03	Pharmacology	https://www.youtube.com/watch?v=RUnYM8kj1So
183	Antihyperlipidemic Drugs, Part 04	Pharmacology	https://www.youtube.com/watch?v=wYsAbENNS-Q
184	Antihyperlipidemic Drugs, Part- 05	Pharmacology	https://www.youtube.com/watch?v=yw_quZZ9LqU
185	Antihyperlipidemic Drugs, part 06	Pharmacology	https://www.youtube.com/watch?v=GcTZFA6zI7Y
186	Drug used in Treatment of Shock. Part 01	Pharmacology	https://www.youtube.com/watch?v=8eOu02tVx74
187	Drugs used in Treatment of Shock- Part 03	Pharmacology	https://www.youtube.com/watch?v=40CzXIXl_sY
188	Haematinics-Part 01	Pharmacology	https://www.youtube.com/watch?v=cKzdNtTXW8A
189	Haematinics-Part 02	Pharmacology	https://www.youtube.com/watch?v=Rdd3ibTamJA
190	Haematinics-Part 03	Pharmacology	https://www.youtube.com/watch?v=0DXWc23z1Fo
191	Coagulant Part 01	Pharmacology	https://www.youtube.com/watch?v=tFudwQbOTQk
192	Coagulant Part 02	Pharmacology	https://www.youtube.com/watch?v=C9k1xI4BBB4

Minutes of the meeting of BoS in Physics held on Thursday, 10 June 2021 at 1.00pm through online mode.

Following members were present:
Dr. K.Y. Rajpure, Dr. V.V. Killedar, Dr. U.K. Mohite, Dr. T.J. Shinde, Dr. G.S. Ghodake, Dr. A.P. Tonape, Dr. M.M. Karanjkar, Dr. M.V. Takale, Dr. S.J. Pawar, Dr. A. K. Bhosale and Prof. Dr. S.R. Jadkar (SPPU Pune). Dr. P.R.Saravade (Mumbai University) communicated his inability to be absent.

There was a detailed discussion on the online BSc and MSc practical exams in Physics. Discussions were also held on how to complete the remaining experiments and what method to adopt. The meeting was held on the basis of the questionnaire you sent. The following was unanimously decided.

[1] Total 65% laboratory experiments can be conducted through online system.

[2] The concerned teacher would explain the practical experiment to the students (in synchronous mode) with the help of practical charts (Aim, Apparatus, Diagram, Observations, Observation Table, Graphs, Results, Precautions, Oral questions etc.) using online mode in two hours per laboratory experiment. The videos of the same can be prepared and shared to the students.

[3] Experiment readings can be made available to the students while explaining the experiment especially theory, observations and observation tables. The students will plot the graphs wherever necessary and do the calculations using given experiment readings and draw the conclusions (results) of the experiments. It can be ascertained whether the student have really performed the experiment or not from the self-test result or the E-journal given to the teacher.

[4] Submission of the laboratory experiment should (scanned copy) be done after completion of all experiments. The soft /photo copy of journal be collected through online methods.

[5] A soft copy/hard copy of workbook can be provided to the students.

[6] Practical examination can be conducted through online mode using Google Meet or Zoom platform. Before going to conduct the practical exam, detailed batch wise time table and allotted practical groups can be send to them prior to the exam dates via Google classroom. As per the requirement of practical examination, one experiment from each practical group is allotted to student and asked to explain the experiment using Google Meet or Zoom platform. The oral questions related with that practical will be asked and according to his performance marks will be given. For assessing the student, a table showing different heads of distribution of marks will be prepared which will maintain uniformity in assessment.

[7] Time duration for each conducting practical examination can be of 30 minutes. It can be conducted by internal examiner for B.Sc. I and by inviting external examiners for B.Sc.II and III using our regular offline examination pattern through online mode.

[8] An oral examination based on practical will be conducted based on the following points:
(i) Explanation about performance /procedure of the experiments.
(ii) Information or idea about observations, formula & observation table.
(iii) Ability to perform calculation and plotting the graph.
(iv) Discussion about result & conclusion.

(v) Oral questions related to experiments.

[9] Sub division of Practical Examination marks be as follows:
A) For B. Sc.- I & II
(i) Journal Completion -10%
(ii) Explanation about procedure – 30%
(iii) Explanation about observations, formula & observation table (30%)
(iv) Discussion about the result-(20%)
(v) Evaluation about oral of the experiments- 10%,
B) For B. Sc. – III
(i) Journal Completion -10%
(ii) Explanation about procedure – 30%
(iii) Explanation about observations, formula & observation table (30%)
(iv) Discussion about the result-(10%)
(v) Evaluation about oral of the experiments- 5%,
(vi) Completion of Seminars (15%)"

[10] The marks will be uploaded to through Digital Exam Portal of University.

[11] Already seminars of B.Sc.III students have conducted using online mode and record of this is maintained. As decided in a previous Physics BoS meeting, due to COVID 19 Pandemic, instead of Industrial/Study tour an additional seminar should be conducted and marks of Industrial/Study activity will be given to additional seminar report. The seminar reports should be prepared by students and submitted by email to concerned teacher.

[12] Google Meet/ Zoom technological platform will be used for conducting the laboratory experiments. Most of the college doesn't possess licensed copy of online platforms so University could provide access to licensed Zoom or Google Meet Platform to avoid time limit of 40 minutes.

[13] At least 1 MB/sec bandwidth and daily 1.5GB data is essential at students end for proper conduct of practical.

[14] The main hurdle in conducting online practical exam is the internet connectivity and bandwidth available in rural area as most of our students are from rural area. In such a case, it should be considered whether other options can be given to the students for the examination. For example by asking questions over the phone etc

[15] University may think to provide some financial assistance to poor students e.g. mobile recharge charges.

Yours faithfully,

(KY Rajpure)
Chairman, BoS in Physics, SUK

गणित विषयांची प्रात्यक्षिके आणि प्रात्यक्षिक परीक्षांच्या आयोजनाबाबत.

1. बी.एस्सी. भाग 1, 2, 3 च्या प्रात्यक्षिकांचे आयोजन ऑनलाईन पध्दतीने करण्यात यावे. प्रात्यक्षिकांसाठी प्रत्येक महाविद्यालयाच्या गणित विभागाने मेल खाते उघडावे. दोन प्रॅक्टीकलच्या डेमॉनस्टेशन नंतर 1 स्वाध्याय (Home assignments) देण्यात यावा. हा स्वाध्याय विद्यार्थ्यांनी स्वहस्ते सोडवून त्यांचे फोटो काढून Online/Offline पध्दतीने कोर्स पूर्ण झाल्यावर आपल्या महाविद्यालयाच्या गणित विभागात जमा करावेत. बी.एस्सी. भाग 3 साठी असणारे प्रोजेक्ट विद्यार्थ्यांनी हस्तलिखीत/टाईप करून PDF च्या स्वरूपात Online/Offline पध्दतीने आपल्या महाविद्यालयाच्या गणित विभागात जमा करावेत.

2. एम.एस्सी. टेक भाग 1, 2, 3 च्या प्रात्यक्षिकांचे आयोजन Online पध्दतीने करण्यात यावे. कोर्स पूर्ण झाल्यावर विद्यार्थ्यांनी सर्व Programme संबंधीत शिक्षकांच्या Moodle/email खात्यावर जमा करावे. एम.एस्सी.टेक भाग 2, 3 साठी असणारे प्रोजेक्ट विद्यार्थ्यांनी टाईप करून PDF च्या स्वरूपात Online पध्दतीने शिवाजी विद्यापीठाच्या गणित विभागात जमा करावेत.

3. बी.एस्सी. भाग 1 आणि 2 च्या प्रात्यक्षिक परीक्षांचे आयोजन महाविद्यालयाने त्यांच्या स्तरावर करावे. बी.एस्सी. भाग 1 (CCPM–I), बी.एस्सी.भाग 2 (CCPM – II, CCPM - III) च्या प्रात्यक्षिक कोर्सवर विद्यार्थ्यांना दिलेल्या एकूण स्वाध्यायांपैकी (Home assignments) पाच स्वाध्यायांचे 25 गुणांसाठी गुणांकन करण्यात यावे.
परीक्षांचे गुणांकन खालीलप्रमाणे करण्यात यावे.

	स्वाध्याय Home Assignment	मौखिक परीक्षा Oral	हजेरी Attendance at Online Practical	एकूण गुण Total Marks
Marks	25	20	5	50

मौखिक परीक्षेत कमीत कमी पाच प्रश्न विचारावे. मौखिक परीक्षा Online/Offline पध्दतीने घेण्यात यावी. महाविद्यालयाने प्रात्यक्षिक परीक्षांचे गुण विद्यापीठात सादर करावे.

4. बी.एस्सी. भाग 3 (CCPM–IV,CCPM-V, CCPM - VI) च्या प्रात्यक्षिक परीक्षांचे आयोजन वरील क्रं. 3 प्रमाणे करावे. मात्र मौखिक परीक्षेसाठी एका बहिस्थ परीक्षकाची नेमणूक महाविद्यालयाने त्यांच्या स्तरावर करावी. मौखिक परीक्षा शक्यतो Online पध्दतीने आयोजित करण्यात यावी. बी.एस्सी भाग 3 CCPM – VII च्या परीक्षेसाठी महाविद्यालयातील गणित विभागाने मौखिक परीक्षेआधी किमान एक आठवडा विभागात जमा असलेले प्रोजेक्ट रिपोर्ट बहिस्थ परीक्षकाकडे पाठवावे. प्रत्येक विद्यार्थ्याने Online/Offline पध्दतीने Project सादर करावा. व Project Viva ही त्याचवेळी ऑनलाईन/ऑफलाईन पध्दतीन घ्यावी. गुणांकन खालील प्रमाणे असावे.

	Project	Presentation	Project Viva	Total Marks
Marks	25	10	15	50

महाविद्यालयाने प्रात्यक्षिक परीक्षांचे गुण विद्यापीठात सादर करावे.

5. एम.एस्सी टेक गणित भाग 1, 2, 3 च्या प्रात्यक्षिक परीक्षा Online पध्दतीने आयोजित करण्यात याव्यात. परीक्षांचे गुणांकन खालीलप्रमाणे असावे.

Practical marks distribution for M.Sc. Tech in Mathematics

Sem I 100 marks	----	Online Practical Attendance 20 marks	Online Practical Assignments Evaluation 50 marks	Online Practical Viva 30 marks
Sem II 100 marks	----	Online Practical Attendance 20 marks	Online Practical Assignments Evaluation 50 marks	Online Practical Viva 30 marks
Sem III 100 marks	Online Project Viva 50 marks	Online Practical Attendance 10 marks	Online Practical Assignments Evaluation 20 marks	Online Practical Viva 20 marks
Sem IV 100 marks	Online Project Viva 50 marks	Online Practical Attendance 10 marks	Online Practical Assignments Evaluation 20 marks	Online Practical Viva 20 marks
Sem V 100 marks	Online Project Viva 50 marks	Online Practical Attendance 10 marks	Online Practical Assignments Evaluation 20 marks	Online Practical Viva 20 marks
Sem VI 400 marks	Online Industrial Project Mid Term Viva 50 Marks	Online Industrial Project Final Exam Viva and Report Evaluation 250 marks (Internal: 100 External:150)	Online Technical Communication 100 marks (Presentation:50 Report: 50)	--

विभागाने प्रात्यक्षिक परीक्षांचे गुण परीक्षा विभागात सादर करावे.

Chemistry and Chemical Technology

The minutes of the points discussed in the BOS meeting to be held on 4th June to discuss about the practical and the practical examination

1. For regular practical explanation for each practical is to be given either through Power point presentation, word file, PDF or even the scanned hand written copy.

2. The explanation should be of its brief theory, chemicals required, apparatus, instruments, detailed procedure and the calculation as per the requirement.

3. For the Journal purpose the readings are to be provided to the students for each experiments. The students will do calculations and submit the report online either through email or whatsup as per the requirement.

4. The submitted soft copies of the journals to be assessed during examination

5. The practical examination must will consists of number of experiments or practical papers.

6. University may permit to appoint chairman, **external** and **internal** examiners for each exam by Head of the Department / Principal of the college for smooth conduction of practical examination. The number of examiners will be as in case of earlied offline examinations.

7. Internal Examiners will have responsibility to prepare batches, schedule of examination, create WhatsApp group of students of concerned batches/ class, preparation of question paper set in consultation with external examiner and all other arrangements as required.

8. Similarly procedure be followed for B.Sc III / M Sc I and M Sc II and it is important to note that the examination pattern i.e. viva, journal evaluation, days of examination , scheme of marking be kept as usual.

10. Each paper or practical will be conducted separately.

11. The readings other than given during explanation is to be provided to the students during the examination. The students are expected to solve it within a stipulated time on the day of examination and submit it online.

12. The same procedure will be followed for the projects assigned to the students.

Shivaji University, Kolhapur
Board of Studies in Zoology

1. Extent of Laboratory Experiments to be conducted: How many (or percentage of) laboratory experiments be conducted?

   About 70% practicals can be conducted

2. Preparedness of the students: In what manner the explanation of the Laboratory experiment will be given by the concerned teacher? Whether synchronous or asynchronous? How much time to be allotted by the concerned teacher for conduct or for demo for individual laboratory experiment?

   For live demonstration about 1 hour and for video based half hour will be Required, additional half hour in both cases will be required for question answer and journal completion instructions.

3. How to make sure that the student has actually done the laboratory experiment? Assessing the difficulties in doing the laboratory experiments.

   A feed back or home assignment related to experiment will ensure attendance and perusal by student.

4. Whether the submission of the laboratory experiment should be done experiment wise or after completion of stipulated number of experiments? Indicate the technical platforms for collecting the soft copy of the journals.

   Pdf form of practical completion can be collected.

5. Is it possible to provide soft copy of workbook to students ? so that there will be uniformity in structure of journal

   Yes it will be possible .

6. How to conduct practical examination? What percentage of practicals to be assessed during the examination?
   All the practicals conducted in online mode can be assessed in online mode.

7. What is time duration for practical examination? Should it be conducted internally or invite external examiner(s)?

   External examiner can examine few questions. It will be better to have one external examiner for assessment.

8. Will there be oral examination? Indicate the subheads for assessment of the laboratory experiment during the examination.
   There will be a oral examination.
   Some weightage may be given for regular attendance and timely completion of journal .

9. Indicate the sub division of Practical Examination marks. E.g. oral+Journal+Exam
   Questions suggested are
   Identification using google form.
   Submissions of reports and journals in pdf form
   Oral in live streaming mode
   Examples and short answers in pdf form.

10. How to submit marks to University?

    Online portal as usual or in Excel sheet signed by Head and Principal.

11. How to take care of Project work/Industrial visit/internship and such other things for which marks are to be given to students?

    Local projects are possible in most of the classes. Reports can be submitted. Some constraints will be there for industrial visits and internship in groups but some individual level visits can be designed.

12. Please mention the technological platforms to be used for conducting the laboratory experiments.

Google, Moodle, Zoom and many platforms are available and are being used in colleges as per the convenience .

13. Please mention the bandwidth requirement / data pack requirement at student's end for conduct of practicals.

. Live streaming practicals will require at least 1 GB pack per day.

14. Do you envisage any difficulty? If yes how they will be addressed?

Connectivity is a problem faced in many cases but video and PPT based practicals can be attended by the student whenever possible

15. Any other point you wish to share (not covered above)

Some of the above mentioned activities such as journal in e content for uniformity may require cooperation of many faculties.

Name of the Board of Studies: BOS in Statistics

1. Extent of Laboratory Experiments to be conducted: How many (or percentage of) laboratory experiments be conducted?
   All the practicals on the 75% portion that was considered for the theory examination must be conducted.
   If this number falls below 75%of the total number of practicals, then include required number of practicals on the omitted portion of theory in serial order to make the total number of practicals at least 75% of the total number.

2. Preparedness of the students: In what manner the explanation of the Laboratory experiment will be given by the concerned teacher? Whether synchronous or asynchronous? How much time to be allotted by the concerned teacher for conduct or for demo for individual laboratory experiment?
   The explanation on practicals be given in a synchronous manner in an online class. The time required for explanation may depend on the actual need, and on an average could be about 45 minutes per practical.

3. How to make sure that the student has actually done the laboratory experiment? Assessing the difficulties in doing the laboratory experiments.
   No idea about this.

4. Whether the submission of the laboratory experiment should be done experiment wise or after completion of stipulated number of experiments? Indicate the technical platforms for collecting the soft copy of the journals.

   Soft copies of the hand written/typed submissions may be done on Moodle/Google drive. The practicals can be posted immediately after its completion but with in one week after its explanation.

5. Is it possible to provide soft copy of workbook to students ? so that there will be uniformity in structure of journal.

   Providing soft copy is quite difficult since there is no typical format common to all practicals. However if the concerned teacher wants such a format for specific practicals assigned to him, he can post it on mail/Moodle.

6. How to conduct practical examination?What percentage of practicalsto be assessed during the examination?

   The question sheet can be e-mailed 20 minutes prior to the start of examination. As the exam is online, emails can be sent simultaneously to all candidates by making google group. Any two out of three questions can be solved on plain paper, each question being of 20 marks. The students may be asked to submit the scanned answer

bookby e-mail on a specifically generated e-mail account for this purpose within 10 minutes after the end time the examination.

7. What is time duration for practical examination?Should it be conducted internally or invite external examiner(s)?
   The exam may be of 1 hour duration, and be conducted internally by thecollege/department.

8. Will there be oral examination? Indicate the subheads for assessment of the laboratory experiment during the examination.
   Submissions /Journal –as assigned in the syllabus.
   Project and/ Or VIVA can be conducted online through google meet or other equivalent platform and evaluated for marksas assigned in the syllabus.
   Practical exam as described in item no 6 and 7 be conducted for 40 marks. If in the syllabus, actual marks allotted to practical exam differ from 40, then these marks can be converted out of the assigned marks.

9. Indicate the sub division of Practical Examination marks. E.g. oral+Journal+Exam
   Submissions /Journal –as assigned in the syllabus.
   Project and/ Or VIVA can be conducted online through google meet or other equivalent platform and evaluated for marksas assigned in the syllabus.
   Exam: as mentioned in item 8 above.

10. How to submit marks to University?
    Marks can be uploaded on university portal by the internal examiner.

11. How to take care of Project work/Industrial visit/internship and such other things for which marks are to be given to students?
    Projects can be based on secondary data and/or data collected through google forms or any other electronic platform. It can be analyzed on any free software or trial versions of commercial software that are free to download. Projects can be done in groups of two/three or rarely four such that at least one member of the group has a laptop to handle the analysis part if needed. In case some calculations can be done on mobile/calculator, then they can do that.

12. Please mention the technological platforms to be used for conducting the laboratory experiments.
    Calculators/Laptop/Desktop

13. Please mention the bandwidth requirement / data pack requirement at student's end for conduct of practicals.
    1 GB/day

14. Do you envisage any difficulty? If yes how they will be addressed?
    ---

15. Any other point you wish to share (not covered above)
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1. Extent of Laboratory Experiments to be conducted: How many (or percentage of) laboratory experiments be conducted?

   60 % (With reference to discussions in earlier BoS meeting).

2. Preparedness of the students: In what manner the explanation of the Laboratory experiment will be given by the concerned teacher? Whether synchronous or asynchronous? How much time to be allotted by the concerned teacher for conduct or for demo for individual laboratory experiment?

   Both synchronous and asynchronous - 1 to 4hrs

3. How to make sure that the student has actually done the laboratory experiment? Assessing the difficulties in doing the laboratory experiments.

   - **Online presentation by students/ group discussions**

4. Whether the submission of the laboratory experiment should be done experiment wise or after completion of stipulated number of experiments? Indicate the technical platforms for collecting the soft copy of the journals.

   - **After completion of all the stipulated experiments.**
   - **Google Classroom/Email/WhatsApp/Telegram/Skype**

5. Is it possible to provide soft copy of workbook to students? so that there will be uniformity in structure of journal

   - **Possible;scanned photocopy/soft copy of the individual experiments will be provided to students through online mode.**

6. How to conduct practical examination? What percentage of practicals to be assessed during the examination?

   - **Examination: Online through; Google meet/Skype/Zoom/WebEx**
   - **At least 50 % experiments should be covered.**

7. What is time duration for practical examination? Should it be conducted internally or invite external examiner(s)?

   Time duration:B.Sc. I: Minimum 2hrs per batch

   B.Sc. II: Minimum 2hrs per batch

   B.Sc. III: Minimum 3hrs per batch

   M.Sc.I& II: Minimum 3hrs per batch

   Conduction of exam: Internal examiners

8. Will there be oral examination? Indicate the sub-heads for assessment of the laboratory experiment during the examination.

   - **Oral examination: Yes (Viva-voce)**
   - **Sub-heads for assessment of the laboratory experiment: Writeup; Approach (Principal and introduction), requirement, observations, results; journal writing.**

9. Indicate the sub division of Practical Examination marks. E.g.Oral+Journal + Exam submission
   - **25% + 25% + 50%**
10. How to submit marks to University?
    - **Online (Through university software)**
11. How to take care of Project work/Industrial visit/internship and such other things for which marks are to be given to students?

    - Project work: Submission of project work/review article/PowerPoint presentation related the given topic**(If applicable)**
    - **Write up of project work:** Title page, abstract, introduction, material methods,discussion as per the available references.
    - **Industrial visit/internship:** Not applicable due to Covid-19 pandemic

12. Please mention the technological platforms to be used for conducting the laboratory experiments.

Google meet / Zoom / WebEx/ Skype/ WhatsApp

13. Please mention the bandwidth requirement / data pack requirement at student's end for conduct of practicals.

    Data Pack- Minimum 2GB / day, (4G Connection)

14. Do you envisage any difficulty? If yes how they will be addressed?
    - **Difficulties:**Interactions with students; Internet connectivity specially students at remote places.
    - **Solution:**Additional time will be given to students/ direct telephonic conversations with students at remote places.
15. Any other point you wish to share (not covered above)

Name of the Board of Studies: Food Science and Technology

1. **Extent of Laboratory Experiments to be conducted:**
   How many (or percentage of) laboratory experiments be conducted?
   M.Sc. second year – 60% of laboratory experiments are conducted.
   M.Sc. first year – 20% of laboratory experiments are conducted.

2. **Preparedness of the students:**
   In what manner the explanation of the Laboratory experiment will be given by the concerned teacher?

   We have standardized the laboratory experiments and accordingly, laboratory manuals are already prepared. The concerned teacher is explaining the experiments by using videos available on the internet and through online lab visits also.

   Whether synchronous or asynchronous?

   Synchronous mode of learning is being utilized. Student feedback regarding understanding the concept of experimental procedure is taken immediately after a thorough discussion. Students are asked to perform the experiments which they are able to perform in home (processing and product preparation practicals) and doubts if any gets resolved at the beginning of next practical.

   How much time to be allotted by the concerned teacher for conduct or for demo for individual laboratory experiment?

   Depending upon the experiments, time required to complete the experiments varies from 2 hours (qualitative analytical experiments) to 4 hours (processing and quantitative analytical experiments).

3. **How to make sure that the student has actually done the laboratory experiment? Assessing the difficulties in doing the laboratory experiments.**

   It is possible to assess the performance of students by obtaining proofs in the form of Images of the products or the reading and calculations.

Dr. Abhijeet Arun Gatade
Assistant Professor
Dept. Food Sci. & Tech.

Dr. Akshaya Kumar Sahoo
Head (I/c) & BOS Chairman
Dept. Food Sci & Tech.

4. **Whether the submission of the laboratory experiment should be done experiment wise or after completion of stipulated number of experiments?**

   Indicate the technical platforms for collecting the soft copy of the journals.
   The Laboratory Manuals developed by the faculty are self explanatory. Required space for writing readings, observations and calculation is allotted in the manual itself. Once all the experiments are completed the students can submit the Laboratory Manual (Journal) in scanned format through email or if possible in hard copy format through postage.

5. **Is it possible to provide soft copy of workbook to students? so that there will be uniformity in structure of journal**
   Yes, we have already supplied a standardized soft copy (pdf file) of Journal/Laboratory Manual/Work Book to the students.

6. **How to conduct practical examination?**
   What percentage of practicals to be assessed during the examination?
   Practical examination should be conducted based on the experiments that the students are able to perform in home. 75% of practicals should be considered for assessment. .
   In a more theoretical way, examination can be conducted by following manner
   1. Online Test having (50% Marks)
   2. Online Viva-voce by Internal/External Examiner (30% Marks)
   3. Submission of Journal/Laboratory Manual/Work Book by the students (10% Marks)
   4. Attendance of students (10% Marks)

7. **What is time duration for practical examination?**
   Should it be conducted internally or invite external examiner(s)?
   Assessment of Laboratory Course I, II and III of Semester I, II and III respectively can be conducted by internal examiner. While, assessment of Laboratory Course IV of Semester IV can be conducted by inviting external examiner.

8. **Will there be oral examination?**
   Indicate the subheads for assessment of the laboratory experiment during the examination.
   Yes. There should be an oral examination, which helps the examiner to interact with student directly and can help in better assessment of student.
   The subheads for assessment will be as follows;
   1. Online Test having (50% Marks)
   2. Online Viva-voce by Internal/External Examiner (30% Marks)
   3. Submission of Journal/Laboratory Manual/Work Book by the students (10% Marks)
   4. Attendance of students (10% Marks)

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Dept. Food Sci & Tech.

9. **Indicate the sub division of Practical Examination marks. E.g. oral+Journal+Exam**
Laboratory course for each semester is of 200 Marks. The subdivision of total marks is given in the table below.

Sub head of Practical Examination	Percentage	Total Marks
Online Test having	50 %	100
Online Viva-voce by Internal/External Examiner (Oral)	30 %	60
Submission of Journal/Work Book by the students	10 %	20
Attendance of students	10 %	20
Total (Per Laboratory Course per Semester)	100 %	200

10. **How to submit marks to University?**
Mark to the University can be submitted through online portal for marks entry.

11. **How to take care of Project work/Industrial visit/internship and such other things for which marks are to be given to students?**
An internal and external evaluation strategy is going to be utilized.
The projects can be internally assessed by the concerned guide throughout the year.
External examiner can assess the projects by having research work presentation and a Question/Answer thereafter.

12. **Please mention the technological platforms to be used for conducting the laboratory experiments.**
Currently we are utilizing following technological platforms.
1. Google Meet – For explanation of experiments and discussion
2. YouTube Videos – For visuals

13. **Please mention the bandwidth requirement / data pack requirement at student's end for conduct of practicals.**
Minimum 2 GB per Day Data Pack is required at students end.

14. **Do you envisage any difficulty? If yes how they will be addressed?**
Nil

15. **Any other point you wish to share (not covered above)**
Nil

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Dr. Akshaya Kumar Sahoo
Head (I/c) & BOS Chairman
Dept. Food Sci & Tech.

Board of Electronics Scinences, Electronics Engg & Technology

Strategy of conducting Lab course & Practical Examination in virtual mode in COVID-19 Pandemic

1. **Extent of Laboratory Experiments to be conducted: How many (or percentage of) laboratory experiments be conducted?**
   - *80% of the Reduced Syllabus.*
2. **Preparedness of the students: In what manner the explanation of the Laboratory experiment will be given by the concerned teacher? Whether synchronous or asynchronous? How much time to be allotted by the concerned teacher for conduct or for demo for individual laboratory experiment?**
   - *Demo will be given by the teacher by sharing his screen. After words the students may be asked to repeat the experiment and record the observations.*
   - *Let the concerned teacher should decide.*
   - *In order to complete required the syllabus in time & amount of data pack students have to purchase, 90 min per session may be allotted.*
   - *Each student may be asked to submit his observations on the same day on WhatsApp group of the class.*
3. **Assessing the difficulties in doing the laboratory experiments.**
   - *Students may ask queries on WhatsApp group of the class.*
4. **Whether the submission of the laboratory experiment should be done experiment wise or after completion of stipulated number of experiments? Indicate the technical platforms for collecting the soft copy of the journals.**
   - *Submission should be done after completion of the syllabus.*
   - *'Pdf' format of the scanned pages can be mailed to the concerned teacher.*
5. **Is it possible to provide soft copy of workbook to students? so that there will be uniformity in structure of journal.**
   - *May be possible, but should not be made compulsory.*
6. **How to conduct practical examination? What percentage of practicals to be assessed during the examination?**
   - *Practical examination can also be conducted online using any suitable platform and sessions can be recorded.*

- *80% of the Reduced Syllabus.*

7. **What is time duration for practical examination? Should it be conducted internally or invite external examiner(s)?**
    - *Duration should be 30 min per student per session.*
    - *To avoid complexity and to speed up the process, it should be conducted internally.*
8. **Will there be oral examination? Indicate the subheads for assessment of the laboratory experiment during the examination.**
    - *Yes, there will be oral examination. Understanding & procedure of the experiment can be checked.*
    - *Subheads cannot be changed.*
9. **Indicate the sub division of Practical Examination marks. E.g. oral+Journal+Exam**
    - *Sub division of marks will remain same as and cannot be changed.*
10. **How to submit marks to University?**
    - *Online to University web portal.*
11. **How to take care of Project work/Industrial visit/internship and such other things for which marks are to be given to students?**
    - *Project work – students in a group of 2 or 3 will be allowed to select any project from online and they have to explain its working and submit their document in 'pdf' format at the time of examination.*
    - *Industrial Visit - Any industry can be selected and the some technical person from the industry may be asked to give information of the product online and all the students will have to attend the session. This session will be controlled & recorded by the teacher in-charge from the college. At the time of examination students will have to submit a report on it in 'pdf' format.*
12. **Please mention the technological platforms to be used for conducting the laboratory experiments.**
    - *Skype / Zoom / Google meet/ any suitable platform for both teacher and students.*
13. **Please mention the bandwidth requirement / data pack requirement at student's end for conduct of practical.**

- *Students may be asked to have sufficient data pack on the day of examination.*

14. Do you envisage any difficulty? If yes how they will be addressed?

- *Students who remain absent at the time of examination may be given another chance.*

15. Any other point you wish to share (not covered above).

- *Most of the students are using cell phones and the many virtual links are not compatible with cell phones. So please guide us what to do in such case.*

Dr. A. M. Shaikh
BOS Chairman

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BOS Botany Subject

As per the requirement of The Hon. Vice Chancellor, Shivaji University, Kolhapur regarding the Virtual practicals Herewith Iam sending the details as below chart.

Sr. No.	Questions	Answers
1	Extent of Laboratory Experiments to be conducted: How many (or percentage of) laboratory experiments be conducted	75%
2	Preparedness of the students: In what manner the explanation of the Laboratory experiment will be given by the concerned teacher? Whether synchronous or asynchronous? How much time to be allotted by the concerned teacher for conduct or for demo for individual laboratory experiment?	Synchronously and asynchronously . For the demonstration it 20 -30 minutes.
3	How to make sure that the student has actually done the laboratory experiment? Assessing the difficulties in doing the laboratory experiments.	For this we randomly make the video calls to the students and confirmed whether he / she has done the practical.
4	Whether the submission of the laboratory experiment should be done experiment wise or after completion of stipulated number of experiments? Indicate the technical platforms for collecting the soft copy of the journals.	Submission of the laboratory experiment should be done after the completion of the stipulated number of experiments. On whats app group or concern teacher mail.
5	Is it possible to provide soft copy of workbook to students ? so that there will be uniformity in structure of journal	Yes

6	How to conduct practical examination? What percentage of practicals to be assessed during the examination?	Examination will be conducted on online mode by sharing the ppt prepared by the students and orally.
7	What is time duration for practical examination? Should it be conducted internally or invite external examiner(s)?	For each candidate examination duration will be 30 minutes to the B.Sc. III and 20 Minutes B.Sc. II and 10 Minutes to The B.Sc. I. The examination should be conducted By the Internal Examiner as per the Practical Key given by the University.
8	Will there be oral examination? Indicate the subheads for assessment of the laboratory experiment during the examination.	Yes there will be Oral examination. By sharing the ppt by the students. On Google meet Direct video call to the students and ask the oral questions .
9	Indicate the sub division of Practical Examination marks. E.g. oral+Journal+Exam	Oral question should be asked experiment wise. According to the examinares key marks will be given to the students. For this we are preparing the standard practical key to the examiner which helps in the Uniformality of the marks
10	How to submit marks to University?	Through college ,
11	How to take care of Project work/Industrial visit/internship and such other things for which marks are to be given to students?	We conducted the all colleges heads meeting Inthat we have decided to give the location to the students , students will search the information from the website and he/she will hand write the information of the

		location and will share the pdf file at the time of examination or present the ppt.
12	Please mention the technological platforms to be used for conducting the laboratory experiments.	Google forms, direct Video Call, Google meet of limited students (20) students.
13	Please mention the bandwidth requirement / data pack requirement at student's end for conduct of practicals.	For the single subject practical there is no problem.
14	Do you envisage any difficulty? If yes how they will be addressed?	No
15	Any other point you wish to share (not covered above)	---

Dr. Waghmare M.B.
Chairman
BOS, Botany

Name of the Board of Studies: BOS in Mathematics

1. Extent of Laboratory Experiments to be conducted: How many (or percentage of) laboratory experiments be conducted?
   List of practical to be conducted is submitted to BOS and same is approved by Academic council.
2. Preparedness of the students: In what manner the explanation of the Laboratory experiment will be given by the concerned teacher? Whether synchronous or asynchronous? How much time to be allotted by the concerned teacher for conduct or for demo for individual laboratory experiment?
   The explanation on practicals be given in a synchronous manner in an online class. The time required for explanation may depend on the actual need, and on an average could be about 45 minutes per practical.

3. How to make sure that the student has actually done the laboratory experiment? Assessing the difficulties in doing the laboratory experiments.
   Assignments are to be submitted after practicals.

4. Whether the submission of the laboratory experiment should be done experiment wise or after completion of stipulated number of experiments? Indicate the technical platforms for collecting the soft copy of the journals.

   Soft copies of the hand written/typed submissions may be done on Moodle/Google drive.

5. Is it possible to provide soft copy of workbook to students ? so that there will be uniformity in structure of journal.

   Providing soft copy is quite difficult since there is no typical format common to all practicals. However if the concerned teacher wants such a format for specific practicals assigned to him, he can post it on mail/Moodle.

6. How to conduct practical examination?What percentage of practicalsto be assessed during the examination?

   The detailed procedure of practical examination is attached.

7. What is time duration for practical examination?Should it be conducted internally or invite external examiner(s)?
   The exam may be of 1 hour duration, and be conducted internally by the college/department.

8. Will there be oral examination? Indicate the subheads for assessment of the laboratory experiment during the examination.
   Submissions can be made online. The procedure for the submission is attached separately. Project and/ Or VIVA / oral can be conducted offline/online through google meet or other equivalent platform and evaluated for marks.

9. Indicate the sub division of Practical Examination marks. E.g. oral+Journal+Exam
   Subdividion if attached separately.
10. How to submit marks to University?
    Marks can be uploaded on university portal by the college.

11. How to take care of Project work/Industrial visit/internship and such other things for which marks are to be given to students?
    Projects can be done in groups of two/three such that at least one member of the group has a laptop to handle the analysis part if needed. In case some calculations can be done on mobile/calculator, then they can do that.

12. Please mention the technological platforms to be used for conducting the laboratory experiments.
    Calculators/Laptop/Desktop

13. Please mention the bandwidth requirement / data pack requirement at student's end for conduct of practicals.
    1 GB/day

14. Do you envisage any difficulty? If yes how they will be addressed?
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15. Any other point you wish to share (not covered above)

Name of the Board of Studies: **Geography and Geology**

1. Extent of Laboratory Experiments to be conducted: How many (or percentage of) laboratory experiments be conducted?
   30%
2. Preparedness of the students: In what manner the explanation of the Laboratory experiment will be given by the concerned teacher? Whether synchronous or asynchronous? How much time to be allotted by the concerned teacher for conduct or for demo for individual laboratory experiment?
   Teacher prepared PPT and posted on WA group
3. How to make sure that the student has actually done the laboratory experiment? Assessing the difficulties in doing the laboratory experiments.
   Created Practical group and they ask queries
4. Whether the submission of the laboratory experiment should be done experiment wise or after completion of stipulated number of experiments? Indicate the technical platforms for collecting the soft copy of the journals.
   Google class-room, gmail, WA
5. Is it possible to provide soft copy of workbook to students ? so that there will be uniformity in structure of journal
   Yes. Prepared syllabus wise PPT and wants to upload on University Website
6. How to conduct practical examination? What percentage of practicals to be assessed during the examination?
   Online mode. 70%
7. What is time duration for practical examination? Should it be conducted internally or invite external examiner(s)?
   2 hrs. with external examiner
8. Will there be oral examination? Indicate the subheads for assessment of the laboratory experiment during the examination.
   There should be oral examination
9. Indicate the sub division of Practical Examination marks. E.g. oral+Journal+Exam
   E.g. oral+Journal+Exam 10+10+30
10. How to submit marks to University? **In case of PG Can collect at Department level**
11. How to take care of Project work/Industrial visit/internship and such other things for which marks are to be given to students? **Project work based on Secondary data**
12. Please mention the technological platforms to be used for conducting the laboratory experiments.
13. Please mention the bandwidth requirement / data pack requirement at student's end for conduct of practicals.
14. Do you envisage any difficulty? If yes how they will be addressed?
15. Any other point you wish to share (not covered above)
    BOS conducted several online meetings and discussed several Practical related issues like Study tour, Field work and Project work. Created PPT and wants to upload on University website

Name of the Board of Studies: Environmental Science

M. Sc. Environmental Science

- It was decided that at least 75% practicals should be completed through online mode through Google Meet/ Webex/ Zoom.

- Practical protocols softcopies will be given to the students.

- The practical timetable of Sem. I , Sem. II and Sem. IV should be prepared and will be informed to respective teachers incharge and students. Instead of doing the batches, the practical will be taken for all students at a time. The students can ask their queries to the teacher during the practicals.

-The time to be allotted by the concerned teacher for conduct or for demo for individual laboratory experiment will be 1 hr.

- Some practicals which can be done in the laboratories with less manpower will be demonstrated to the students directly through online mode i.e. virtual meeting or practical demonstration video will be prepared and given to the students.

- During the practical, the teacher incharge should explain the practical protocol first and then show the exact procedure through online resources like NPTEL videos/YouTube, etc.

- The observations related to the experiments will be discussed and readings will be given by the teacher incharge to the students.

- The students will do the further calculations and depending on the results, they will write the conclusions.

- At the end of the practical schedule, the students have to prepare a pdf of Journal and to send it to Moodle.

- The internal marks will be given as per the submission of the journal and online viva .

- The practical exam can be conducted through Moodle or Google forms by allocating different practicals to the students where the students will write the answers and submit them online. The time duration for practical examination will be 1.5 hrs will be conducted internally with oral examination.
- The traditional examination marking system will be applied for the examination. The readings will be given to the students and the students will submit the paper after calculations and completing the Principle, requirements , methodology, result, discussion and conclusion.

1. B.Sc. in Botany Pollution

As per the BOS subcommittee meeting, the same procedure applied for M.Sc. in Environmental Science will be applied for the B.Sc. in Botany and Pollution programme.

2. B.Sc. in Environmental Science (Entire)

As per the BOS subcommittee meeting, The same procedure applied for M.Sc. in Environmental Science will be applied for the B.Sc in Environmental Science (Entire) programme.

3. B.Sc. Part II Environmental Studies

Considering the Corona Pandemic situation, the BOS subcommittee for Environmental studies has already curtailed three units from the syllabus. It is not possible for the environmental studies Teachers to guide the college students and also the students are not able to go for field visit or data collection of project.

Therefore, it was decided that instead of taking these projects, the BOS subcommittee has suggested the colleges to take One Assignment (30 Marks) including Two Questions based on Unit 1 to Unit 5 of (15 Marks each) from the student. The students can submit this assignment of 30 mark through online mode to the teacher. The teacher can evaluate the assignment and can give internal marks to them Online marks can be submitted to university a per the previous procedure.

Name of the Board of Studies: Civil Engineering

1. Extent of Laboratory Experiments to be conducted: How many (or percentage of) laboratory experiments be conducted?

Response: All possible experiments listed in the syllabus of every course.

2. Preparedness of the students: In what manner the explanation of the Laboratory experiment will be given by the concerned teacher? Whether synchronous or asynchronous? How much time to be allotted by the concerned teacher for conduct or for demo for individual laboratory experiment?

Response: Teacher can use any digital platform like Webex, Google Meet, Microsoft Meet, Moodle, Google Classroom, and Google Forms for explaining the experiment in online mode. Generally Practical are conducted within a slot of two hours.

3. How to make sure that the student has actually done the laboratory experiment? Assessing the difficulties in doing the laboratory experiments.

Response: He will be made aware of the practical session and will be asked to join the session by sending the session link for online mode. Attendance will be recorded online and print will be made available without any difficulty.

4. Whether the submission of the laboratory experiment should be done experiment wise or after completion of stipulated number of experiments? Indicate the technical platforms for collecting the soft copy of the journals.

Response: Every Student has to submit soft copy of the experiments. Google classroom or moodle

5. Is it possible to provide soft copy of workbook to students? so that there will be uniformity in structure of journal.

Response: This is also possible.

6. How to conduct practical examination? What percentage of practicals to be assessed during the examination?

Response: Practicals will be conducted by a course teacher in the laboratory and its video will be prepared and will be shown to the students on online platform. During viva-voce examination every student will be given google form for questions to be answered or students will be examined directly on the online platform in group of three candidates.

7. What is time duration for practical examination? Should it be conducted internally or invite external examiner(s)?

Response: Duration of examination will be as per structure of the practical course. Students will be examined in the presence of external examiner in online mode.

8. Will there be oral examination? Indicate the subheads for assessment of the laboratory experiment during the examination.

Response: This will be decided by respective course teacher.

9. Indicate the sub-division of Practical Examination marks. E.g. oral+Journal+Exam.

Response: This is a part of continuous assessment. The marks will be awarded based on the attendance, journal submission and oral exam.

10. How to submit marks to University?

Response: Soft and Print copy can be submitted to the university. One can use MIS system to feed marks in software and Mark sheet will be generated thereupon can be submitted.

11. How to take care of Project work/Industrial visit/internship and such other things for which marks are to be given to students?

Response: If project work is theoretical then there is no problem. Procedure stated for practical will be adopted. For industrial visits, internship the available online resources will be taken into consideration or equivalent mooc courses shall be asked to complete by the students. Experimental works can not be replaced by virtual ones.

12. Please mention the technological platforms to be used for conducting the laboratory experiments.

Response: For conducting the laboratory experiments, virtual laboratories are available on websites of NITs, IITs approved by AICTE. Individual Engineering College can also prepare such platform with the aid of IT and Computer Science departments without any difficulty.

13. Please mention the bandwidth requirement / data pack requirement at student's end for conduct of practicals.

Response: More than 100 KBPS at the disposal from institute and at students' end speed of 4G is sufficient.

14. Do you envisage any difficulty? If yes how they will be addressed?

Response: If student is at remote place without internet facility can consult the head of the institute telephonically to solve the difficulty.

15. Any other point you wish to share (not covered above).

Response: All digital platforms and internet infrastructure must be strong enough to handle situation in pandemic.

Name of the Board of Studies: Computer Science, Engineering & Technology

1. Extent of Laboratory Experiments to be conducted: How many (or percentage of) laboratory experiments be conducted? 80 %
2. Preparedness of the students: In what manner the explanation of the Laboratory experiment will be given by the concerned teacher? Whether synchronous or asynchronous? How much time to be allotted by the concerned teacher for conduct or for demo for individual laboratory experiment? 02 to 04 Hours /week
3. How to make sure that the student has actually done the laboratory experiment? Assessing the difficulties in doing the laboratory experiments. By sharing the screen and asking questions .
4. Whether the submission of the laboratory experiment should be done experiment wise or after completion of stipulated number of experiments? Indicate the technical platforms for collecting the soft copy of the journals.

   -After 4 experiments are completed.
   Microsoft Teams, Moodle.

5. Is it possible to provide soft copy of workbook to students ? so that there will be uniformity in structure of journal.

   - Yes, objectives, expected outcome of the experiment and attainment of CO-PO should be mentioned

6. How to conduct practical examination? What percentage of practicals to be assessed during the examination?

   - Problem statement should be given to student for respective subject, he has to do analysis , write algorithm and then code. After time is over the student has to share his screen and explain what he has done and hence he can be evaluated.

7. What is time duration for practical examination? Should it be conducted internally or invite external examiner(s)?

   -03 Hours , Yes , External examiner is must.

8. Will there be oral examination? Indicate the subheads for assessment of the laboratory experiment during the examination.
   - Yes , Which Data structure he has used, complexity of code, Technology used.

9. Indicate the sub division of Practical Examination marks. E.g. oral+Journal+Exam
   - Oral -30 % Journal- 20 % Practical Exam -50%

10. How to submit marks to University?

- Using online portal which is existing

11. How to take care of Project work/Industrial visit/internship and such other things for which marks are to be given to students?
-By forming rubrics project work evaluation should be done and by conducting Internal and external exam in online mode
- Industrial visit – student has to submit report with provided template
- Internship - By conducting exam with internal faculty and one Engineer from industry where he carried out internship. He has to submit report with written certificate from concern industry with attendance record.

12. Please mention the technological platforms to be used for conducting the laboratory experiments.
Microsoft Teams , Team Viewer ,Moodle
Bodhitree https://garuda.bodhi.cse.iitb.ac.in/

Virtual Labs @ COEP Pune https://www.vlab.co.in/

Online platforms : Hakerearth, Haker Rank, CodeChef for coding in C,C++,Java.

13. Please mention the bandwidth requirement / data pack requirement at student's end for conduct of practicals.
2 GB / day
Above 5 MBPS

14. Do you envisage any difficulty? If yes how they will be addressed?
- Students at rural areas , not having internet connection , every student should have laptop with minimum configuration.
- Now almost all students are having net connection and good mobile handsets.

15. Any other point you wish to share (not covered above)

Common guidelines should be prepared and send to all colleges to conduct practical.

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Name of the Board of Studies: Computer Sc.& Engineering (Data Science)

1. Extent of Laboratory Experiments to be conducted: How many (or percentage of) laboratory experiments be conducted? 80 %
2. Preparedness of the students: In what manner the explanation of the Laboratory experiment will be given by the concerned teacher? Whether synchronous or asynchronous? How much time to be allotted by the concerned teacher for conduct or for demo for individual laboratory experiment? 02 to 04 Hours /week
3. How to make sure that the student has actually done the laboratory experiment? Assessing the difficulties in doing the laboratory experiments. By sharing the screen and asking questions .
4. Whether the submission of the laboratory experiment should be done experiment wise or after completion of stipulated number of experiments? Indicate the technical platforms for collecting the soft copy of the journals.

   -After 4 experiments are completed.
   Microsoft Teams, Moodle.

5. Is it possible to provide soft copy of workbook to students ? so that there will be uniformity in structure of journal.

   - Yes, objectives, expected outcome of the experiment and attainment of CO-PO should be mentioned

6. How to conduct practical examination? What percentage of practicals to be assessed during the examination?

   - Problem statement should be given to student for respective subject, he has to do analysis , write algorithm and then code. After time is over the student has to share his screen and explain what he has done and hence he can be evaluated.

7. What is time duration for practical examination? Should it be conducted internally or invite external examiner(s)?

   -03 Hours , Yes , External examiner is must.

8. Will there be oral examination? Indicate the subheads for assessment of the laboratory experiment during the examination.
   - Yes , Which Data structure he has used, complexity of code, Technology used.

9. Indicate the sub division of Practical Examination marks. E.g. oral+Journal+Exam
   - Oral -30 % Journal- 20 % Practical Exam -50%

10. How to submit marks to University?

- Using online portal which is existing

11. How to take care of Project work/Industrial visit/internship and such other things for which marks are to be given to students?
    -By forming rubrics project work evaluation should be done and by conducting Internal and external exam in online mode
    - Industrial visit – student has to submit report with provided template
    - Internship - By conducting exam with internal faculty and one Engineer from industry where he carried out internship. He has to submit report with written certificate from concern industry with attendance record.

12. Please mention the technological platforms to be used for conducting the laboratory experiments.
    Microsoft Teams , Team Viewer ,Moodle
    Bodhitree https://garuda.bodhi.cse.iitb.ac.in/

    Virtual Labs @ COEP Pune https://www.vlab.co.in/

    Online platforms : Hakerearth, Haker Rank, CodeChef for coding in C,C++,Java.

13. Please mention the bandwidth requirement / data pack requirement at student's end for conduct of practicals.
    2 GB / day
    Above 5 MBPS

14. Do you envisage any difficulty? If yes how they will be addressed?
    - Students at rural areas , not having internet connection , every student should have laptop with minimum configuration.
    - Now almost all students are having net connection and good mobile handsets.

15. Any other point you wish to share (not covered above)

    Common guidelines should be prepared and send to all colleges to conduct practical.

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Name of the Board of Studies: Information Technology

1. Extent of Laboratory Experiments to be conducted: How many (or percentage of) laboratory experiments be conducted? 80 %
2. Preparedness of the students: In what manner the explanation of the Laboratory experiment will be given by the concerned teacher? Whether synchronous or asynchronous? How much time to be allotted by the concerned teacher for conduct or for demo for individual laboratory experiment? 02 to 04 Hours /week
3. How to make sure that the student has actually done the laboratory experiment? Assessing the difficulties in doing the laboratory experiments. By sharing the screen and asking questions .
4. Whether the submission of the laboratory experiment should be done experiment wise or after completion of stipulated number of experiments? Indicate the technical platforms for collecting the soft copy of the journals.

   -After 4 experiments are completed.
   Microsoft Teams, Moodle.

5. Is it possible to provide soft copy of workbook to students ? so that there will be uniformity in structure of journal.

   - Yes, objectives, expected outcome of the experiment and attainment of CO-PO should be mentioned

6. How to conduct practical examination? What percentage of practicals to be assessed during the examination?

   - Problem statement should be given to student for respective subject, he has to do analysis , write algorithm and then code. After time is over the student has to share his screen and explain what he has done and hence he can be evaluated.

7. What is time duration for practical examination? Should it be conducted internally or invite external examiner(s)?

   -03 Hours , Yes , External examiner is must.

8. Will there be oral examination? Indicate the subheads for assessment of the laboratory experiment during the examination.
   - Yes , Which Data structure he has used, complexity of code, Technology used.

9. Indicate the sub division of Practical Examination marks. E.g. oral+Journal+Exam
   - Oral -30 % Journal- 20 % Practical Exam -50%

10. How to submit marks to University?

- Using online portal which is existing

11. How to take care of Project work/Industrial visit/internship and such other things for which marks are to be given to students?
    -By forming rubrics project work evaluation should be done and by conducting Internal and external exam in online mode
    - Industrial visit – student has to submit report with provided template
    - Internship - By conducting exam with internal faculty and one Engineer from industry where he carried out internship. He has to submit report with written certificate from concern industry with attendance record.

12. Please mention the technological platforms to be used for conducting the laboratory experiments.
    Microsoft Teams , Team Viewer ,Moodle
    Bodhitree https://garuda.bodhi.cse.iitb.ac.in/

    Virtual Labs @ COEP Pune https://www.vlab.co.in/

    Online platforms : Hakerearth, Haker Rank, CodeChef for coding in C,C++,Java.

13. Please mention the bandwidth requirement / data pack requirement at student's end for conduct of practicals.
    2 GB / day
    Above 5 MBPS

14. Do you envisage any difficulty? If yes how they will be addressed?
    - Students at rural areas , not having internet connection , every student should have laptop with minimum configuration.
    - Now almost all students are having net connection and good mobile handsets.

15. Any other point you wish to share (not covered above)

    Common guidelines should be prepared and send to all colleges to conduct practical.

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