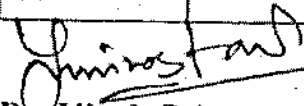
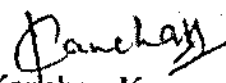
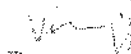


		veterinary sciences, food & feed industry, chemical industry, environment,
9	Aug 26,2019	Class test.
10	Aug 27-31,2019	bioremediation & waste water treatment, solid waste management, biofuels, human health and medicine (Monoclonal antibodies, hybridoma technology and embryo transfer technology)
11	Sept 1,2019	Problem taken.
12	Sept 2-7,2019	Bio-safety and Ethics:Biotechnology research in India, Biotechnology in context of developing world,
13	Sept 9, 2019	Assessment test
14	Sept 10-14,2019	Brief account of safety guidelines and risk assessment in biotechnology, Ethics in Biotechnology, Intellectual property rights. Nanotechnology: Introduction, history and scope (Brief account)


 Dr. Vivek Srivastava
 (Associate Professor)
 Head, Dept. of Biotechnology


 Dr. Kanchan Kamra
 (Assistant Professor)
 Subject Tutor


 Principal
 Dayanand College,
 HISAR

Lesson plan for the Semester started w.e.f. 10.01.2020

Name of Institute : Dayanand College, Hisar
 Name of the Teacher: Mr. Mahender Singh
 Department : History
 Section : B.A – VI Sem. (Section- D & H)

Month	Class	Topic/Chapter Covered	Test/Assignment
January	BA- VI Sem	Bridge Course American Revolution: Causes and Impact	
February	BA- VI Sem	American Revolution: Causes and Impact French Revolution: Nature and Impact with map Growth of Liberalism in England Rise of Imperialism: Causes and Consequences World War-I: Causes and Consequences with map	Assignment- I
March	BA- VI Sem	Paris Peace Settlement and its Consequences Rise of socialism and Bolshevik Revolution in Russia Rise of Dictatorship: Nazism and Fascism World War-II: Causes and Consequences with map	Internal Test
April	BA- VI Sem	Revision	Assignment- II


Head of Department

Lesson plan for the Semester started w.e.f. 10.01.2020

Name of Institute : Dayanand College, Hisar
 Name of the Teacher: Mr. Mahender Singh
 Department : History
 Section : B.A – IV Sem (Section- D & H)

Month	Class	Topic/Chapter Covered	Test/Assignment
January	BA- IV Sem	Bridge Cours Origins of the National Consciousness	
February	BA- IV Sem	Founding of Indian National Congress and Moderates Extremists: Ideology, Programmes and Politics Home Rule Movement with map Role of Mahatma Gandhi in Freedom Movement: Non-Cooperation Movement, Civil Disobedience Movement and Quit India Movement with map Ideology and Contribution of Revolutionaries with special reference to Bhagat Singh with map	Assignment- I
March	BA- IV Sem	Subhash Chandra Bose and Indian National Army Political Reforms: Acts of 1909 and 1919 Rise of Communal Politics: Muslim League - Ideology and Politics Poona Pact and the Act of 1935 Partition and Independence of India	Internal Test
April	BA- IV Sem	Revision	Assignment- II


Head of Department

Lesson plan for the Semester started w.e.f. 10.01.2020

Name of Institute : Dayanand College, Hisar
 Name of the Teacher: Dr. Joginder Singh
 Department : History
 Section : B.A – IV Sem (Section- B & G)

Month	Class	Topic/Chapter Covered	Test/Assignment
January	BA- IV Sem	Bridge Cours Origins of the National Consciousness	
February	BA- IV Sem	Founding of Indian National Congress and Moderates Extremists: Ideology, Programmes and Politics Home Rule Movement with map Role of Mahatma Gandhi in Freedom Movement: Non-Cooperation Movement, Civil Disobedience Movement and Quit India Movement with map Ideology and Contribution of Revolutionaries with special reference to Bhagat Singh with map	Assignment- I
March	BA- IV Sem	Subhash Chandra Bose and Indian National Army Political Reforms: Acts of 1909 and 1919 Rise of Communal Politics: Muslim League - Ideology and Politics Poona Pact and the Act of 1935 Partition and Independence of India	Internal Test
April	BA- IV Sem	Revision	Assignment- II


Head of Department

Date: _____
 Dayanand College, Hisar

Lesson plan for the Semester started w.e.f. 10.01.2020

Name of Institute : Dayanand College, Hisar
 Name of the Teacher: Dr. Suruchi Sharma
 Department : History
 Section : B.A – VI Sem. (Section- A & B)

Month	Class	Topic/Chapter Covered	Test/Assignment
January	BA- VI Sem	Bridge Course American Revolution: Causes and Impact	
February	BA- VI Sem	American Revolution: Causes and Impact French Revolution: Nature and Impact with map Growth of Liberalism in England Rise of Imperialism: Causes and Consequences World War-I: Causes and Consequences with map	Assignment- I
March	BA- VI Sem	Paris Peace Settlement and its Consequences Rise of socialism and Bolshevik Revolution in Russia Rise of Dictatorship: Nazism and Fascism World War-II: Causes and Consequences with map	Internal Test
April	BA- VI Sem	Revision	Assignment- II



Head of Department

Date: _____
 Page: _____
 B.A. VI Sem.

Lesson plan for the Semester started w.e.f. 10.01.2020

Name of Institute : Dayanand College, Hisar
 Name of the Teacher: Dr. Suruchi Sharma
 Department : History
 Section : B.A – II Sem (Section- A & C)


Month	Class	Topic/Chapter Covered	Test/Assignment
January	BA- II Sem	Bridge Course Post-Gupta Period up to 750 A.D.: Pushyabhutis and Chalukyas with map	
February	BA- II Sem	Polity and Economy (750- 1206 A.D.), Tri-Parties Struggle Pratiharas, Palas and Rashtrakutas & Cholas; Indian form of Feudalism. Socio-Cultural Trends: Society, Culture and Literature during 600-1206 A.D. Turk's Invasions on India: Mahmud Ghaznavi and Muhammad Ghori	Assignment- I
March	BA- II Sem	Rise and Expansion of Delhi Sultanate: Iltutmish, Balban, Ala-ud-din Khilji and Muhammad Tughlaq with map Down Fall and Fragmentation of Delhi Sultanate Bahmani and Vijaynagar Kingdoms in South India with map Delhi Sultanate: Administration, Ruling Classes and Society Economic Developments during Delhi Sultanate with map Religion and Culture: Bhakti and Sufi Movements, Art and Architecture.	Internal Test
April	BA- II Sem	Revision	Assignment- II


Head of Department

Lesson plan for the Semester started w.e.f. 10.01.2020

Name of Institute: Dayanand College, Hisar
 Name of the Teacher: Dr. Joginder Singh
 Department : History
 Section : B.A – II Sem (Section- B,D & G)

Month	Class	Topic/Chapter Covered	Test/Assignment
January	BA- II Sem	Bridge Course Post-Gupta Period up to 750 A.D.: Pushyabbutis and Chalukyas with map	
February	BA- II Sem	Polity and Economy (750- 1206 A.D.), Tri-Parties Struggle Pratiharas, Palas and Rashtrakutas & Cholas; Indian form of Feudalism. Socio-Cultural Trends: Society, Culture and Literature during 600-1206 A.D. Turk's Invasions on India: Mahmud Ghaznavi and Muhammad Ghori	Assignment- I
March	BA- II Sem	Rise and Expansion of Delhi Sultanate: Iltutmish, Balban, Ala-ud-din Khilji and Muhammad Tughlaq with map Down Fall and Fragmentation of Delhi Sultanate Bahmani and Vijaynagar Kingdoms in South India with map Delhi Sultanate: Administration, Ruling Classes and Society Economic Developments during Delhi Sultanate with map Religion and Culture: Bhakti and Sufi Movements, Art and Architecture.	Internal Test
April	BA- II Sem	Revision	Assignment- II


Head of Department

Prepared
Dayanand College, Hisar
11/01/20

LESSON PLAN

Name of Assistant Prof. : Preeti
Class and Section : B.A Ist (2nd Sem.) C
Subject : Music Vocal (MUSV103)
Lesson Plan : From January to April 2020

January 2020
• Introduction of Raag Yaman with their Importance
• Detailed description of Raag yaman
• Thekas of Ektal with dugun

February 2020
• Introduction of Raag Desh
• Detailed description of Raag Desh with its Importance
• Thekas of Chautal, Roopak Tal with dugun and tigung
• Definition of Alankar, Verna, Sudh Raag, Parmel Parveshak Raga etc

March 2020
• Importance of tabla with its diagram
• Full Description of Tabla
• Role of music in National Integration
Class Test
Assignment

April 2020
• Describe Thaata Raag Padhati
• Contribution Towards music field by the following : Tansen Pt Vishnu Narayan Bhatkhande
• Class test and Revision

Principal
Dayanand College
HISAR

(21)
Meharaj
Dept of music

LESSON PLAN

Name of Assitt Proof : Preeti
Class and Section : B.A 2nd (4th Sem.) F
Subject : Music Vocal (MUSV 203)
Lesson Plan : From January to April 2020

January 2020
• Introduction of Raag Bhairav
• Detailed Description of Raag Bhairav with their Importance

Feb. 2020
• Thekas of Tilwara taal with dugun, tigon
• Detailed Study of Tarana and Bhajan
• Short notes of Gram-Murchhna, Thaata raag, Tanpura Etc.
• Detailed Study of Geet and Gazal

March 2020
• Placement of Swaras on shruties by Pundrik Vitthal
• Placement of Swaras on shruties by Ramamatya
Class Test
Assignment

April 2020
• Contribution towards music by the following :
• Pt Bhimshen Joshi, P.T. Jasraj
• History of Music in medieval period
• Comparative study of Uttari and Dakshni Sangeet Padhities in brief
Class test and Revision

Principal
Dayanand College
HISAR

25
Mishra
Gandhi

LESSION PLAN

Name of Assistant Prof. : Preeti

Class and Section : B.A. 3rd (6th Sem.)

Subject : Music Vocal (MUSV 303)

Lesson Plan : From January to Feb. 2020

January 2020
• Introduction of Raga Miyan Ki malhal .
• Thekas of Teental with dugun, Tigun
• Thekas of Keharva with dugun, Tigun
• Historical Survey of Indian Music from 17 th to 19 th Century
• Voice – Culture
• Contribution of Ustad Amir Khan and Pt. Krishan Rao Shankar Pandit in Indian Music
• Detailed Description of Raga Miyan ki Malhar with its importance

February 2020
• Elementary Knowledge of the folk music of Haryana & Punjab
• Contribution of Gangu Bai Hangal in Indian Music
• Classification of Instruments during Vedic Period, Medieval Period and Modern Period Class Test
Class Test and Revisaion

Preeti

Dep. of Music

Principal
Sri. and College
HISAR

संस्कृत विभाग
दयानन्द कॉलेज, हिसार।

नाम- पूनम कुमारी

पद- प्रवक्ता

वर्ग- A, 2A1 B, C, D, E

कक्षा- बी.एस.सी.द्वितीय वर्ष

विषय- संस्कृत

सत्र- चतुर्थ (4th)

संस्कृत पाठ योजना (सत्र - 2019-2020)

मास	कक्षा	पाठ शीर्षक/व्याकरण	कक्षा परीक्षा/परियोजना कार्य
जनवरी 2020	बी.एस. सी.द्वि तीय वर्ष	पद्य पाठ परिचय(6-8)	
		6. धिक् दारिद्र्यम्	
		7. धिक् शास्ति प्रजाः सर्वाः	
		8. स्थित प्रज्ञस्य का भाषा व्याकरण धातु रूपाणि	
फरवरी 2020		पद्य पाठ परिचय (9- 10)	परियोजना कार्य-1

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		9. नीति सूक्तयः 10. मैत्री पुनस्त्वीदृशी गद्य पाठ परिचय (6)	कक्षा पराक्षा
मार्च 2020		6. नाऽ शिष्यायोपदिश्यते व्याकरण-धातु रूपाणि गद्य पाठ परिचय (7- 10)	परियोजना कार्य-2 कक्षा परीक्षा
		7. दुर्जनसंगो भयावहः 8. पराधिकारचर्चा परिवर्जयेत् 9. सुन्दोपसुन्दकथा 10. कुत्रजरः प्रलयं गतः व्याकरण-अच् सन्धि पुनरावृत्ति	



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संस्कृत-विभाग:

दयानन्द कॉलेज ,हिसार

नाम :- सीमा चौधरी
पद :- प्रवक्ता
कक्षा :- बी.एस.सी.द्वितीय वर्ष
सत्र :- 2019-20(चतुर्थ)

विषय :- संस्कृत

संस्कृत-पाठ-योजना (जनवरी '20' से अप्रैल '20')

मास	कक्षा	पाठ शीर्षक/ व्याकरण	कक्षा परीक्षा / परियोजना कार्य
जनवरी 2020	बी.एस.सी. द्वितीय वर्ष	पद्य पाठ-परिचय (6-7) 6.धिक्ष् दारिद्र्यम् 7.दण्डः शास्ति प्रजाः सर्वाः ।	
फरवरी 2020		पद्य पाठ (8-10) 8.स्थितप्रज्ञस्य का भाषा 9.नीति सूक्तयः 10.पैत्री पुनस्त्वीदृशी ।	परियोजना-कार्य- । कक्षा-परीक्षा
मार्च 2020		गद्य पाठ-परिचय(6-8) 6.न-अशिष्यायोपदिश्यते 7.दुर्जनसंगो भयावहः 8.पराधिकारचर्चा परिवर्जयेत्। व्याकरण:- धातुरूपाणि	परियोजना-कार्य- ॥ कक्षा-परीक्षा
अप्रैल 2020		गद्य पाठ (9-10) 9.सुन्दोपसुन्दकथा 10.कुञ्जरः प्रलयं गतः । व्याकरण :- अच् सन्धि (दीर्घ,पूर्वरूप,पररूप,प्रकृति भाव)	

संस्कृत-विभाग:

दयानन्द कॉलेज ,हिसार

नाम :- सीमा चौधरी
पद :- प्रवक्ता
कक्षा :- बी.एस.द्वितीय वर्ष
सत्र :- चतुर्थ

विषय :- संस्कृत

संस्कृत-पाठ-योजना (जनवरी '20' से अप्रैल '20')

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**संस्कृत -विभागः
दयानन्द कॉलेज हिसार**

नाम :- सीमा चौधरी
पद :- प्रवक्ता
कक्षा :- बी.ए. प्रथम वर्ष
सत्र :- दिवतीय (2019-20) विषय :- संस्कृत

संस्कृत -पाठ योजना (जनवरी '20 से अप्रैल '20)

मास	कक्षा	पाठ शीर्षक/ व्याकरण	कक्षा परीक्षा / परियोजना कार्य
जनवरी 2020	बी.ए. प्रथम वर्ष	श्रीमद्भगवद्गीता (दिवतीय अध्याय) परिचय, व्याख्या, आलोचनात्मक प्रश्न	
फरवरी 2020		श्रीमद्भगवद्गीता (दिवतीय अध्याय) व्याख्या, आलोचनात्मक प्रश्न व्याकरण : शब्द रूप, धातु रूप	परियोजना- कार्य- I कक्षा - परीक्षा
मार्च 2020		नीतिशतकम् (51-100 श्लोक) व्याख्या, हिन्दी से संस्कृत अनुवाद	परियोजना - कार्य- II कक्षा - परीक्षा
अप्रैल 2020		व्याकरण : छन्द हिन्दी से संस्कृत अनुवाद पुनरावृत्ति	

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Dayanand College
HISAR

मास	कक्षा	पाठ शीर्षक/ व्याकरण	कक्षा परीक्षा / परियोजना कार्य
जनवरी 2020	बी.ए. द्वितीय वर्ष	पाठ्यक्रम-परिचय महाकवि कालिदास-परिचय रघुवंश :-द्वितीय सर्ग:- व प्रश्नोत्तर ।	
फरवरी 2020		अम्बिकादत्त व्यास-परिचय शिवराजविजय :- प्रथम निःश्वासः व प्रश्नोत्तर ।	परियोजना-कार्य-। कक्षा-परीक्षा
मार्च 2020		व्याकरण:- 1 वाच्य 2 तद्धित-प्रत्यय 3 णिजन्त व सन्नत धातु रूप।	परियोजना-कार्य- ।। कक्षा-परीक्षा
अप्रैल 2020		व्याकरण :- 1 संज्ञाप्रकरण 2 अनुवादः विभक्ति प्रयोग तथा अनुच्छेद रचना ।	

संस्कृत-विभागः
दयानन्द कॉलेज, हिसार

नाम :- सीमा चौधरी
पद :- प्रवक्ता
कक्षा :- बी.ए. तृतीय वर्ष
सत्र :- षष्ठ

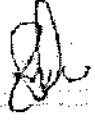
विषय :- संस्कृत

संस्कृत-पाठ-योजना (जनवरी '20' से अप्रैल '20')

मास	कक्षा	पाठ शीर्षक/ व्याकरण	कक्षा परीक्षा / परियोजना कार्य
जनवरी 2020	बी.ए. तृतीय वर्ष	पाठ्यक्रम-परिचय महाकवि कालिदास:-जीवन- परिचय, काल-विवेचन। अभिज्ञानशाकुन्तलम् :- पञ्चम अंक ।	

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फरवरी 2020		महाकावि कालिदास की राष्ट्रीय भावना, प्रकृति-चित्रण व अलंकार-योजना। अभिज्ञानशाकुन्तलम् :- षष्ठ अंक।	परियोजना-कार्य-। कक्षा-परीक्षा
मार्च 2020		अभिज्ञानशाकुन्तलम् :- सप्तम अंक। संस्कृत साहित्य का इतिहास। व्याकरण-स्त्रीप्रत्ययप्रकरण।	परियोजना-कार्य-।। कक्षा-परीक्षा
अप्रैल 2020		संस्कृत साहित्य का इतिहास। व्याकरण :- संस्कृत-निबन्ध।	



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DAYANAND COLLEGE, Hisar

Department of Biotechnology

Lesson Plan 2019-2020
Semester IInd (M. Sc. - 1st year)

Paper -MBL-522

SUBJECT: MOLECULAR BIOLOGY

Sr. No.	Date	Topics
1	Jan 4 to Jan 12, 2019	Fermentation overview, Introduction to Fermentation processes
2	Jan 14, 2019	Revision work
3	Jan 15 to Jan 19, 2019	Industrially important microorganisms-Isolation, screening, and preservation of industrially important microorganisms.
5	Jan 21 to Jan 26, 2019	Industrially important microorganisms-Isolation, screening, and preservation of industrially important microorganisms.(CONTD.)
6	Jan 28, 2019	Doubts Clarity
7	Jan 29 to Jan 31, 2019	Strain Improvement: Natural selection, mutation and screening of improved cultures, random and strategic screening methods, Use of recombinant DNA technology, protoplast fusion etc.
8	Feb 1 to Feb 5, 2019	Seminars taken
9	Feb 6 to Feb 9, 2019	Fermentation Systems: Batch and Continuous system, Fed batch culture, Multistage systems, Feedback systems, Solid substrate fermentation, Instrumentation and control of fermentation processes.

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10	Feb 11 to Feb 13, 2019	Production and Recovery of Primary and Secondary Metabolites: Industrial Alcohol, Beer, Wine, Citric Acid, Acetic acid, lactic acid, Acetone-Butanol fermentation, Amino acids- Lysine & Glutamic acid production, Industrial enzymes, Antibiotics- Penicillin and Tetracycline.
11	Feb 14 to Feb 16, 2019	Bioinsecticides, Biopolymers, vitamins and steroids. Fermentation raw materials: Media for industrial fermentation, Criteria used in media formulation, sterilization, raw materials and process control.
12	Feb 18, 2019	Downstream processing- Separation processes and recovery methods for fermentation products.
13	Feb 20 to Feb 28, 2019	Doubts Clarity
14	Mar 1, 2019	Assessment test
15	Mar 2, 2019	Fermenter Design: Bioreactor configuration, design features, Criteria in Fermenter design, Requirement for aeration and mixing, Energy Transfer
16	Mar 4 to Mar 9, 2019	Other fermenter designs- Tube reactors, packed bed reactors, fluidized bed reactors, cyclone reactors, trickle flow reactors.
17	Mar 11 to Mar 16, 2019	Waste Treatment: Waste Treatment systems, Aerobic and anaerobic waste treatment systems for waste treatment in fermentation industry.
18	Mar 18 to Mar 23, 2019	Waste Treatment: Waste Treatment systems, Aerobic and anaerobic waste treatment systems for waste treatment in fermentation industry.(contd.)
19	Mar 25 to Mar 30, 2019	Revision
20	Apr 1 to Apr 13, 2019	Doubt Classes

Vivek Srivastava
 Dr. Vivek Srivastava
 (Associate Professor)
 Head, Dept. of Biotechnology

Nidhi Aggarwal
 Dr. Nidhi Aggarwal
 (Assistant Professor)

Principal
 Dayanand College,
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Department of Biotechnology
 Lesson Plan 2019-2020
 Semester IV (M. Sc. - II year)
 Paper - MBL-541

SUBJECT: Agricultural Biotechnology & IPR

Sr. No.	Date	Topics
1	Jan 1 to Jan 11, 2020	Agricultural Biotechnology: An overview, Concept of Sustainable Agriculture, Role of biofertilizers and bio-pesticides in sustainable agriculture.
2.	Jan 13 to Jan 18, 2020	Biological N ₂ Fixation: Diazotrophic microorganism, Free living and symbiotic nitrogen fixing microbes, Structure, function and
3	Jan 20, 2020	Problem solve
5	Jan 21 to Jan 25, 2020	regulation of nitrogenase enzyme, Molecular basis of legume <i>Rhizobium</i> symbiosis
6	Jan 27, 2020	Revision work
7	Jan 28 to Jan 31, 2020	General Principles for the Laboratory and Environmental Biosafety: Health aspects; toxicology, allergenicity.
8	Feb 1 to Feb 8, 2020	Quality assurance and quality management in pharmaceuticals ISO,
9	Feb 10 to Feb 15, 2020	National biosafety policies and law, WTO and other international agreements related to biosafety, cross border movement of germplasm; risk management issues.
10	Feb 17, 2020	CLASS TEST
11	Feb 18 to Feb 22, 2020	containment, transgenic animals, Aquaculture, Sericulture and transgenic fish containment, transgenic animals, Aquaculture, Sericulture and transgenic fish
12	Feb 24, 2020	Revision Work
13	Feb 25 to Feb 29, 2020	Sources of gene escape, creation of superbugs etc. Quality Assurance and validation.
14	Mar 2, 2020	PROBLEM SOLVING

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15	Mar 3, 2020	ASSESSMENT TEST
16	Mar 4 to Mar 7, 2020	Good Manufacturing Practices (GMP) and Good laboratory practices (GLP) in pharmaceutical industry.
17	Mar 9 to Mar 14, 2020	Regulatory aspects of quality control. Design and layout of sterile product manufacturing unit, (Designing of Microbiology laboratory), Safety in microbiology laboratory
18	Mar 16 to Mar 21, 2020	WHO and US certification. Sterilization control and sterility testing (heat sterilization, D value, z value, survival curve, Radiation, gaseous and filter sterilization
19	Mar 23 to Mar 31, 2020	Test
20	Apr 1 to Apr 4, 2020	SEMINAR TAKEN (ROLL NO 11 to 10)
21	Apr 6 to Apr 11, 2020	SEMINAR TAKEN (ROLL NO 11 to 20)

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DAYANAND COLLEGE, HISAR
 Department of Biotechnology
 Lesson Plan 2019-2020
 Semester II (M. Sc. – 1st year)
 Paper -MBL-524

SUBJECT: Plant Cell, Tissue and Organ Culture


Sr. No.	Date	Topics
1	Jan 1 to Jan 11, 2020	Introduction: Historical background. Concepts and basic techniques in tissue culture, Media preparation, Cell, Tissue and organ culture, Organogenesis.
2.	Jan 13 to Jan 18, 2020	Callus Culture: Induction, Maintenance, Growth characteristics, Suspension cultures.
3	Jan 20, 2020	Problem solve
5	Jan 21 to Jan 25, 2020	Micropropagation: Techniques, Clonal propagation of elite germplasm, Factors affecting morphogenesis and proliferation rate, Technical problem micropropagation, Meristem culture for the production of pathogen free plants, Applications of micropropagation.
6	Jan 27, 2020	Revision work
7	Jan 28 to Jan 31, 2020	Protoplast Culture: Protoplast isolation, Fusion and culture, Somatic hybridization, Selection systems for hybrids, Asymmetric hybrids, Production of hybrids and organellie recombinants, Role of protoplast culture and somatic hybridization in the improvement of crop plants.
8	Feb 1 to Feb 8, 2020	Haploid Production: Haploid production and its significance, Anther and pollen culture, Monoploid production through chromosome elimination.
9	Feb 10 to Feb 15, 2020	Production of triploids through endosperm culture, Role of haploids, Monoploids and triploids in agriculture
10	Feb 17, 2020	CLASS TEST
11	Feb 18 to Feb 22, 2020	Cytodifferentiation: Cytodifferentiation in cell and tissue cultures, Origin of nuclear variations, Factors affecting variations, Ploidy levels and variations in plants from Anther culture, Control of regeneration.
12	Feb 24, 2020	Revision Work
13	Feb 25 to Feb 29, 2020	Variability in Plant Systems: Somaclonal variations and <i>in-vitro</i> selection for biotic and abiotic stresses, Isolation of useful mutants at cellular level (disease resistant).

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		herbicide resistant and salt tolerant) Practical applications of variability in tissue cultures.
14	Mar 2, 2020	PROBLEM SOLVING
15	Mar 3, 2020	ASSESSMENT TEST
16	Mar 4 to Mar 7, 2020	Cryopreservation and Germplasm Storage: Cryopreservation and germplasm conservation, Production of synthetic and artificial seeds
17	Mar 9 to Mar 14, 2020	Cryobiology of plant cell cultures and establishment of plant banks, Freeze preservation technology, Factors affecting revival of frozen cells. Future prospects.
18	Mar 16 to Mar 21, 2020	Practical Application of Plant Tissue Culture: Role of tissue culture in the improvement of crop plants.
19	Mar 23 to Mar 31, 2020	Plant cell culture for the production of useful secondary metabolites- pigments, perfumes, flavours and pharmacologically important compounds. Automation in plant tissue culture for its commercial application.
20	Apr 1 to Apr 4, 2020	SEMINAR TAKEN (ROLL NO 1to 10)
21	Apr 6 to Apr 11, 2020	SEMINAR TAKEN (ROLL NO 11to 20)

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 Lesson Plan 2019-2020
 Semester II (M. Sc. - 1st year)
 Paper -MBL-522

SUBJECT: MOLECULAR BIOLOGY

Sr. No.	Date	Topics
1	Jan 1 to Jan 11, 2020	DNA Structure: DNA as genetic material. Chemical structure and base composition of nucleic acids. Double helical structures, Different forms of DNA, Forces stabilizing nucleic acid structure, Super coiled DNA
2.	Jan 13 to Jan 18, 2020	Properties of DNA, Renaturation and denaturation of DNA. Tm and Cot curves. Structure of RNA.
3	Jan 20, 2020	Revision work
5	Jan 21 to Jan 25, 2020	DNA Replication: General features of DNA replication, Enzymes and proteins of DNA replication, Models of replication
6	Jan 27, 2020	Problem solves
7	Jan 28 to Jan 31, 2020	Prokaryotic and eukaryotic replication mechanism. Replication in phages. Reverse transcription
8	Feb 1 to Feb 8, 2020	Transcription: Mechanism of transcription in prokaryotes and eukaryotes, RNA polymerases and promoters.
9	Feb 10 to Feb 15, 2020	Post-transcriptional processing of tRNA, rRNA and mRNA (5' capping, 3' polyadenylation and splicing). RNA as an enzyme- Ribozyme.
10	Feb 17, 2020	Seminars taken
11	Feb 18 to Feb 22, 2020	Translation: Genetic code, General features, Deciphering of genetic code Code in mitochondria.
12	Feb 24, 2020	Assignments given
13	Feb 25 to Feb 29, 2020	Translational mechanism in prokaryotes and eukaryotes. Post translational modification and transport
14	Mar 2, 2020	Assessment test
15	Mar 3 to Mar 7, 2020	Protein targeting (signalling). Non ribosomal polypeptide synthesis. Antibiotic inhibitors and translation.

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16	Mar 9 to Mar 14, 2020	Regulation of Gene Expression in Prokaryotes and Eukaryotes: Operon concept, Positive and negative control, lac, trp and arb operon.
17	Mar 16 to Mar 21, 2020	Regulation of gene expression in eukaryotes (a brief account), Anti-sense RNA, RNAi.
18	Mar 23 to Mar 31, 2020	Revision
19	Apr 1 to Apr 4, 2020	Doubt Classes

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DAYANAND COLLEGE, HISAR
 Department of Biotechnology
 LESSON PLAN (2019-2020)
 Semester- VI (B. Sc. -III) year
 Microbial Biotechnology (paper XIII)

Sr. No.	Month	Topics
1.	Jan 1 to Jan 4, 2020	Microbial Biotechnology: Historical landmarks, General concept. Screening and Isolation of Micro organisms: Industrially important microbes, their screening and isolation, enrichment culture. Strain improvement- bacterial genetics, mutant selection, Recombination, recombinant DNA technology
2	Jan 5, 2020	Sunday
3	Jan 6 to Jan 11, 2020	Strain preservation and maintenance. Nutrition and cultivation of microorganisms: Basic nutrition and metabolism, Natural and Synthetic media. Sterilization techniques, Microbial growth kinetics.
4	Jan 12, 2020	Sunday
5	Jan 13 to Jan 18, 2020	Microbial Fermenters/Bioreactors: Basic design of fermenters. Physico-chemical standards used in bioreactors (agitation, aeration, pH, temp., dissolved oxygen etc.). Types of fermenters- stirred tank, airlift etc. Fermentation types – Continuous. Batch culture. Solid state and Submerged. Quantification of growth, thermodynamics of growth, effect of different factors on growth.
6	Jan 19, 2020	Sunday
7	Jan 20 to Jan 25, 2020	Process Development and Downstream Processing: Shake flask fermentation, scale up of the process. Separation of particles, disintegration of cells, extraction, concentration, purification and drying of the products..
8	Jan 26, 2020	Sunday

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9	Jan 27, 2020	Assessment test.
10	Jan 28 to Jan 31, 2020	Microbial Foods: Single Cell Proteins. Sewage waste water treatment: Aerobic and anaerobic digestion. Bioremediation. Biodegradation of xenobiotic compounds. Biotransformation, Biomining, Biolaching, Biogas production.
11	February 2, 2020	Sunday
12	February 3, 2020	Problems Taken and Assign the assignments.
13	February 3, 2020 to February 8, 2020	Microbial technology in agriculture-. Bioinsecticides, bioherbicides, biocontrol agents for disease control, advantages over chemical methods. Biofertilizers.
14	February 9, 2020	Sunday
15	February 10, 2020	Assignment submission and assessment test.
16	February 11, 2020 to February 15, 2020	Microbial Products: a brief discussion about production of certain industrial products such as - Alcohol Alcoholic beverage (Beer).
17	February 16, 2020	Sunday
18	February 17, 2020 to February 22, 2020	Organic acids (citric acid), Antibiotics (penicillin), Amino acids (glutamic acid, Vitamin (B12), enzymes (protease, alpha amylase) and Biotransformation

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