

**Deva Matha College Kuravilangad**  
**Department of Physics**  
**Teaching Plan for BSc Physics - Sem 5**  
**Core Course 07 and Digital Electronics**  
**Course code: PH5CRT07 Total Instructional Hours: Theory-28**  
**Weekly Hours Allotted: Theory - 2**

Name of Faculty: Dr. Saji Augustine

Academic Year: 2020-21

<b>Week &amp; Module/ Unit</b>	<b>Units/Topics to be covered</b>	<b>Method of Teaching-Learning</b>	<b>Remarks</b>
<b>Week I</b> <b>June 1 – June 5, 2020</b> <b>Module 1</b>	1. Introduction – Digital Electronics 2. Basic gates NOT, OR, AND	Lecture, Lab experiments	Assignment
<b>Week II</b> <b>June 8– June 12, 2020</b> <b>Module 1</b>	3. Universal Logic Gates- NOR, NAND	Lecture Group Discussion Lab experiments	Class test
<b>Week III</b> <b>June 15 – June 19, 2020</b> <b>Module 1</b>	4. XOR and XNOR Gates.	Lecture Group Discussion Seminar by students Lab experiments	Assignment
<b>Week IV</b> <b>June 22– June 26, 2020</b> <b>Module 1</b>	5. Rules and Laws of Boolean algebra. 6. Duality theorem	Lecture	
<b>Week V</b> <b>Jun29 – July 3, 2019</b> <b>Module 1</b>	7. De Morgan's Theorems. 8. Analysis and simplification of logic circuits.	Oral Lecture Solving problems Lab experiments	Class test Assignment



<b>Week &amp; Module/ Unit</b>	<b>Units/Topics to be covered</b>	<b>Method of Teaching-Learning</b>	<b>Remarks</b>
<b>Week VI</b> <b>July 6 – July 10, 2020</b> <b>Module 1</b>	9. Boolean equation and truth table 10. SOP and POS. 11. Minterms and Maxterms.	Oral Lecture Solving problems	Class test Assignment
<b>Week VII</b> <b>July 13– July 17, 2020</b> <b>Module 1</b>	12. Standard SOP and Standard POS- 13. Conversion between Standard SOP& Standard POS.	Lecture Solving problems	Class test Assignment
<b>Week VIII</b> <b>July 20 – July 24, 2020</b> <b>Module 1</b>	14. Karnaugh Map (up to four variables). 15. K map SOP minimization.	Lecture Solving problems Seminar by students	Class test Assignment
<b>Week IX</b> <b>July 27 – July 31, 2020</b> <b>Module 2</b>	16. Half Adder 17. Full Adder,	Lecture	Class test Assignment
<b>Week X</b> <b>Aug 3 – Aug 7 2020</b> <b>Module 2</b>	18. Half subtractor 19. Full subtractor	Lecture	Assignment
<b>Week XI</b> <b>Aug 10 – Aug 14, 2020</b> <b>Module 2</b>	20. 4-bit parallel Adder/ ubtractor	Lecture Seminar by students	Class Test



Week & Module/ Unit	Units/Topics to be covered	Method of Teaching-Learning	Remarks
<b>Week XII</b> <b>Aug 17 – Aug 21, 2020</b> <b>Module 2</b>	<b>INTERNAL EXAM upto 21<sup>st</sup></b> 21. Encoder 22. Decoder.	Group Discussion Lecture Seminar by students <a href="https://youtu.be/vuSJe7CaJKQ">https://youtu.be/vuSJe7CaJKQ</a>	Revision of covered topics sofar Class test Assignment
<b>OANAM</b>			
<b>Week XIII</b> <b>August 31- Sep 4, 2020</b> <b>Module 2</b>	23. Multiplexer and De-MUX 24. Flip-flops, RS, 25. Clocked RS, 26. Master Slave JK FF,	Lecture <a href="https://youtu.be/HZg7fNu-l24">https://youtu.be/HZg7fNu-l24</a> Seminar by students	Class test
<b>Week XIV</b> <b>Sep 7- Sep 11, 2020</b> <b>Module 2</b>	27. DFF, 28. T Flip-flop, 29. Buffer registers	Lecture <a href="https://youtu.be/dnfXXpW7tIw">https://youtu.be/dnfXXpW7tIw</a> <a href="https://youtu.be/-paFaxtTCKI">https://youtu.be/-paFaxtTCKI</a>	Class test
<b>Week XV</b> <b>Sep 14- Sep 18, 2020</b> <b>Module 2</b>	30. Shift register- SISO and SIPO 31. Counters- Binary ripple counter	Oral Lecture <a href="https://youtu.be/unorn9n-UpE">https://youtu.be/unorn9n-UpE</a> <a href="https://youtu.be/iaIu5SYmWVM?list=PLuYnCh-ShlXd5cLa-CfK883tPmJwrjSwF">https://youtu.be/iaIu5SYmWVM?list=PLuYnCh-ShlXd5cLa-CfK883tPmJwrjSwF</a> <a href="https://youtu.be/yqg1sqhZG3M?list=PLuYnCh-ShlXd5cLa-CfK883tPmJwrjSwF">https://youtu.be/yqg1sqhZG3M?list=PLuYnCh-ShlXd5cLa-CfK883tPmJwrjSwF</a> <a href="https://youtu.be/s1DSZEaCX_g">https://youtu.be/s1DSZEaCX_g</a>	Class test
<b>Week XVI</b> <b>Sep 21- Sep 25, 2020</b> <b>Module 2</b>	32. D/A converters (Ladder type),	Oral Lecture <a href="https://youtu.be/WX5u6O2ZYZO">https://youtu.be/WX5u6O2ZYZO</a>	Class test Assignment
<b>Week XVII</b> <b>Sep 28- Oct 2, 2020</b> <b>Module 2</b>	33. A/D Converter (Counter type)	Oral Lecture	Class test Assignment



<b>Week &amp; Module/ Unit</b>	<b>Units/Topics to be covered</b>	<b>Method of Teaching-Learning</b>	<b>Remarks</b>
<b>Week XVIII</b>  <b>Oct 5- Oct 9, 2020</b>  <b>Module</b>	<b>Oct 5 to 9 – Model Exam</b>		
<b>Week XIX</b>  <b>Module</b>	End Semester University Exam		

Date: 01.06.2020

Name and Signature of the Faculty Member: Dr. Saji Augustine

Counter Signature of the Head of the Department with Remarks if any:



**Teaching Plan for BSc Physics - Sem 5**  
**Core Course 05 and Electricity and Electrodynamics**  
**Course code: PH5CRT05 Total Instructional Hours: Theory-23**  
**Weekly Hours Allotted : Theory -1.5**

Name of Faculty: Dr. Saji Augustine

Academic Year: 2020-21

<b>Week &amp; Module/ Unit</b>	<b>Units/Topics to be covered</b>	<b>Method of Teaching-Learning</b>	<b>Remarks</b>
<b>Week I</b> <b>June 1 – June 5, 2020</b> <b>Module 1</b>	1. Growth and decay of current in an LR circuit 2. Charging of a capacitor through a resistor	Lecture Assignment  1. <a href="https://youtu.be/uByoHEacY8I">https://youtu.be/uByoHEacY8I</a> 2. Small Quiz <a href="https://youtu.be/cMbK7V1M7Ew">https://youtu.be/cMbK7V1M7Ew</a>	Assignment
<b>Week II</b> <b>June 8– June 12, 2020</b> <b>Module 1</b>	3. Discharging of a capacitor through a resistor 4. Growth of charge in an LCR circuit.	Lecture/ Seminar Group Discussion	Assignemnt
<b>Week III</b> <b>June 15 – June 19, 2020</b> <b>Module 1</b>	5. Decay of charge in an LCR circuit. 6. Problems	Lecture/ Assignment	Assignment Test paper
<b>Week IV</b> <b>June 22– June 26, 2020</b> <b>Module 1</b>	7. (Problems) 8. Fundamentals of Thermoelectricity	Group Discussion/ Oral Lecture <a href="https://youtu.be/W2nMYZWJOC4">https://youtu.be/W2nMYZWJOC4</a>	1. Class Quiz



Week & Module/ Unit	Units/Topics to be covered	Method of Teaching-Learning	Remarks
Week V Jun29 – July 3, 2019 Module 1	9. Seebeck effect 10. Laws of thermo emf 11. Peltier effect- 12. Thomson effect	Lecture Youtube Video <a href="https://youtu.be/S0I37M2sx">https://youtu.be/S0I37M2sx</a>	Class test
Week VI July 6 – July 10, 2020 Module 1	13. Thermoelectric diagrams - Thermocouple (qualitative study)	Lecture <a href="https://youtu.be/GMINKjF_zf0">https://youtu.be/GMINKjF_zf0</a>	Lab experiment
Week VII July 13– July 17, 2020 Module 1	14. Explanation of thermoelectric effects based on electron theory. 15. Problems on Thermoelectricit	Lecture Cross teaching Group Discussion	Seminar by students Test paper
Week VIII July 20 – July 24, 2020 Module 1	16. EMF induced in a coil rotating in a magnetic field	Lecture Content from Youtube: <a href="https://youtu.be/Ylgb8FFMgd4">https://youtu.be/Ylgb8FFMgd4</a> Assignment	Seminar by students
Week IX July 27 – July 31, 2020 Module 2	17. AC applied to resistive, inductive and capacitance circuits	Oral Lecture Concept is made thorough with Doing problems	Class Quiz



Week & Module/ Unit	Units/Topics to be covered	Method of Teaching-Learning	Remarks
Week X Aug 3 – Aug 7 2020 Module 2	18. AC applied to LR and RC circuits	Lecture Solving Problems	Class test paper
Week XI Aug 10 – Aug 14, 2020 Module 2	19. Analysis of LCR series circuits	Lecture Assignment	Spot Test
Week XII Aug 17 – 21, 2020 Module 2	<b>Internal Exam upto 21<sup>st</sup></b> 20. Discussion on Internal Questions 21. LCR parallel resonant circuit 22. comparison	Lecture Group Discussion Assignment	Revision of topics covered so far Group wise Discussion on How to derive the conditions on Series and parallel circuits
<b>ONAM</b>			
Week XIII August 31- Sep 4, 2020 Module 2	23. Power in ac circuits – 24. Wattless current -	Lecture Cross teaching	Class test
Week XIV Sep 7- Sep 11, 2020 Module 2	28. Choke coil – 29. Transformer on no load- 30. skin effect.	Lecture Assignment	Assignment



Week & Module/ Unit	Units/Topics to be covered	Method of Teaching-Learning	Remarks
Week XV Sep 14- Sep 18, 2020 Module 2	31. Ideal voltage source and current source 32. Superposition theorem	Oral Lecture Problems Assignment	Test paper
Week XVI Sep 21- Sep 25, 2020 Module 2	33. Reciprocity theorem - 34. Thevenin's theorem	Oral Lecture Problems Assignment	Test paper
Week XVII Sep 28- Oct 2, 2020 Module 2	35. Norton's theorem 36. Maximum power transfer theorem.	Oral Lecture Problems Assignment	Test paper
Week XVIII  Oct 5- Oct 9, 2020	<b>Oct 5 to 9 – Model EXAM</b>		
Week XIX  Module			

Date: 01.06.2020

Name and Signature of the Faculty Member: Dr. Saji Augustine

Counter Signature of the Head of the Department with Remarks if any:

*IQAC, DMC K*





**Teaching Plan for BSc Physics - Sem 3**  
**Core Course - Optics, Laser and Fiber Optics**  
**Course code: PH3CRT03 Total Instructional Hours: Theory-18**  
**Weekly Hours Allotted: Theory -1;**

Name of Faculty: Dr. Saji Augustine

Academic Year: 2020-21

<b>Week &amp; Module/ Unit</b>	<b>Units/Topics to be covered</b>	<b>Method of Teaching-Learning</b>	<b>Remarks</b>
<b>Week I</b>  <b>June 1 – June 5, 2020</b> <b>Module 1</b>	1. Review of basic ideas of interference,	Oral Lecture Lab experiments	Assignment
<b>Week II</b>  <b>June 8– June 12, 2020</b> <b>Module 1</b>	2. Coherent waves- 3. Optical path 4. phase change	Lecture <a href="https://youtu.be/P8NMAb_3zsY">https://youtu.be/P8NMAb_3zsY</a>	Assignment
<b>Week III</b>  <b>June 15 – June 19, 2020</b> <b>Module 1</b>	5. Superposition of waves 6. Theory of interference	Lecture <a href="https://youtu.be/CAe3lkYnKt8">https://youtu.be/CAe3lkYnKt8</a>	Assignment
<b>Week IV</b>  <b>June 22– June 26, 2020</b> <b>Module 1</b>	7. Theory of interference 8. Intensity distribution	Lecture <a href="https://youtu.be/_TBr9SJXKXY">https://youtu.be/_TBr9SJXKXY</a>	Class test
<b>Week V</b> <b>Jun29 – July 3, 2019</b> <b>Module 1</b>	9. Young’s double slit experiment, Coherence- 10. Conditions for interference.	Lecture <a href="https://youtu.be/MDX3qb_BMs4">https://youtu.be/MDX3qb_BMs4</a>  Lab experiments	Class test Assignment



Week & Module/ Unit	Units/Topics to be covered	Method of Teaching-Learning	Remarks
<b>Week VI</b> <b>July 6 – July 10, 2020</b> <b>Module 1</b>	11. Problems on Young's Double slit Experiment	Lecture Solving problems	Class test Assignment
<b>Week VII</b> <b>July 13– July 17, 2020</b> <b>Module 1</b>	12. Thin films-plane parallel film-interference due to reflected light-conditions for brightness and darkness	Lecture <a href="https://youtu.be/5rqPZufC5Ng">https://youtu.be/5rqPZufC5Ng</a> Solving problems	Class test Assignment
<b>Week VIII</b> <b>July 20 – July 24, 2020</b> <b>Module 1</b>	13. Interference due to transmitted light-Haidinger fringes	Lecture <a href="https://youtu.be/2vWjhd6NzDg">https://youtu.be/2vWjhd6NzDg</a> Solving problems Seminar by students	Class test Assignment
<b>Week IX</b> <b>July 27 – July 31, 2020</b> <b>Module 2</b>	14. Interference in wedge shaped film-colours in thin films	Lecture <a href="https://youtu.be/EeJwn42EEqc">https://youtu.be/EeJwn42EEqc</a>	Class test Assignment
<b>Week X</b> <b>Aug 3 – Aug 7 2020</b> <b>Module 2</b>	15. Newton's rings-applications	Lecture <a href="https://youtu.be/PU-SeNfIRcs">https://youtu.be/PU-SeNfIRcs</a>	Assignment
<b>Week XI</b> <b>Aug 10 – Aug 14, 2020</b> <b>Module 2</b>	16. Michelson interferometer-construction, working and just mention the applications	Oral Lecture Seminar by students <a href="https://youtu.be/JO8TMNJLit8">https://youtu.be/JO8TMNJLit8</a> <a href="https://youtu.be/lzBKlY4f1XA">https://youtu.be/lzBKlY4f1XA</a>	Class Test



Week & Module/ Unit	Units/Topics to be covered	Method of Teaching-Learning	Remarks
<b>Week XII</b> <b>Aug 17 – Aug21, 2020</b> <b>Module 2</b>	<b>Internal Exam upto 21<sup>st</sup></b> 17. Discussion on Internal Questions 18. Fundamentals of LASER	Group Discussion Lecture <a href="https://youtu.be/saVE7pMhaxk">https://youtu.be/saVE7pMhaxk</a> <a href="https://youtu.be/JOchLyNO_w">https://youtu.be/JOchLyNO_w</a> <a href="https://youtu.be/WgzynezPiyc">https://youtu.be/WgzynezPiyc</a>	Revision of topics covered sofar Assignment Class Test
<b>OANAM</b>			
<b>Week XIII</b> <b>August 31- Sep 4, 2020</b> <b>Module 2</b>	19. Absorption and emission of light	Lecture <a href="https://youtu.be/MyObdBUgTRY">https://youtu.be/MyObdBUgTRY</a> <a href="https://youtu.be/F-rJ2jNX69I">https://youtu.be/F-rJ2jNX69I</a>	Class test
<b>Week XIV</b> <b>Sep 7- Sep 11, 2020</b> <b>Module 2</b>	20. Absorption-spontaneous emission	Lecture	Class test
<b>Week XV</b> <b>Sep 14- Sep 18, 2020</b> <b>Module 2</b>	21. Stimulated emission	Lecture	Class test
<b>Week XVI</b> <b>Sep 21- Sep 25, 2020</b> <b>Module 2</b>	22. Einstein relations	Lecture	Class test Assignment
<b>Week XVII</b> <b>Sep 28- Oct 2, 2020</b> <b>Module 2</b>	23. He-Ne Laser	Lecture <a href="https://youtu.be/RyY4PEpV2RQ">https://youtu.be/RyY4PEpV2RQ</a>	Class test Assignment



Week & Module/ Unit	Units/Topics to be covered	Method of Teaching-Learning	Remarks
<b>Week XVIII</b>  <b>Oct 5- Oct 9, 2020</b>  <b>Module</b>	<b>Oct 5 to 9 – Model EXAM</b>		
<b>Week XIX</b>  <b>Module</b>			

Date: 01.06.2020

Name and Signature of the Faculty Member: Dr. Saji Augustine

Counter Signature of the Head of the Department with Remarks if any:



**Teaching Plan for BSc Physics - Sem 3**  
**Complimentary Physics for Maths – Modern Physics and Electronics**  
**Course code: PH3CMT01 Total Instructional Hours: Theory-18**  
**Weekly Hours Allotted: Theory -1;**

Name of Faculty: Dr. Saji Augustine

Academic Year: 2020-21

Week & Module/ Unit	Units/Topics to be covered	Method of Teaching-Learning	Remarks
<b>Week I</b>  <b>June 1 – June 5, 2020</b> <b>Module 1</b>	1. Current-voltage characteristics of a diode	Oral Lecture Lab experiments <a href="https://youtu.be/EdU">https://youtu.be/EdU</a>	Assignment
<b>Week II</b>  <b>June 8– June 12, 2020</b> <b>Module 1</b>	2. Forward and reverse bias action of a diode	Oral Lecture <a href="https://youtu.be/USrY0JspDEg">https://youtu.be/USrY0JspDEg</a> Group Discussion	Class quiz Assignment
<b>Week III</b>  <b>June 15 – June 19, 2020</b> <b>Module 1</b>	3. Breakdown mechanism of p-n junction diode	Oral Lecture <a href="https://youtu.be/Ez1SafjMltc">https://youtu.be/Ez1SafjMltc</a> Group Discussion	Assignment
<b>Week IV</b>  <b>June 22– June 26, 2020</b> <b>Module 1</b>	4. Zener diode and its characteristic	Oral Lecture <a href="https://youtu.be/JdL3DnnFHXw">https://youtu.be/JdL3DnnFHXw</a> Lab experiments	Class Test
<b>Week V</b> <b>Jun29 – July 3, 2019</b> <b>Module 1</b>	5. Half wave wave rectifiers	Oral Lecture <a href="https://youtu.be/AspBbh_jOuk">https://youtu.be/AspBbh_jOuk</a> Lab experiments	Class test Assignment



<b>Week &amp; Module/ Unit</b>	<b>Units/Topics to be covered</b>	<b>Method of Teaching-Learning</b>	<b>Remarks</b>
<b>Week VI</b> <b>July 6 – July 10, 2020</b> <b>Module 1</b>	6. Full wave rectifiers	Oral Lecture <a href="https://youtu.be/CGZ0yHaAmjs">https://youtu.be/CGZ0yHaAmjs</a> Solving problems Lab experiments	Class test Assignment
<b>Week VII</b> <b>July 13– July 17, 2020</b> <b>Module 1</b>	7. Bridge rectifier- ripple factor, efficiency	Oral Lecture <a href="https://youtu.be/KI8IOESVWIM">https://youtu.be/KI8IOESVWIM</a> Solving problems	Class test Assignment
<b>Week VIII</b> <b>July 20 – July 24, 2020</b> <b>Module 1</b>	8. Bipolar junction transistor- Construction and operation.	Oral Lecture <a href="https://youtu.be/u-qt6P9iLZc">https://youtu.be/u-qt6P9iLZc</a> <a href="https://youtu.be/yOmPCjPlaEg">https://youtu.be/yOmPCjPlaEg</a>	Assignment
<b>Week IX</b> <b>July 27 – July 31, 2020</b> <b>Module 2</b>	9. Characteristics of Common Emitter NPN Transistor	Oral Lecture <a href="https://youtu.be/jk5CZ_rRAcE">https://youtu.be/jk5CZ_rRAcE</a>	Class test Assignment
<b>Week X</b> <b>Aug 3 – Aug 7 2020</b> <b>Module 2</b>	10. Characteristics of Common Base NPN Transistor	Oral Lecture <a href="https://youtu.be/D4J9Yc8oJ34">https://youtu.be/D4J9Yc8oJ34</a>	Class test Assignment



Week & Module/ Unit	Units/Topics to be covered	Method of Teaching-Learning	Remarks
Week XI Aug 10 – Aug 14, 2020 Module 2	11. Different number systems – decimal, binary, octal, hexa decimal number systems	Oral Lecture	Class Test
Week XII Aug 17 – Aug 21, 2020 Module 2	<b>Internal Exam upto 21<sup>st</sup></b> 12. Discussion on Internal Questions 13. Conversion between different number systems 14. Conversion between different number systems	Group Discussion Oral Lecture Solving problems	Revision of topics covered so far.
<b>OANAM</b>			
Week XIII August 31- Sep 4, 2020 Module 2	15. Binary mathematics – addition, subtraction (1's compliment and 2's compliment methods)	Oral Lecture Group Discussion Solving problems	Class test Assignment
Week XIV Sep 7- Sep 11, 2020 Module 2	16. Basic theorems of Boolean algebra- de Morgan's theorems	Oral Lecture	Class test Assignment
Week XV Sep 14- Sep 18, 2020 Module 2	17. Simplification of Boolean equations - AND, OR, NOT gates	Oral Lecture <i>Group discussion</i> Solving problems	Class test Assignment



Week & Module/ Unit	Units/Topics to be covered	Method of Teaching-Learning	Remarks
Week XVI Sep 21- Sep 25, 2020 Module 2	18. NAND, NOR, XOR gates- truth tables	Oral Lecture	Class test Assignment
Week XVII Sep 28- Oct 2, 2020 Module 2	19. Half adder- full adder	Oral Lecture	Class test Assignment
Week XVIII  Oct 5- Oct 9, 2020  Module	Revision to be done for the entire topics taught/  <b>Oct 5 to 9 – Model EXAM</b>		
Week XIX  Module	Revision		

Date: 01.06.2020

Name and Signature of the Faculty Member: Dr. Saji Augustine

Counter Signature of the Head of the Department with Remarks if any:

Teaching Plan for BSc Physics - Sem 3

*IQAC, DMC K*





# Complimentary Physics for Chemistry– Modern Physics and Magnetism

Course code: PH3CMT02 Total Instructional Hours: Theory-18

Weekly Hours Allotted : Theory -1;

Name of Faculty: Dr. Saji Augustine

Academic Year: 2020-21

Week & Module/ Unit	Units/Topics to be covered	Method of Teaching- Learning	Remarks
<b>Week I</b> <b>June 1 –</b> <b>June 5,</b> <b>2020</b> <b>Module 1</b>	1. Current-voltage characteristics of a diode	Oral Lecture Lab experiments <a href="https://youtu.be/EdU">https://youtu.be/EdU</a>	Assignment
<b>Week II</b> <b>June 8–</b> <b>June 12,</b> <b>2020</b> <b>Module 1</b>	2. Forward and reverse bias action of a diode	Oral Lecture <a href="https://youtu.be/USrY0JspDEg">https://youtu.be/USrY0JspDEg</a> Group Discussion	Class quiz Assignment
<b>Week III</b> <b>June 15 –</b> <b>June 19,</b> <b>2020</b> <b>Module 1</b>	3. Breakdown mechanism of p-n junction diode	Oral Lecture <a href="https://youtu.be/EzISafjMltc">https://youtu.be/EzISafjMltc</a> Group Discussion	Assignment
<b>Week IV</b> <b>June 22–</b> <b>June 26,</b> <b>2020</b> <b>Module 1</b>	4. Zener diode and its characteristics	Oral Lecture <a href="https://youtu.be/JdL3DnnFHxw">https://youtu.be/JdL3DnnFHxw</a> Lab experiments	Class Test
<b>Week V</b> <b>Jun29 –</b> <b>July 3,</b> <b>2019</b> <b>Module 1</b>	5. Half wave wave rectifiers	Oral Lecture <a href="https://youtu.be/AspBbh_jOuk">https://youtu.be/AspBbh_jOuk</a> Lab experiments	Class test Assignment



<b>Week &amp; Module/ Unit</b>	<b>Units/Topics to be covered</b>	<b>Method of Teaching-Learning</b>	<b>Remarks</b>
<b>Week VI</b> <b>July 6 – July 10, 2020</b> <b>Module 1</b>	6. Full wave rectifiers	Oral Lecture <a href="https://youtu.be/CGZ0yHaAmjs">https://youtu.be/CGZ0yHaAmjs</a> Solving problems Lab experiments	Class test Assignment
<b>Week VII</b> <b>July 13– July 17, 2020</b> <b>Module 1</b>	7. Bridge rectifier-ripple factor, efficiency	Oral Lecture <a href="https://youtu.be/KI8IOESVWIM">https://youtu.be/KI8IOESVWIM</a> Solving problems	Class test Assignment
<b>Week VIII</b> <b>July 20 – July 24, 2020</b> <b>Module 1</b>	8. Bipolar junction transistor- Construction and operation.	Oral Lecture <a href="https://youtu.be/u-qt6P9iLZc">https://youtu.be/u-qt6P9iLZc</a> <a href="https://youtu.be/yOmPCjPlaEg">https://youtu.be/yOmPCjPlaEg</a>	Assignment
<b>Week IX</b> <b>July 27 – July 31, 2020</b> <b>Module 2</b>	9. Characteristics of Common Emitter NPN Transistor	Oral Lecture <a href="https://youtu.be/jk5CZ_rRAcE">https://youtu.be/jk5CZ_rRAcE</a>	Class test Assignment
<b>Week X</b> <b>Aug 3 – Aug 7 2020</b> <b>Module 2</b>	10. Characteristics of Common Base NPN Transistor	Oral Lecture <a href="https://youtu.be/D4J9Yc8oJ34">https://youtu.be/D4J9Yc8oJ34</a>	Class test Assignment
<b>Week XI</b> <b>Aug 10 – Aug 14, 2020</b> <b>Module 2</b>	11. Properties of magnetic materials	Oral Lecture	Class Test



Week & Module/ Unit	Units/Topics to be covered	Method of Teaching-Learning	Remarks
<b>Week XII</b> <b>Aug 17 – Aug21, 2020</b> <b>Module 2</b>	<b>Internal Exam upto 21<sup>st</sup></b> 12. Discussion on Internal Questions	Group Discussion	Revision of topics covered sofar.
<b>OANAM</b>			
<b>Week XIII</b> <b>August 31- Sep 4, 2020</b> <b>Module 2</b>	13. Ferromagnetism, Hysteresis	Oral Lecture <a href="https://youtu.be/j-UJtrYK4Mg">https://youtu.be/j-UJtrYK4Mg</a>	Class test Assignment
<b>Week XIV</b> <b>Sep 7- Sep 11, 2020</b> <b>Module 2</b>	14. Ferrites, Magnetostriction, Antiferromagnetism	Oral Lecture	Class test Assignment
<b>Week XV</b> <b>Sep 14- Sep 18, 2020</b> <b>Module 2</b>	15. Earth's magnetism-elements of earth's magnetism-dip,	Oral Lecture <i>Group discussion</i>	Assignment



<b>Week &amp; Module/ Unit</b>	<b>Units/Topics to be covered</b>	<b>Method of Teaching-Learning</b>	<b>Remarks</b>
<b>Week XVI</b> <b>Sep 21- Sep 25, 2020</b>  <b>Module 2</b>	16. Earth's magnetism-dip, declination, horizontal and vertical components	Oral Lecture	Class test Assignment
<b>Week XVII</b>  <b>Sep 28- Oct 2, 2020</b> <b>Module 2</b>	17. Magnetic maps magnetographs-cause of earth's magnetism	Oral Lecture	Class test Assignment
<b>Week XVIII</b>  <b>Oct 5- Oct 9, 2020</b>  <b>Module</b>	Revision to be done for the entire topics taught/  <b>Oct 5 to 9 – Model EXAM</b>		
<b>Week XIX</b>  <b>Module</b>	Revision		

Date: 01.06.2020

Name and Signature of the Faculty Member: Dr. Saji Augustine

Counter Signature of the Head of the Department with Remarks if any:

*IQAC, DMC K*



**Deva Matha College Kuravilangad**  
**Department of Physics**  
**Teaching Plan for BSc Physics - Sem 6**  
**Core Course Number and Thermal and Statistical Physics**  
**Course code: PH6CRT09 Total Instructional Hours: Theory-3**  
**Weekly Hours Allotted: Theory -2;**

Name of Faculty: Dr. Saji Augustine

Academic Year: 2019-20

Week & Module/ Unit	Units/Topics to be covered	Method of Teaching - Learning	Remarks
<b>Week I</b> Nov 2 – Nov 6, 2020 <b>Module 1</b>	1. Equation of an ideal gas, behavior of real gases, 2. Andrew's experiment on carbon dioxide, critical state,	Lecture	Assignment
<b>Week II</b> Nov 9 – Nov 13, 2020 <b>Module 1</b>	3. Two phase region, intermolecular forces, van der Waals equation of state	Lecture	Class test
<b>Week III</b> Nov 16 – Nov 20, 2020 <b>Module 1</b>	4. Van der Waals isotherms, critical constants, limitation of van der Waals equation. 5. Thermodynamic system, surroundings, variables, thermal equilibrium: zeroth law	Lecture Group Discussion Seminar by students	Assignment Class test
<b>Week IV</b> Nov 23 – Nov 27, 2020 <b>Module 1</b>	6. Thermodynamic equilibrium, thermodynamic processes, reversible and irreversible processes, equation of state	Lecture <a href="https://youtu.be/j_6JxoL8qD4">https://youtu.be/j_6JxoL8qD4</a> <a href="https://youtu.be/guP4wKNBtM4">https://youtu.be/guP4wKNBtM4</a> Group Discussion	Assignment



Week & Module/ Unit	Units/Topics to be covered	Method of Teaching - Learning	Remarks
<b>Week V</b> <b>Nov 30 – Dec 4, 2020</b> <b>Module 1</b>	7. Expansivity and compressibility 8. Internal energy, heat, work, cyclic processes, first law, heat capacity	Lecture Solving problems	Class test Assignment
<b>Week VI</b> <b>Dec 7 – Dec 11, 2020</b> <b>Module 1</b>	9. Energy equation and difference of specific heat capacities 10. Indicator diagram work done in reversible isothermal expansion of ideal gas,	Lecture Solving problems	Class test Assignment
<b>Week VII</b> <b>Dec 14 – Dec 18, 2020</b> <b>Module 1</b>	11. work done in reversible adiabatic expansion of ideal gas. 12. Second law statements, heat engine, efficiency	Lecture Solving problems	Class test Assignment
<b>X'MAS</b>			
<b>Week VIII</b> <b>Dec 28 – Jan 1, 2020</b> <b>Module 1</b>	13. Carnot's ideal heat engine, <b>work done by the engine per cycle</b> , 14. Reversibility, Carnot refrigerator, heat pump, Carnot theorem	Lecture Seminar by students	Class test Assignment



Week & Module/ Unit	Units/Topics to be covered	Method of Teaching - Learning	Remarks
<b>Week IX</b> <b>Jan 4 – Jan 8, 2021</b> <b>Module 1,2</b>	15. Absolute scale of temperature, Clausius-Clapeyron latent heat equation. 16. Definition of entropy, principle of increase of entropy, entropy and unavailable energy, change in entropy in heat conduction	Lecture	Class test Assignment
<b>Week X</b> <b>Jan 11 – Jan 15, 2021</b> <b>Module 2</b>	17. Change in entropy in reversible and irreversible process, efficiency of Carnot cycle from TS diagram, 18. Entropy of an ideal gas, entropy and disorder.	Lecture Solving problems	Assignment
<b>Week XI</b> <b>Jan 18 – Jan 22, 2021</b> <b>Module 2</b>	19. Maxwell's thermodynamic relations, 20. TdS equations	Oral Lecture Seminar by students	Class Test
<b>Week XII</b> <b>Jan 25 – Jan 29, 2021</b> <b>Module 2</b>	<b>INTERNAL EXAM upto (25 to 29<sup>th</sup>)</b>	Group Discussion	Revision of covered topics so far
<b>Week XIII</b> <b>Feb 1 – Feb 5, 2021</b> <b>Module 2</b>	21. Energy equation, heat capacity equations, 22. Thermodynamic functions,	Lecture	Assignment Class Test



Week & Module/ Unit	Units/Topics to be covered	Method of Teaching - Learning	Remarks
Week XIV Feb 8 – Feb 12, 2021 Module 2	23. Third law of thermodynamics. 24. Conduction, thermal conductivity	Oral Lecture <i>Seminar by students</i>	Class test
Week XV Feb 15 – Feb 19, 2021 Module 2	25. Thermal conductivity of bad conductor Lee's disc experiment- thermal resistance, 26. Thermal radiation and its properties, fundamental definitions of energy flux	Oral Lecture	Class test
Week XVI Feb 22– Feb 26, 2021 Module 2	27. Intensity and radiant emittance, Stefan's law, Stefan-Boltzmann law.	Lecture	Class test
Week XVII March 1- March 5, 2021 Module 2	<b>Insemester Exam (2-6)</b>		
Week XVIII March 8- March 12, 2021 Module 2	Study leave		





Week & Module/ Unit	Units/Topics to be covered	Method of Teaching - Learning	Remarks
<p>Week XIX</p> <p>March 15- March 31, 2020</p>	<p><b>University Exam</b></p>		

Date: 02.11.2020

Name and Signature of the Faculty Member: Dr. Saji Augustine

Counter Signature of the Head of the Department with Remarks if any:



**Teaching Plan for BSc Physics - Sem 6**  
**Core Course Number and Solid State Physics**  
**Course code: PH6CRT12 Total Instructional Hours: Theory-16**  
**Weekly Hours Allotted: Theory -1;**

Name of Faculty: Dr. Saji Augustine

Academic Year: 2019-20

<b>Week &amp; Module/ Unit</b>	<b>Units/Topics to be covered</b>	<b>Method of Teaching-Learning</b>	<b>Remarks</b>
<b>Week I</b> <b>Nov 2 – Nov 6, 2020</b> <b>Module 1</b>	1. Introduction to Dielectric materials 2. Polarization and susceptibility	Lecture	Assignment
<b>Week II</b> <b>Nov 9 – Nov 13, 2020</b> <b>Module 1</b>	3. Local field, dielectric constant and polarizability	Lecture	Class test
<b>Week III</b> <b>Nov 16 – Nov 20, 2020</b> <b>Module 1</b>	4. Sources of polarizability,	Lecture Group Discussion Seminar by students	Assignment Class test
<b>Week IV</b> <b>Nov 23 – Nov 27, 2020</b> <b>Module 1</b>	5. Clausius-Mossoti relation	Lecture Group Discussion	
<b>Week V</b> <b>Nov 30 – Dec 4, 2020</b> <b>Module 1</b>	6. Piezoelectricity	Lecture Solving problems	Class test Assignment



<b>Week &amp; Module/ Unit</b>	<b>Units/Topics to be covered</b>	<b>Method of Teaching-Learning</b>	<b>Remarks</b>
<b>Week VI</b> <b>Dec 7 – Dec 11, 2020</b> <b>Module 1</b>	7. Introduction to magnetic materials 8. Response of materials to magnetic field	Lecture Solving problems	Class test Assignment
<b>Week VII</b> <b>Dec 14 – Dec 18, 2020</b> <b>Module 1</b>	9. Classification of magnetic materials	Oral Lecture Solving problems	Class test Assignment
<b>X'MAS</b>			
<b>Week VIII</b> <b>Dec 28 – Jan 1, 2020</b> <b>Module 1</b>	10. Langevin's classical theory of diamagnetism and paramagnetism	Oral Lecture Seminar by students	Class test Assignment
<b>Week IX</b> <b>Jan 4 – Jan 8, 2021</b> <b>Module 1,2</b>	11. Ferromagnetism and Hysteresis loop		Class test Assignment
<b>Week X</b> <b>Jan 11 – Jan 15, 2021</b> <b>Module 2</b>	12. Weiss theory, domain theory	Lecture Solving problems	Assignment



Week & Module/ Unit	Units/Topics to be covered	Method of Teaching-Learning	Remarks
Week XI Jan 18 – Jan 22, 2021 Module 2	13. Antiferromagnetism and ferrimagnetism	Oral Lecture Seminar by students	Class Test
Week XII Jan 25 – Jan 29, 2021 Module 2	<b>INTERNAL EXAM upto (25 to 29th )</b>	Group Discussion	Revision of covered topics sofar
Week XIII Feb 1 – Feb 5, 2021 Module 2	14. Origin of superconductivity, response of magnetic field	Lecture	Assignment Class Test
Week XIV Feb 8 – Feb 12, 2021 Module 2	15. Meissner effect, super current and penetration depth,	Lecture <i>Seminar by students</i>	Class test
Week XV Feb 15 – Feb 19, 2021 Module 2	16. Critical field and critical temperature, Type-I superconductors	Lecture	Class test
Week XVI Feb 22– Feb 26, 2021 Module 2	17. Type –II superconductors	Oral Lecture	Class test



Week & Module/ Unit	Units/Topics to be covered	Method of Teaching-Learning	Remarks
Week XVII March 1- March 5, 2021 Module 2	<b>Insemester Exam</b>		
Week XVIII  March 8- March 12, 2021	Study leave		
Week XIX  March 15- March 31, 2020	University Exam (15 – 31)		

Date: 02.11.2020

Name and Signature of the Faculty Member: Dr. Saji Augustine

Counter Signature of the Head of the Department with Remarks if any:

*IQAC, DMC K*



**Teaching Plan for BSc Physics - Sem 4**  
**Core Course Number and Semiconductor Physics**  
**Course code: PH4CRT04 Total Instructional Hours: Theory-18**  
**Weekly Hours Allotted : Theory -1;**

Name of Faculty: Dr. Saji Augustine

Academic Year: 2019-20

Week & Module/ Unit	Units/Topics to be covered	Method of Teaching-Learning	Remarks
Week I Nov 2 – Nov 6, 2020 Module 1	1. PN Junction, Depletion layer, Barrier potential,	Oral Lecture Lab experiments <a href="https://youtu.be/EdUAecpYVWQ?">https://youtu.be/EdUAecpYVWQ?</a>	Assignment
Week II Nov 9 – Nov 13, 2020 Module 1	2. Biasing-forward and reverse	Oral Lecture <a href="https://youtu.be/USrY0JspDEg">https://youtu.be/USrY0JspDEg</a> Group Discussion	Short Quiz
Week III Nov 16 – Nov 20, 2020 Module 1	3. Reverse breakdown	Oral Lecture <a href="https://youtu.be/EzISafjMltc">https://youtu.be/EzISafjMltc</a> Group Discussion	Assignment
Week IV Nov 23 – Nov 27, 2020 Module 1	4. Junction capacitance and diffusion capacitance	Oral Lecture <a href="https://youtu.be/1FCFBzLO1bg">https://youtu.be/1FCFBzLO1bg</a> <a href="https://youtu.be/GVvFIzeDZmk">https://youtu.be/GVvFIzeDZmk</a> <a href="https://youtu.be/uu8QsEbYOfY">https://youtu.be/uu8QsEbYOfY</a> Seminar by students	Class test
Week V Nov 30 – Dec 4, 2020 Module 1	5. PN Junction diode – V-I characteristics	Oral Lecture <a href="https://youtu.be/_vKeaPHXF9U">https://youtu.be/_vKeaPHXF9U</a>	Assignment



Week & Module/ Unit	Units/Topics to be covered	Method of Teaching-Learning	Remarks
Week VI Dec 7 – Dec 11, 2020 Module 1	6. Diode parameters	Oral Lecture	
Week VII Dec 14 – Dec 18, 2020 Module 1	7. Diode current Equation, Diode testing, Ideal diode	Oral Lecture Problems	Class test Assignment
<b>X'MAS</b>			
Week VIII Dec 28 – Jan 1, 2020 Module 1	8. Zener diode and its reverse characteristics	Oral Lecture <a href="https://youtu.be/JdL3DnnFHxw">https://youtu.be/JdL3DnnFHxw</a> Lab experiments Seminar by students	Class test
Week IX Jan 4 – Jan 8, 2021 Module 1,2	9. Thermistors	Oral Lecture <a href="https://youtu.be/bjt4CrRL8yM">https://youtu.be/bjt4CrRL8yM</a> Lab experiments Seminar by students	Assignment
Week X Jan 11 – Jan 15, 2021 Module 2	10. Rectification 11. Half wave wave rectifiers	Oral Lecture <a href="https://youtu.be/AspBbh_jOuk">https://youtu.be/AspBbh_jOuk</a> Lab experiments	Class test Assignment
Week XI Jan 18 – Jan 22, 2021 Module 2	12. Full wave Centre tapped rectifier	Oral Lecture <a href="https://youtu.be/CGZ0yHaAmjs">https://youtu.be/CGZ0yHaAmjs</a> Solving problems Lab experiments	Class Test



Week & Module/ Unit	Units/Topics to be covered	Method of Teaching-Learning	Remarks
Week XII Jan 25 – Jan 29, 2021 Module 2	<b>INTERNAL EXAM upto (25 to 29<sup>th</sup> )</b>	Group Discussion	Revision of covered topics sofar
Week XIII Feb 1 – Feb 5, 2021 Module 2	13. Bridge rectifier-ripple factor, efficiency 14. Nature of rectified output, Efficiency & Ripple factor 15. Filter circuits – Inductor Filter,	Oral Lecture <a href="https://youtu.be/K18IOESVWIM">https://youtu.be/K18IOESVWIM</a> Solving problems	Assignment Class Test
Week XIV Feb 8 – Feb 12, 2021 Module 2	16. Capacitor Filter, LC Filter, $\pi$ Filter-Regulated Power supplies	Oral Lecture Seminar by students	Class test
Week XV Feb 15 – Feb 19, 2021 Module 2	17. Zener diode voltage regulator- Voltage multipliers – Doubler & Tripler	Oral Lecture	Class test
Week XVI Feb 22– Feb 26, 2021 Module 2	18. Wave shaping circuits - Clipper- Positive, negative and biased – Clampers- Positive, negative and biased	Oral Lecture	Class test





<b>Week &amp; Module/ Unit</b>	<b>Units/Topics to be covered</b>	<b>Method of Teaching-Learning</b>	<b>Remarks</b>
<b>Week XVII</b> <b>March 1- March 5, 2021</b>  <b>Module 2</b>	<b>Insemester Exam (1-5)</b>		
<b>Week XVIII</b>  <b>March 8- March 12, 2021</b> <b>Module 2</b>	Study leave		
<b>Week XIX</b>  <b>March 15- March 31, 2020</b>	University Exam (16 – 31)		

Date: 02.11.2021

Name and Signature of the Faculty Member: Dr. Saji Augustine

Counter Signature of the Head of the Department with Remarks if any:

*IQAC, DMC K*



**Teaching Plan for BSc Physics - Sem 4**  
**Complimentary Course Number and Optics and Electricity**  
**Course code: PH4CMT01 Total Instructional Hours: Theory-18**  
**Weekly Hours Allotted: Theory -1;**

Name of Faculty: Dr. Saji Augustine

Academic Year: 2019-20

<b>Week &amp; Module/ Unit</b>	<b>Units/Topics to be covered</b>	<b>Method of Teaching-Learning</b>	<b>Remarks</b>
<b>Week I</b> <b>Nov 2 – Nov 6, 2020</b> <b>Module 1</b>	1. Review of basic ideas of interference, 2. Coherent waves- 3. Optical path 4. phase change	Lecture Lab experiments <a href="https://youtu.be/P8NMAb_3zsY">https://youtu.be/P8NMAb_3zsY</a>	Assignment
<b>Week II</b> <b>Nov 9 – Nov 13, 2020</b> <b>Module 1</b>	5. Superposition of waves 6. Theory of interference 7. Intensity distribution	Lecture <a href="https://youtu.be/CAe3lkYNKt8">https://youtu.be/CAe3lkYNKt8</a>	Class test
<b>Week III</b> <b>Nov 16 – Nov 20, 2020</b> <b>Module 1</b>	8. Young's double slit experiment, Coherence- 9. Conditions for interference.	Lecture Lab experiments	Assignment
<b>Week IV</b> <b>Nov 23 – Nov 27, 2020</b> <b>Module 1</b>	10. Problems on Young's Double slit Experiment	Oral Lecture Solving problems	Class Test



<b>Week &amp; Module/ Unit</b>	<b>Units/Topics to be covered</b>	<b>Method of Teaching-Learning</b>	<b>Remarks</b>
<b>Week V</b> <b>Nov 30 – Dec 4, 2020</b> <b>Module 1</b>	11. Thin films-plane parallel film-interference due to reflected light-conditions for brightness and darkness	Oral Lecture Solving problems	Class test Assignment
<b>Week VI</b> <b>Dec 7 – Dec 11, 2020</b> <b>Module 1</b>	12. Haidinger fringes 13. Interference in wedge shaped film-colours in thin films	Oral Lecture <a href="https://youtu.be/EeJwn42EEqc">https://youtu.be/EeJwn42EEqc</a>	Class test
<b>Week VII</b> <b>Dec 14 – Dec 18, 2020</b> <b>Module 1</b>	14. Newton's rings-applications.Measurement of wavelength	Oral Lecture <a href="https://youtu.be/PU-SeNfIRcs">https://youtu.be/PU-SeNfIRcs</a>	Assignment
<b>X'MAS</b>			
<b>Week VIII</b> <b>Dec 28 – Jan 1, 2020</b> <b>Module 1</b>	15. Dielectrics- polar and non-polar dielectrics	Oral Lecture	Assignment
<b>Week IX</b> <b>Jan 4 – Jan 8, 2021</b> <b>Module 1,2</b>	16. Polarization- sources of polarization	Oral Lecture	Class Test



Week & Module/ Unit	Units/Topics to be covered	Method of Teaching-Learning	Remarks
Week X Jan 11 – Jan 15, 2021 Module 2	17. Dielectric displacement vector	Group Discussion	Assignment
Week XI Jan 18 – Jan 22, 2021 Module 2	18. Gauss's law in dielectrics-permittivity		Assignment Class Test
Week XII Jan 25 – Jan 29, 2021 Module 2	<b>INTERNAL EXAM upto (25 to 29<sup>th</sup>)</b>		Revision of covered topics sofar
Week XIII Feb 1 – Feb 5, 2021 Module 2	19. Dielectric constant susceptibility	Oral Lecture	Assignment
Week XIV Feb 8 – Feb 12, 2021 Module 2	20. Ferro-electricity	Oral Lecture	Class test
Week XV Feb 15 – Feb 19, 2021 Module 2	Revision of Interference		



Week & Module/ Unit	Units/Topics to be covered	Method of Teaching-Learning	Remarks
Week XVI Feb 22– Feb 26, 2021 Module 2	Revision of Dielectrics		
Week XVII March 1- March 5, 2021 Module 2	<b>Insemester Exam</b>		
Week XVIII March 8- March 12, 2021 Module 2	Study leave		
Week XIX March 15- March 31, 2021	University Exam (16 – 31 <sup>st</sup> )		

Date:

Name and Signature of the Faculty Member: Dr. Saji Augustine

Counter Signature of the Head of the Department with Remarks if any:

*IQAC, DMC K*



**Teaching Plan for BSc Physics, Sem 4**  
**Complimentary Physics for Chemistry and Optics and Solid State Physics**  
**Course code: PH4CMT02 Total Instructional Hours: Theory-18**  
**Weekly Hours Allotted : Theory -1;**

Name of Faculty: Dr. Saji Augustine

Academic Year: 2020-21

<b>Week &amp; Module/ Unit</b>	<b>Units/Topics to be covered</b>	<b>Method of Teaching-Learning</b>	<b>Remarks</b>
<b>Week I</b> <b>Nov 2 – Nov 6, 2020</b> <b>Module 1</b>	1. Review of basic ideas of interference, 2. Coherent waves- 3. Optical path 4. phase change	Oral Lecture Lab experiments <a href="https://youtu.be/P8NMAb_3zsY">https://youtu.be/P8NMAb_3zsY</a>	Assignment
<b>Week II</b> <b>Nov 9 – Nov 13, 2020</b> <b>Module 1</b>	5. Superposition of waves 6. Theory of interference 7. Intensity distribution	Oral Lecture <a href="https://youtu.be/CAe3lkYnKt8">https://youtu.be/CAe3lkYnKt8</a>	Class test
<b>Week III</b> <b>Nov 16 – Nov 20, 2020</b> <b>Module 1</b>	8. Young's double slit experiment, Coherence- 9. Conditions for interference.	Oral Lecture Lab experiments	Assignment
<b>Week IV</b> <b>Nov 23 – Nov 27, 2020</b> <b>Module 1</b>	10. Problems on Young's Double slit Experiment	Oral Lecture Solving problems	Class Test
<b>Week V</b> <b>Nov 30 – Dec 4, 2020</b> <b>Module 1</b>	11. Thin films-plane parallel film-interference due to reflected light-conditions for brightness and darkness	Oral Lecture Solving problems	Class test Assignment



Week & Module/ Unit	Units/Topics to be covered	Method of Teaching-Learning	Remarks
Week VI Dec 7 – Dec 11, 2020 Module 1	12. Haidinger fringes 13. Interference in wedge shaped film- colours in thin films	Oral Lecture <a href="https://youtu.be/EeJwn42EEqc">https://youtu.be/EeJwn42EEqc</a>	Class test
Week VII Dec 14 – Dec 18, 2020 Module 1	14. Newton's rings- applications. Measurement of wavelength	Oral Lecture <a href="https://youtu.be/PU-SeNfIRcs">https://youtu.be/PU-SeNfIRcs</a>	Assignment
<b>X'MAS</b>			
Week VIII Dec 28 – Jan 1, 2020 Module 1	15. Dielectrics- polar and non-polar dielectrics	Oral Lecture	Assignment
Week IX Jan 4 – Jan 8, 2021 Module 1,2	16. Polarization- sources of polarization	Oral Lecture	Class Test
Week X Jan 11 – Jan 15, 2021 Module 2	17. Dielectric displacement vector	Oral Lecture	Assignment



Week & Module/ Unit	Units/Topics to be covered	Method of Teaching- Learning	Remarks
Week XI Jan 18 – Jan 22, 2021  Module 2	18. Gauss's law in dielectrics- permittivity		Assignment Class Test
Week XII  Jan 25 – Jan 29, 2021 Module 2	<b>INTERNAL EXAM upto (25 to 29<sup>TH</sup>)</b>	Group Discussion	Revision
Week XIII Feb 1 – Feb 5, 2021 Module 2	19. Dielectric constant susceptibility	Oral Lecture	Assignment
Week XIV Feb 8 – Feb 12, 2021 Module 2	20. Ferro-electricity	Oral Lecture	Class test





Week & Module/ Unit	Units/Topics to be covered	Method of Teaching-Learning	Remarks
<b>Week XV</b>  <b>Feb 15 – Feb 19, 2021</b>  <b>Module 2</b>	Basics of Crystals		
<b>Week XVI</b> <b>Feb 22– Feb 26, 2021</b> <b>Module 2</b>	Crystal structures		
<b>Week XVII</b> <b>March 1- March 5, 2021</b>  <b>Module 2</b>	<b>Insemester Exam (1-6)</b>		



<b>Week &amp; Module/ Unit</b>	<b>Units/Topics to be covered</b>	<b>Method of Teaching-Learning</b>	<b>Remarks</b>
<b>Week XVIII</b> <b>March 8- March 12, 2021</b> <b>Module 2</b>	Study leave		
<b>Week XIX</b> <b>March 15- March 31, 2020</b>	University Exam (16 – 31 <sup>st</sup> )		

Date: 02.11.2020

Name and Signature of the Faculty Member: Dr. Saji Augustine

Counter Signature of the Head of the Department with Remarks if any:



**Deva Matha College Kuravilangad**  
**Department of Statistics**  
 Teaching Plan for B. Sc. Mathematics

**Complementary Course — Descriptive Statistics**

Course code: **ST1CMT01**  
 Total Instructional Hours: Theory-72 hours  
 Weekly Hours Allotted: Theory -4 hours

Name of Faculty: Dr. Lishamol Tomy

Academic Year: 2020-21

Week & Module/ Unit	Units/Topics to be covered [In the cells below, give a description / list of topics that would be covered in the stipulated week]	Method of Teaching-Learning [that would be applied]	Remarks
Week I	<b>Module 1: Introduction to Statistics</b> Introduction and Different aspects of data	Lecture	
Week II	Data collection; Statistics as collected facts and figures, and as a science for extracting information from data. Concepts of a statistical population and sample.	Lecture, Peer teaching	
Week III	Different types of characteristics and data qualitative and quantitative, cross-sectional and time-series, discrete and continuous, frequency and non-frequency.	Lecture	
Week IV	Different types of scale- nominal and ordinal, ratio and interval. Collection of data- census and sampling.	Lecture, Seminars by students	
Week V	Different types of random samples- simple random sample, systematic, stratified and cluster (description only).	Lecture	
Week VI Module	<b>Module 2: Central tendency and Dispersion</b> Introduction; Averages- Arithmetic Mean, Median, Mode,	Lecture, peer teaching	
Week VII Module	Geometric Mean, Harmonic Mean and Weighted averages.	Lecture	



Week & Module/ Unit	Units/Topics to be covered [In the cells below, give a description / list of topics that would be covered in the stipulated week]	Method of Teaching-Learning [that would be applied]	Remarks
Week VIII Module	Absolute Measures of dispersion-Range, Quartile Deviation	Lecture	
Week IX Module	Mean Deviation and Standard Deviation.	Lecture, peer teaching	
Week X Module	Combined mean and standard deviation, C.V, relative measures of dispersion	Lecture	
Week XI Module	Ogives and Box plot	Lecture, Seminars by students	
Week XII	<b>Module 3: Moments, Skewness and Kurtosis</b> Introduction; Raw moments, central moments and their inter relation.	Lecture	
Week XIII	Skewness- Pearson's, Bowly's and moment measures of skewness.	Lecture	
Week XIV	Kurtosis- percentile and moment measure of kurtosis	Lecture	
Week XV	<b>Module 4: Index Numbers</b> Introduction; Definition of Index Numbers. Price Index Numbers.	Lecture	
Week XVI	Price Index Numbers as Simple (A. M.,G. M.) and Weighted averages (A. M.)of price relatives.	Lecture, peer teaching	
Week XVII	Laspeyer's, Paasche's indices	Lecture, Assignment	

Week & Module/ Unit	Units/Topics to be covered [In the cells below, give a description / list of topics that would be covered in the stipulated week]	Method of Teaching-Learning [that would be applied]	Remarks
Week XVIII	Fisher's Index Number	<i>Lecture, Assignment</i>	
Week XIX	Time-Reversal and Factor-Reversal tests.	<i>Lecture, Peer teaching</i>	
Week XX	Cost of living index numbers-family budget and aggregate expenditure methods. An introduction to Whole sale Price Index and Consumer Price Index	<i>Lecture</i>	

Date: 01/06/2020

Name and Signature of the Faculty Member: Dr. Lishamol Tomy

Counter Signature of the Head of the Department with Remarks if any:

Dr. Lishamol Tomy



**Deva Matha College Kuravilangad**  
**Department of Statistics**  
 Teaching Plan for B. Sc. Mathematics  
**Complementary Course – Probability Theory**

Course code: **ST2CMT02**  
 Total Instructional Hours: Theory-72 hours  
 Weekly Hours Allotted: Theory -4 hours

Name of Faculty: Dr. Lishamol Tomy

Academic Year: 2020-21

Week & Module/ Unit	Units/Topics to be covered [In the cells below, give a description / list of topics that would be covered in the stipulated week]	Method of Teaching-Learning [that would be applied]	Remarks
Week I	<b>Module 1: Introduction to probability</b> Random experiments. Complement, union and intersection of events and their meaning.	Lecture	
Week II	Mutually exclusive, equally likely and Independent events.	Lecture, Peer teaching	
Week III	Classical, Frequency and Axiomatic approaches to probability.	Lecture	
Week IV	Monotone property, Addition theorem (up to 3 events.	Lecture, Seminars by students	
Week V	Conditional probability. Multiplication theorem(up to 3 events).	Lecture	
Week VI Module	Independence of events. Bayes' theorem.	Lecture, peer teaching	
Week VII Module	<b>Module 2: Probability Distribution of Univariate Random Variables</b> Concept of random variables. discrete and continuous random variables.	Lecture	



Week & Module/ Unit	Units/Topics to be covered [In the cells below, give a description / list of topics that would be covered in the stipulated week]	Method of Teaching-Learning [that would be applied]	Remarks
Week VIII Module	Probability mass and density functions, and cumulative distribution functions.	Lecture	
Week IX Module	Evaluation of conditional and unconditional probabilities.	Lecture, peer teaching	
Week X Module	Change of variables- methods of Jacobian and cumulative distribution function (one variable case).	Lecture	
Week XI Module	<b>Module 3: Probability Distribution of Bivariate Random Variables</b> Concept of a two-component random vector.	Lecture, Seminars by students	
Week XII	Bivariate probability mass and density functions. Marginal and conditional distributions.	Lecture	
Week XIII	Independence of bivariate random variables.	Lecture	
Week XIV	<b>Module 4: Correlation and Regression Bivariate data.</b> types of correlation. scatter diagram.	Lecture	
Week XV	Karl Pearson's product- moment correlation coefficient	Lecture	
Week XVI	Spearman's rank correlation coefficient	Lecture, peer teaching	
Week XVII	regression equations	Lecture, Assignment	



Week & Module/ Unit	Units/Topics to be covered [In the cells below, give a description / list of topics that would be covered in the stipulated week]	Method of Teaching-Learning [that would be applied]	Remarks
Week XVIII	fitting of polynomial equations of degree one and two ;	<i>Lecture, Assignment</i>	
Week XIX	exponential curve, power curve.	<i>Lecture, Peer teaching</i>	
Week XX	Two type of regression curves, Identification of regression equations.	<i>Lecture</i>	

Date: 01/06/2020

Name and Signature of the Faculty Member: Dr. Lishamol Tomy

Counter Signature of the Head of the Department with Remarks if any:

Dr. Lishamol Tomy





# Deva Matha College Kuravilangad

## Department of Statistics

Teaching Plan for B. Sc. Mathematics

### Complementary Course –Probability Distributions

Course code: **ST3CMT03**

Total Instructional Hours: Theory-90 hours

Weekly Hours Allotted: Theory -5 hours

Name of Faculty: Dr. Lishamol Tomy

Academic Year: 2020-21

Week & Module/ Unit	Units/Topics to be covered [In the cells below, give a description / list of topics that would be covered in the stipulated week]	Method of Teaching-Learning [that would be applied]	Remarks
Week I	<b>Module 1: Mathematical Expectation</b> Expectation of random variables and their functions. Definition of - Raw moments, central moments and their interrelation	Lecture	
Week II	A.M, G.M, H.M, S.D, M.D., covariance, Pearson's correlation coefficient in terms of expectation.	Lecture, Peer teaching	
Week III	MGF, Moments from mgf	Lecture	
Week IV	characteristic function and simple properties.	Lecture, Seminars by students	
Week V	<b>Module 2: Standard Probability Distributions</b> Uniform(discrete/continuous), Bernoulli, binomial,	Lecture	
Week VI Module	Poisson, geometric, hyper-geometric,	Lecture, peer teaching	



Week & Module/ Unit	Units/Topics to be covered [In the cells below, give a description / list of topics that would be covered in the stipulated week]	Method of Teaching-Learning [that would be applied]	Remarks
Week VII Module	Exponential	Lecture	
Week VIII Module	gamma- one and two parameter(s)	Lecture	
Week IX Module	beta(type I and type II),-	Lecture, peer teaching	
Week X Module	Normal distribution with all properties.,	Lecture	
Week XI Module	<b>Module 3: Law of Large Numbers and Central Limit Theorem</b> Chebychev's inequality	Lecture, Seminars by students	
Week XII	Bernoulli's LLN	Lecture	
Week XIII	Weak Law of Large Numbers	Lecture	
Week XIV	Central Limit Theorem(Lindberg-Levy form with proof)	Lecture	
Week XV	<b>Module 4 - Sampling Distributions</b> Concept of sampling from a probability distribution i.i.d. observations. Concept of sampling distributions, Statistic(s) and standard error(s).	Lecture	

Week & Module/ Unit	Units/Topics to be covered [In the cells below, give a description / list of topics that would be covered in the stipulated week]	Method of Teaching-Learning [that would be applied]	Remarks
Week XVI	Mean and variance of sample mean when sampling is from a finite population.	Lecture, peer teaching	
Week XVII	Sampling distribution of mean and variance from normal distribution.	Lecture, Assignment	
Week XVIII	Chi-square distribution	Lecture, Assignment	
Week XIX	T distribution	Lecture, Peer teaching	
Week XX	F distribution	Lecture	

Date: 01/06/2020

Name and Signature of the Faculty Member: Dr. Lishamol Tomy

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**Deva Matha College Kuravilangad**  
**Department of Statistics**  
 Teaching Plan for B. Sc. Mathematics  
**Complementary Course – Statistical Inference**

Course code: **ST4CMT04**  
 Total Instructional Hours: Theory-90 hours  
 Weekly Hours Allotted: Theory -5 hours

Name of Faculty: Dr. Lishamol Tomy

Academic Year: 2020-21

Week & Module/ Unit	Units/Topics to be covered [In the cells below, give a description / list of topics that would be covered in the stipulated week]	Method of Teaching-Learning [that would be applied]	Remarks
Week I	<b>Module 1: Point Estimation</b> Concepts of Estimation	Lecture	
Week II	Estimators and Estimates.	Lecture, Peer teaching	
Week III	Properties of good estimators- unbiasedness,	Lecture	
Week IV	efficiency, consistency and	Lecture, Seminars by students	
Week V	sufficiency. factorization theorem(statement)	Lecture	
Week VI Module	Interval estimation	<i>Lecture, peer teaching</i>	
Week VII Module	<b>Module 2: Methods of Estimation, Interval Estimation</b> Methods of moments,	<i>Lecture</i>	



Week & Module/ Unit	Units/Topics to be covered [In the cells below, give a description / list of topics that would be covered in the stipulated week]	Method of Teaching-Learning [that would be applied]	Remarks
Week VIII Module	maximum likelihood. Invariance property of ML Estimators (without proof).	Lecture	
Week IX Module	minimum variance. Cramer-Rao inequality(statement only)	Lecture, peer teaching	
Week X Module	100(1- $\alpha$ )% confidence intervals for mean, variance and proportions	Lecture	
Week XI Module	<b>Module 3: Testing of Hypotheses, Large Sample Tests</b> Statistical hypotheses, null and alternate hypotheses,	Lecture, Seminars by students	
Week XII	simple and composite hypotheses, type-I and type-II errors. Critical Region. Size and power of a test, p-value,	Lecture	
Week XIII	Neyman-Pearson approach.	Lecture	
Week XIV	Large sample tests - z-tests for means, difference of means	Lecture	
Week XV	z-tests for proportion and difference of proportion,	Lecture	
Week XVI	chi-square tests for independence, homogeneity.	Lecture, peer teaching	
Week XVII	<b>Module 4: Small Sample Tests</b> tests for mean, difference of means	Lecture, Assignment	



Week & Module/ Unit	Units/Topics to be covered [In the cells below, give a description / list of topics that would be covered in the stipulated week]	Method of Teaching-Learning [that would be applied]	Remarks
Week XVIII	Tests for proportion	<i>Lecture, Assignment</i>	
Week XIX	paired t-test	<i>Lecture, Peer teaching</i>	
Week XX	chi-square test, F-test for ratio of variances.	<i>Lecture</i>	

Date: 01/06/2020

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**Deva Matha College Kuravilangad**  
**Department of Statistics**  
 Teaching Plan for B. A. Economics  
**Core Course 7 – Quantitative Techniques**

Course code: **EC5CRT07**  
 Total Instructional Hours: Theory- 108 hours  
 Weekly Hours Allotted: Theory -6 hours

Name of Faculty: Dr. Lishamol Tomy

Academic Year: 2020-21

Week & Module/ Unit	Units/Topics to be covered [In the cells below, give a description / list of topics that would be covered in the stipulated week]	Method of Teaching-Learning [that would be applied]	Remarks
Week I	<b>Module 1 Basic Mathematics for Economic Analysis</b> – Basic concepts: variables, constants, parameters, equations, exponents and logarithms	Lecture	
Week II	sequences and progressions - arithmetic and geometric. Applications of progressions in economics	Lecture, Peer teaching	
Week III	problems relating to simple interest, compound interest, depreciation of assets and Net Present value.	Lecture	
Week IV	The real number system: properties of real numbers and types of numbers –limitations.	Lecture, Seminars by students	
Week V	The real number system: properties of real numbers and types of numbers –limitations.	Lecture	
Week VI Module	<b>Module 2 Calculus-</b> Limits & Continuity, Derivatives: Meaning and significance	Lecture, peer teaching	
Week VII Module	- Rules of differentiation – First order and second order derivatives –	Lecture	



Week & Module/ Unit	Units/Topics to be covered [In the cells below, give a description / list of topics that would be covered in the stipulated week]	Method of Teaching-Learning [that would be applied]	Remarks
Week VIII Module	Maxima and Minima of functions. Applications in economics	Lecture	
Week IX Module	<b>Module 3:</b> Set theory - types of sets - set operations – Venn diagrams.	Lecture, peer teaching	
Week X Module	Relations and functions: ordered pairs and Cartesian product. Functions: Types - Important economic functions.	Lecture	
Week XI Module	Linear and Quadratic-Solution to system of equations up to three unknowns-	Lecture, Seminars by students	
Week XII	Matrices-Types, Matrix manipulations and their rules, Order of Matrix,	Lecture	
Week XIII	Transpose of Matrix-Determinants up to order 3x3- Properties and Value of determinant,	Lecture	
Week XIV	Minor and Cofactor, Inverse and Cramer's Rule.	Lecture	
Week XV	<b>Module 4: Theory of Probability</b> - Scope of probability in Economics- the case of uncertainty - Concepts –	Lecture	
Week XVI	Rules of probability (addition and multiplication theorem – statement only)	Lecture, peer teaching	
Week XVII	Different approaches – Important terms related to probability	Lecture, Assignment	





Week & Module/ Unit	Units/Topics to be covered [In the cells below, give a description / list of topics that would be covered in the stipulated week]	Method of Teaching-Learning [that would be applied]	Remarks
Week XVIII	(Random experiments, sample space, events) – Simple economic problems based on probability theorems –	<i>Lecture, Assignment</i>	
Week XIX	Probability distributions – binomial– estimation of probabilities using binomial theorem	<i>Lecture, Peer teaching</i>	
Week XX	Probability distributions –normal – standard normal table - their properties and uses and applications in Economics.	<i>Lecture</i>	

Date: 01/06/2020

Name and Signature of the Faculty Member: Dr. Lishamol Tomy

Counter Signature of the Head of the Department with Remarks if any:

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**Deva Matha College Kuravilangad**  
**Department of Statistics**  
 Teaching Plan for B. A. Economics  
**Core Course 11 – Quantitative Methods**

Course code: **EC6CRT11**  
 Total Instructional Hours: Theory- 108 hours  
 Weekly Hours Allotted: Theory -6 hours

Name of Faculty: Dr. Lishamol Tomy

Academic Year: 2020-21

Week & Module/ Unit	Units/Topics to be covered [In the cells below, give a description / list of topics that would be covered in the stipulated week]	Method of Teaching-Learning [that would be applied]	Remarks
Week I	<b>Module 1</b> Role of Statistics in Economics – Functions–limitations.	Lecture	
Week II	Methods of primary data collection, census and sampling methods -	Lecture, Peer teaching	
Week III	Preparation of schedules and questionnaires, sample designs – random sampling and non-random sampling (SRS, systematic, stratified, cluster and multistage sampling).	Lecture	
Week IV	Classification and Tabulation of Statistical data: Characteristics and types of classification types of tables-difference between classification and tabulation.	Lecture, Seminars by students	
Week V	Presentation of data using charts and diagrams. (Histogram, Polygon, frequency curve, Bar chart, Pie diagram, Ogives)	Lecture	
Week VI Module	<b>Module 2</b> Central tendency: Various Measures - Properties, merits & demerits of Arithmetic mean, median,	<i>Lecture, peer teaching</i>	
Week VII Module	mode, geometric mean and harmonic mean – applications in economics.	<i>Lecture</i>	



Week & Module/ Unit	Units/Topics to be covered [In the cells below, give a description / list of topics that would be covered in the stipulated week]	Method of Teaching-Learning [that would be applied]	Remarks
Week VIII Module	Dispersion: Various Measures, absolute and relative measures – Range, quartile deviation,	Lecture	
Week IX Module	mean deviation, standard deviation – Lorenz curve and its economic applications.	Lecture, peer teaching	
Week X Module	<b>Module 3:</b> Correlation- significance and types– measurement: scatter diagram,	Lecture	
Week XI Module	Karl Pearson's correlation coefficient, (for ungrouped data only) and Rank correlation.	Lecture, Seminars by students	
Week XII	Cause and effect relationships: Regression- meaning and significance-regression equations/regression lines-the line of best fit –	Lecture	
Week XIII	prediction based on regression equations. Relation between correlation and regression.	Lecture	
Week XIV	<b>Module 4</b> Index Numbers – Different types – Importance and limitations, Problems in construction – Weighted and Unweighted price index numbers –	Lecture	
Week XV	Different methods of constructing price indices– Simple aggregative, simple average of price relatives, Weighted aggregative: Laspeyre's, Paasche's,	Lecture	
Week XVI	Fisher's and Marshall Edgeworth's indices, weighted average of price relatives methods.	Lecture, peer teaching	

Week & Module/ Unit	Units/Topics to be covered [In the cells below, give a description / list of topics that would be covered in the stipulated week]	Method of Teaching-Learning [that would be applied]	Remarks
Week XVII	Cost of living index numbers: significance, uses and methods of construction – aggregate expenditure method and family budget methods-WPI. Tests of index numbers	<i>Lecture, Assignment</i>	
Week XVIII	Time series: meaning, definition, uses, components – additive and multiplicative models,	<i>Lecture, Assignment</i>	
Week XIX	measurement of trend- free hand method, semi average,	<i>Lecture, Peer teaching</i>	
Week XX	moving average and least square methods.	<i>Lecture</i>	

Date: 01/06/2020

Name and Signature of the Faculty Member: Dr. Lishamol Tomy

Counter Signature of the Head of the Department with Remarks if any:

Dr. Lishamol Tomy



DEVA MATHA COLLEGE  
KURAVILANGAD



Justin Jose Teaching Plan

Class IDC Core

GENERAL PERSPECTIVES IN SCIENCE

Course & PROTISTAN DIVERSITY

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Course

Code ZY1CRT01

Module	Topic	Week	Teaching Plan
Module 4	Five Kingdom Classification		<a href="#">Introductory class. Merits and demerits of 5 kingdom classification</a>
	Salient features of Protista	1	Lecture ppt
	1. Phylum Rhizopoda	2	Lecture ppt
	Quiz Assigned	2	mcq quiz with videos and images on protista
	2. Phylum Actinopoda	2	Lecture ppt
	3. Phylum Dinoflagellata	3	Lecture ppt, videos and discussion
	4. Phylum Parabasalia : Eg. Trychonympha	4	Lecture ppt
	5. Phylum Metamonada : Eg. Giardia	5	Lecture ppt



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Module	Topic	Week	Teaching Plan
	6. Phylum Kinetoplasta : Eg. Trypanosoma		5 lecture ppt class discussion on parasitic biology
	7. Phylum Euglenophyta : Eg. Euglena		6 Lecture ppt
	8. Phylum Cryptophyta : Eg. Cryptomonas		6 Lecture ppt
	9. Phylum Opalinata : Eg. Opalina		7 Lecture ppt
	10. Phylum Bacillariophyta :Eg. Diatoms		7 Lecture ppt
	11. Phylum Chlorophyta :Eg. Volvox		8 Lecture ppt
	12. Phylum Choanoflagellata :Eg. Proterospongia		8 Lecture ppt
	13. Phylum Ciliophora : Eg. Balantidium coli		Salient features Presentation and PPT 9 Assignment on Balantidium coli



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Module	Topic	Week	Teaching Plan
	14. Phylum Sporozoa : Eg. Plasmodium	9	Lecture ppt
	15. Phylum Microsporidia :Eg. Nosema	10	Lecture ppt
	16. Phylum Rhodophyta :Eg. Red Alga	10	Lecture ppt
	Parasitic protists (diseases mode of transmission and prophylactic measures) -		
	Sporozoa plasmodium and its life cycle	11	animated video to understand the biology of parasite
	Entamoeba	12	(Diseases mode of transmission and prophylactic measures) - ref CDC website and Assignment
	Trypanosoma	13	(Diseases mode of transmission and prophylactic measures) - ref CDC website and Assignment



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Module	Topic	Week	Teaching Plan
Module 1	Module I Introduction to Scientific Studies		
	Types of knowledge: practical, theoret	14	Lecture ppt with examples
	What is science, Features of science,	15	Lecture ppt with examples
	inductive and deductive reasoning	16	Class discussion
	Scientific temper, empiricism	17	Lecture, Assignment and class discussion ref - <a href="https://en.wikipedia.org/wiki/Empiricism">https://en.wikipedia.org/wiki/Empiricism</a>





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Module	Topic	Week	Methods of Teaching-Learning
Module 1	Introduction: Five kingdom classification		<a href="#">Students assignment on the topic followed by class discussion and Introduction to protista ppt</a>
Hrs 10	Phylum Rhizopoda (eg: Amoeba)	1	Lecture Live class with PPT
	Phylum Actinopoda (eg: Actinophrys)	2	Lecture with video
	Phylum Dinoflagellata (eg: Noctiluca)	2	Lecture Live class with PPT video explanation on Bioluminescence
	Phylum Parabasalia (eg: Trychonympha)	3	Lecture, Live class with PPT
	Phylum Metamonada (eg: Giardia)	3	Lecture, Live class with PPT - Emphasis Morphology and Pathology
	Phylum Kinetoplasta (eg: Trypanosoma)	3	Lecture, Live class with PPT , online assignment
	Phylum Euglenophyta (eg: Euglena)	4	Lecture, Live class with PPT , online assignment



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Module	Topic	Week	Methods of Teaching-Learning
	Phylum Cryptophyta (eg: Cryptomonas)		4 Lecture, Live class with PPT , online assignment
	Phylum Opalinata (eg: Opalina)		5 Assignment on Opalinata
	Phylum Bacillariophyta (eg: Diatoms)		5 Lecture, Live class with PPT
	Phylum Chlorophyta (eg: Volvox)		Lecture, PPT assignment by students and Peer 6 Teaching
	Phylum Choanoflagellata (eg: Proterospongia)		6 Lecture, Live class with PPT
	Phylum Ciliophora (eg: Paramecium)		Lecture, PPT assignment by students and Peer 7 Teaching
	Phylum Sporozoa (eg: Plasmodium)		7 Lecture, Live class with PPT
	Phylum Microsporidia (eg: Nosema)		8 Lecture, PPT assignment



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Module	Topic	Week	Methods of Teaching-Learning
	<i>Phylum Rhodophyta (eg: Red algae)</i>	8	Lecture, Class discussion, Assignment
	General Topic: Pathogenic Protists Plasmodium, Entamoeba	9	Quiz on Entamoeba, Assignment on Lifecycle of Plasmodium
	Additional material		<a href="https://www.youtube.com/watch?v=MS9P1DNAsUc">https://www.youtube.com/watch?v=MS9P1DNAsUc</a>
Module II	Phylum Porifera: Salient features (eg: Leucosolenia)	10	Materials provided , Assignment on salient features followed by class discussion
Hrs 3	Phylum Coelenterata: Salient features and classification upto class.	10	General Characters of Coelentrata video <a href="https://www.youtube.com/watch?v=1WBZGe2_OzM">https://www.youtube.com/watch?v=1WBZGe2_OzM</a>
	Class 1: Hydrozoa (eg: Physalia)	11	discussion on salient features of Hydrazoa
	Class 2: Schyphozoa (eg: Aurelia)	11	discussion on salient features oof Schyphozoa
	Class 3: Anthozoa (eg: Adamsia)	11	discussion on salient features of Anthazoa



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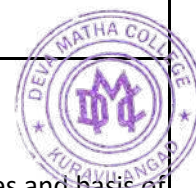
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Module	Topic	Week	Methods of Teaching-Learning
	General Topic: Corals and Coral reefs.	12	video <a href="https://www.youtube.com/watch?v=pRD8ZwdPYsY">https://www.youtube.com/watch?v=pRD8ZwdPYsY</a> followed by discussion on formation of different coral reefs and types
Module III	Phylum Platyhelminthes: Salient features	13	PPT presentation and discussion
hrs 6	Class 1: Turbellaria (eg: Planaria)	13	video on planaria additional material on Regeneration of Planaria <a href="https://youtu.be/hTC1eNTBXvE">https://youtu.be/hTC1eNTBXvE</a> Importance of Planaria in scientific study of regeneration <a href="https://youtu.be/THA_EsSe4XI">https://youtu.be/THA_EsSe4XI</a>
	Class 2: Trematoda (eg: Fasciola)	14	Trematoda Salient features , video on Fasciola <a href="https://youtu.be/n7xVlcZPLtQ">https://youtu.be/n7xVlcZPLtQ</a> to better understand Liver fluke infection
	Class 3: Cestoda (eg: Taenia solium)	14	Salient features PPT and video <a href="https://youtu.be/Oyv4qAjFclc">https://youtu.be/Oyv4qAjFclc</a> about Taenia solium
	Phylum Nematoda: Salient features and basis of classification	15	Ppt on salient features of Nematodes and basis of classification



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Code ZY1CRT01

Module	Topic	Week	Methods of Teaching-Learning
	Class 1: Phasmida (eg: Wuchereria)	15	Recorded video <a href="https://youtu.be/JQviqcac9kk">https://youtu.be/JQviqcac9kk</a> followed by quiz
	Class 2: Aphasmda (eg: Trichinella)	16	<a href="https://www.youtube.com/watch?v=3C2pDkRRWEk">https://www.youtube.com/watch?v=3C2pDkRRWEk</a> Recorded video followed by quiz
			Interactive video on trichnella <a href="https://edpuzzle.com/assignments/604e6c0fbd7eea422c05709a/watch">https://edpuzzle.com/assignments/604e6c0fbd7eea422c05709a/watch</a>
	Phylum Annelida: Salient features and	16	Lecture and Assignment
	Class 1: Polychaeta (eg: Nereis)	16	Lecture and Assignment
	Class 2: Oligochaeta (eg: Pheretima)	17	Lecture and Assignment
	Class 3: Hirudinomorpha (eg: Hirudina)	17	Lecture ppt



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GENERAL PERSPECTIVES IN SCIENCE

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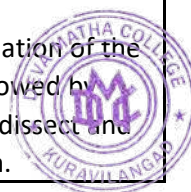
Semester

I

Course

Code ZY1CRT01

Module	Topic	Week	Methods of Teaching-Learning
	Practicals		
Practical 36 Hrs	1. Scientific drawing - 5 specimens	44198	Scientific drawing methods, scaling, rules
2 hr each week	2. Simple identification - 10 invertebra	3, 4, 5,	museum specimen display and study of morphological/ecological adaptations of the specimens, recording the observations in practical record , Students to be shown videos of specimens inorder to help them understand the habit, habitat and adaptations of various species
	3. T.S - Earthworm, T.S Fasciola	7	TS of Earthworm and fasciola to be displayed in a microscope. Students expected to understand the internal anatomy of the organism and made to sketch the section in the record ; outcome understanding how the anatomical features
	4. Dissection - Nervous system of Praw	8,9,10	demonstration of dissection , Explanation of the anatomy and parts and labelling followed by hands on experience by students to dissect and display the nervous system of prawn
	5. Dissection - Nervous system of Cock	11,12,1	demonstration of dissection , Explanation of the anatomy and parts and labelling followed by hands on experience by students to dissect and display the nervous system of prawn
	6. Mounting - Prawn Appendages	14,15,1	demonstration of dissection , Explanation of the anatomy and parts and labelling followed by hands on experience by students to dissect and display the nervous system of prawn.



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Justin Jose Teaching Plan

Class IDC Core

Course Animal Diversity-Non Chordata

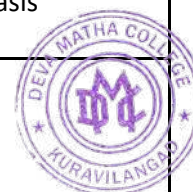
Semester

II

Course

Code ZY2CRT02

Module	Topic	Week	Methods of Teaching-Learning
	MODULE I Kingdom Animalia 7 Hrs		
	Outline classification of Kingdom Animalia	1	Students assignment on the topic followed by class discussion and Introduction to protista ppt
	Three branches - Mesozoa, parazoa and Eumetazoa	2	Lecture Live class with PPT
	Mesozoa: Phylum Orthonectida - eg. Rhopalura (mention 5 salient features)	3	Lecture with video
	Parazoa:		Lecture Live class with PPT
	1. Phylum Placozoa Eg. Trycoplax adherens	4	Lecture, Live class with PPT
	2. Phylum Porifera Classification upto classes; Mention gemmules	4	Lecture, Live class with PPT - Emphasis Morphology and Pathology
	Class I- Calcarea. Eg.Sycon., Class II Hexactinellida .Eg.Euplectella.	5	Lecture, Live class with PPT , online assignment



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Justin Jose Teaching Plan

Class IDC Core

Course Animal Diversity-Non Chordata

Semester

II

Course

Code ZY2CRT02

Module	Topic	Week	Methods of Teaching-Learning
	Class III - Demospongia Eg. Cliona.		5 Lecture, Live class with PPT , online assignment
	General Topics		Lecture, Live class with PPT , online assignment
	1. Canal system in sponges.		6 Assignment on Canal system
	Phylum Coelenterata -Classification upto classes		7 Lecture, Live class with PPT
	Class I - Hydrozoa Eg. Eg. Obelia - mention Metagenesis		Lecture, PPT assignment by students and Peer Teaching
	Class II- Scyphozoa Eg. Rhizostoma.		8 Lecture, Live class with PPT
	Class III- Anthozoa Eg. Metridium. General Topics:		Lecture, PPT assignment by students and Peer Teaching
	1. Coral and coral reefs with special reference to conservation of reef fauna.		9 Lecture, Live class with PPT





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Code ZY2CRT02

Module	Topic	Week	Methods of Teaching-Learning
	2. Polymorphism in Coelenterates	9	Lecture, PPT assignment
	Phylum Ctenophora - Eg. Pleurobrachia.	10	Lecture, Class discussion, Assignment
	MODULE II . Phylum Platyhelminthes Salient features; classification up to classes 3 Hrs	11	Lecture Live class with PPT
	Class I - Turbellaria. Eg. Planaria.	11	Lecture with video
	Class II Trematoda Eg. Fasciola	12	Lecture Live class with PPT video explanation on Bioluminescence
	Class III- Cestoda Eg. Taenia saginata.	13	Lecture, Live class with PPT
	General Topics:		



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Module	Topic	Week	Methods of Teaching-Learning
	1. Life history of Fasciola hepatica.	14	Lecture, Live class with PPT , online assignment
	2. Platyhelminth parasites of Man and	15	Lecture, Live class with PPT , online assignment
	Phylum Nematelminthes(Nematoda)	16	Assignment and Study material <a href="https://openstax.org/books/biology-2e/pages/28-6-superphylum-ecdysozoa-arthropods">https://openstax.org/books/biology-2e/pages/28-6-superphylum-ecdysozoa-arthropods</a>
	Salient features, classification up to classes		
	Class: Phasmidia Eg. Enterobius,	17	Lecture, Live class with PPT , online assignment
	Class: Aphasmidia Eg. Trichinella	17	Lecture, Live class with PPT , online assignment



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Code ZY2CRT02

Module	Topic	Week	Methods of Teaching-Learning
	General Topic		
	Pathogenic nematodes in man. (Wuchereria)	18	<a href="https://classroom.google.com/u/0/w/MzUzNDgyMDg4MjZa/t/all">https://classroom.google.com/u/0/w/MzUzNDgyMDg4MjZa/t/all</a>
	Phylum Annelida: 2 Hrs Salient features	19	Lecture, Live class with PPT , online assignment
	Class I- Archannelida Eg. Polygordius	19	Lecture, Live class with PPT , online assignment
	Class II -Polychaeta Eg. Chaetopterus	20	Lecture, Live class with PPT , online assignment
	ClassIII- Oligochaeta Eg. Megascolex.	20	Lecture, Live class with PPT , online assignment
	Class IV- Hirudinea Eg. Ozobranchus, Hirudinaria	20	Lecture, Live class with PPT , online assignment



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Semester

II

Course

Code ZY2CMTO2.

Module	Topic	Week	Methods of Teaching-Learning
Module 1			
4 Hrs	Phylum Chordata: Fundamental characters and outline classification upto class.	1	<a href="#">Lecture, Live class with PPT, online assignment</a>
	Sub phylum Urochordata: General characters, classification	2	Lecture, Live class with PPT, online assignment additional material <a href="https://www.youtube.com/watch?v=Mlj6nMhrYt0">https://www.youtube.com/watch?v=Mlj6nMhrYt0</a>
	Class 1: Larvacea (eg: Oikopleura)	2	Lecture, Live class with PPT, online assignment
	Class 2: Ascidiacea (eg: Ascidia), Retrogressive metamorphosis.	3	Lecture, Live class with PPT, online assignment
	Class 3: Thaliacea (eg: Salpa)	3	Lecture, Live class with PPT, online assignment
	Sub phylum Cephalochordata: Salient features (eg: Branchiostoma)	4	Lecture, Live class with PPT, online assignment additional material <a href="https://www.youtube.com/watch?v=dEq5QxaurU">https://www.youtube.com/watch?v=dEq5QxaurU</a>



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Course

Code ZY2CMTO2.

Module	Topic	Week	Methods of Teaching-Learning
Module 2	Module II 6 Hrs		
6 Hrs	Sub phylum Vertebrata: Salient features		
	Division Agnatha : salient features and classification	5	Lecture, Live class with PPT , online assignment additional material <a href="https://animaldiversity.org/accounts/Petromyzon_marinus">https://animaldiversity.org/accounts/Petromyzon_marinus</a>
	Class 1: Cyclostoma (eg: Petromyzon)	6	Lecture, Live class with PPT , online assignment additional material <a href="https://www.youtube.com/watch?v=3K0ZrWWpqio">https://www.youtube.com/watch?v=3K0ZrWWpqio</a>
	Class 2: Class Ostracodermi (eg: Cephalopsis)	6	Lecture, Live class with PPT , online assignment additional material <a href="https://drive.google.com/open?id=1RoFMfytjAOfgaDdZ5uc9LLIWYnZpiY_Z&amp;authuser=0">https://drive.google.com/open?id=1RoFMfytjAOfgaDdZ5uc9LLIWYnZpiY_Z&amp;authuser=0</a>
	Division Gnathostomata: Salient features	7	Lecture, Live class with PPT , online assignment
	Super class Pisces	7	Lecture, Live class with PPT , online assignment
	Super class Tetrapoda.	7	Lecture, Live class with PPT , online assignment



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Course Chordate Diversity

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II

Course

Code ZY2CMTO2.

Module	Topic	Week	Methods of Teaching-Learning
	Super class Pisces: Salient features and classification	8	Lecture, Live class with PPT , online assignment
	<i>Class 1: Chondrichthyes (eg: Narcine)</i>	8	Lecture, Live class with PPT , online assignment
	Class 2:Osteichthyes (eg: Latimeria)	9	Lecture, Live class with PPT , online assignment
	General Topic: Accessory respiratory organs in fishes.	10	Lecture, Live class with PPT , online assignment additional materials <a href="https://www.youtube.com/watch?v=NdpDNx2p67E">https://www.youtube.com/watch?v=NdpDNx2p67E</a> <a href="https://www.youtube.com/watch?v=E1h4kgt2520">https://www.youtube.com/watch?v=E1h4kgt2520</a>
			<a href="https://www.youtube.com/watch?v=DzuSx4b2RAM">https://www.youtube.com/watch?v=DzuSx4b2RAM</a>
Module 4	Module IV		
3 hrs	Class Reptilia: Salient features and classification up to subclass	11	Lecture, Live class with PPT , online assignment
	Sub class 1: Anapsida (eg: Chelone)	12	Lecture, Live class with PPT , assignment



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Course

Code ZY2CMTO2.

Module	Topic	Week	Methods of Teaching-Learning
	Sub class 2: Diapsida (eg: Chamaeleon)	12	Lecture, Live class with PPT , assignment
	Sub class 3: Parapsida (eg: Ichthyosaurus)	13	Lecture, Live class with PPT , assignment
	General Topics: Poisonous and non poisonous	14	Lecture, Live class with PPT , <a href="https://drive.google.com/open?id=1kBrh8Hs5D480sqVfwirbd5CZrz6vMnE9&amp;authuser=0">https://drive.google.com/open?id=1kBrh8Hs5D480sqVfwirbd5CZrz6vMnE9&amp;authuser=0</a>
			<a href="https://www.youtube.com/watch?v=RUG2fK1-ATg">https://www.youtube.com/watch?v=RUG2fK1-ATg</a>
			<a href="https://www.youtube.com/watch?v=PjXx8bdrw0A">https://www.youtube.com/watch?v=PjXx8bdrw0A</a>
Module 6	Module V 6 Hrs		
6hrs	Class Mammalia: Salient features and classification	15	Lecture, Live class with PPT , online assignment



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II

Course

Code ZY2CMTO2.

Module	Topic	Week	Methods of Teaching-Learning
	Sub class 1: Protheria (eg: Echidna)	16	Lecture, Live class with PPT
	Sub class 2: Metatheria (eg: Macropus)	17	Lecture, Live class with PPT
	Sub class 3: Eutheria (eg: Elephas)	18	Lecture, Live class with PPT
	General Topic: General adaptation of	19	Lecture, Live class with PPT , Online assignment
Module 6	Module V 6 Hrs		
6hrs	Class Mammalia: Salient features and c	11	Lecture, Live class with PPT , online assignment
	Sub class 1: Protheria (eg: Echidna)	12	Lecture, Live class with PPT , assignment
	Sub class 2: Metatheria (eg: Macropus)	12	Lecture, Live class with PPT , assignment





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Course

Code ZY2CMTO2.

Module	Topic	Week	Methods of Teaching-Learning
	Sub class 3: Eutheria (eg: Elephas)	13	Lecture, Live class with PPT , assignment
	General Topic: General adaptation of	14	Lecture, Live class with PPT , online assignment
	Practical		
36 hrs	1. Simple identification of 10 chordates	1,2,3	Practical
	2. Osteology - Vertebrae and girdles of	4,5	Practical
	3. Snake identification - 3 poisonous and	6,7	Practical
	4. Mounting of placoid scales of shark	7,8,9	Practical



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II

Course

Code ZY2CMTO2.

Module	Topic	Week	Methods of Teaching-Learning
	5. Dissections: Frog: Photographs/Diagrams/ models may be used for the study.		
	1. Frog - Viscera	10,11	Practical display and drawing
	2. Frog - Digestive System	12	Practical display and drawing
	3. Frog - Arterial System	13	Practical display and drawing
	4. Frog - Brain	14	Practical display and drawing



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III

Course

Code ZY2CRT02

Module	Topic	Week	Methods of Teaching-Learning
Module 1			
4 Hrs	Phylum Chordata: Fundamental characters and outline classification upto class.	1	<a href="#">Lecture, Live class with PPT, online assignment</a>
	Sub phylum Urochordata: General characters, classification	2	Lecture, Live class with PPT, online assignment additional material <a href="https://www.youtube.com/watch?v=Mlj6nMhrYt0">https://www.youtube.com/watch?v=Mlj6nMhrYt0</a>
	Class 1: Larvacea (eg: Oikopleura)	2	Lecture, Live class with PPT, online assignment
	Class 2: Ascidiacea (eg: Ascidia), Retrogressive metamorphosis.	3	Lecture, Live class with PPT, online assignment
	Class 3: Thaliacea (eg: Salpa)	3	Lecture, Live class with PPT, online assignment
	Sub phylum Cephalochordata: Salient features (eg: Branchiostoma)	4	Lecture, Live class with PPT, online assignment additional material <a href="https://www.youtube.com/watch?v=dEq5OXaulU">https://www.youtube.com/watch?v=dEq5OXaulU</a>



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Code ZY2CRT02

Module	Topic	Week	Methods of Teaching-Learning
Module 2	Module II 6 Hrs		
6 Hrs	Sub phylum Vertebrata: Salient features	5	Lecture, Live class with PPT , online assignment
	Division Agnatha : salient features and classification	5	Lecture, Live class with PPT , online assignment additional material <a href="https://animaldiversity.org/accounts/Petromyzon_marinus">https://animaldiversity.org/accounts/Petromyzon_marinus</a>
	Class 1: Cyclostoma (eg: Petromyzon)	6	Lecture, Live class with PPT , online assignment additional material <a href="https://www.youtube.com/watch?v=3K0ZrWWp6qio">https://www.youtube.com/watch?v=3K0ZrWWp6qio</a>
	Class 2: Class Ostracodermi (eg: Cephalopsis)	6	Lecture, Live class with PPT , online assignment additional material <a href="https://drive.google.com/open?id=1RoFMfytjAOfqaDdZ5uc9LLIWYnZpiY_Z&amp;authuser=0">https://drive.google.com/open?id=1RoFMfytjAOfqaDdZ5uc9LLIWYnZpiY_Z&amp;authuser=0</a>
	Division Gnathostomata: Salient features	7	Lecture, Live class with PPT , online assignment
	Super class Pisces	7	Lecture, Live class with PPT , online assignment
	Super class Tetrapoda.	7	Lecture, Live class with PPT , online assignment



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Course

Code ZY2CRT02

Module	Topic	Week	Methods of Teaching-Learning
	Super class Pisces: Salient features and classification	8	Lecture, Live class with PPT , online assignment
	<i>Class 1: Chondrichthyes (eg: Narcine)</i>	8	Lecture, Live class with PPT , online assignment
	Class 2: Osteichthyes (eg: Latimeria)	9	Lecture, Live class with PPT , online assignment
	General Topic: Accessory respiratory organs in fishes.	10	Lecture, Live class with PPT , online assignment additional materials <a href="https://www.youtube.com/watch?v=NdpDNx2p67E">https://www.youtube.com/watch?v=NdpDNx2p67E</a> <a href="https://www.youtube.com/watch?v=E1h4kgt252">https://www.youtube.com/watch?v=E1h4kgt252</a>
			<a href="https://www.youtube.com/watch?v=DzuSx4b2RAM">https://www.youtube.com/watch?v=DzuSx4b2RAM</a>
Module 4	Module IV		
3 hrs	Class Reptilia: Salient features and classification up to subclass	11	Lecture, Live class with PPT , online assignment
	Sub class 1: Anapsida (eg: Chelone)	12	Lecture, Live class with PPT , assignment



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Code ZY2CRT02

Module	Topic	Week	Methods of Teaching-Learning
	Sub class 2: Diapsida (eg: Chamaeleon)	12	Lecture, Live class with PPT , assignment
	Sub class 3: Parapsida (eg: Ichthyosaurus)	13	Lecture, Live class with PPT , assignment
	General Topics: Poisonous and non poisonous	14	Lecture, Live class with PPT , <a href="https://drive.google.com/open?id=1kBrh8Hs5D480sqVfwirbd5CZrz6vMnE9&amp;authuser=0">https://drive.google.com/open?id=1kBrh8Hs5D480sqVfwirbd5CZrz6vMnE9&amp;authuser=0</a>
			<a href="https://www.youtube.com/watch?v=RUG2fK1-ATg">https://www.youtube.com/watch?v=RUG2fK1-ATg</a>
			<a href="https://www.youtube.com/watch?v=PJXx8bdrw0A">https://www.youtube.com/watch?v=PJXx8bdrw0A</a>
Module 6	Module V 6 Hrs		
6hrs	Class Mammalia: Salient features and classification	15	Lecture, Live class with PPT , online assignment



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Course

Code ZY2CRT02

Module	Topic	Week	Methods of Teaching-Learning
	Sub class 1: Protheria (eg: Echidna)	16	Lecture, Live class with PPT , assignment
	Sub class 2: Metatheria (eg: Macropus)	17	Lecture, Live class with PPT , assignment
	Sub class 3: Eutheria (eg: Elephas)	18	Lecture, Live class with PPT , assignment
	General Topic: General adaptation of	19	Lecture, Live class with PPT , assignment
Module 6	Module V 6 Hrs		
6hrs	Class Mammalia: Salient features and c	11	Lecture, Live class with PPT , online assignment
	Sub class 1: Protheria (eg: Echidna)	12	Lecture, Live class with PPT , assignment



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Course

Code ZY2CRT02

Module	Topic	Week	Methods of Teaching-Learning
	Sub class 2: Metatheria (eg: Macropus)	12	Lecture, Live class with PPT , assignment
	Sub class 3: Eutheria (eg: Elephas)	13	Lecture, Live class with PPT , assignment
	General Topic: General adaptation of	14	Lecture, Live class with PPT , online assignment
	Practical		
36 hrs	1. Simple identification of 10 chordates	1,2,3	Practical
	2. Osteology - Vertebrae and girdles of	4,5	Practical
	3. Snake identification - 3 poisonous ar	6,7	Practical





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III

Course

Code ZY2CRT02

Module	Topic	Week	Methods of Teaching-Learning
	4. Mounting of placoid scales of shark	7,8,9	Practical
	5. Dissections: Frog: Photographs/Diagrams/ models may be used for the study.		
	1. Frog - Viscera	10,11	Practical display and drawing
	2. Frog - Digestive System	12	Practical display and drawing
	3. Frog - Arterial System	13	Practical display and drawing
	4. Frog - Brain	14	Practical display and drawing



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Class II DC Complementary

Course PHYSIOLOGY AND IMMUNOLOGY

Semester

III

Course

Code ZY3CMT03.

Module	Topic	Week	Methods of Teaching-Learning
Module 4	<i>Immunology</i>		
12 hrs	Introduction to immunology, types of immunity – innate, acquired, passive, active	1,2	<a href="#">PPT openstax online resource, class discussion and youtube video</a> <a href="https://www.youtube.com/watch?v=PzunOgYHegy">https://www.youtube.com/watch?v=PzunOgYHegy</a> , assignment on difference bw Innate and Adaptive Immunity
	mechanism of innate immunity (barriers, inflammation, phagocytosis).	3	PPT and class discussion
	Types of antigens.	4	Lecture using PPT
	Basic structure of immunoglobulins	5	Lecture and class interactive session video resource <a href="https://www.youtube.com/watch?v=Cvu1ApHkh">https://www.youtube.com/watch?v=Cvu1ApHkh</a> YM
	Classes of immunoglobulins and functions.	6,7	Assignment on functions of Immunoglobulin
	Antigen antibody reactions	8	Interactive live class on mechanism of Ag Ab reaction
	Precipitation test, agglutination test	9	PPT and class discussion



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Course PHYSIOLOGY AND IMMUNOLOGY

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III

Course

Code ZY3CMT03.

Module	Topic	Week	Methods of Teaching-Learning
	WIDAL	10	interactive puzzle (Edpuzzle) on WIDAL
	VDRL	11	PPT and class discussion
	HIV test (ELISA	12	interactive puzzle (Edpuzzle) on ELISA
Module 5	Immune response system:		
6 Hrs	Primary lymphoid organs	13	Lecture using PPT
	Secondary lymphoid organs	14	Lecture using PPT
	Cells of Immune system	15	Introductory Lecture using PPT
	T&B lymphocytes, natural killer cells, macrophages, plasma cells , memory cells	16	Lecture using PPT followed by class assignment



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Course PHYSIOLOGY AND IMMUNOLOGY

Semester

III

Course

Code ZY3CMT03.

Module	Topic	Week	Methods of Teaching-Learning
	Monoclonal antibodies, Hybridoma technology.	17	Lecture using PPT online resource <a href="https://www.youtube.com/watch?v=8iyrbv1JauY">https://www.youtube.com/watch?v=8iyrbv1JauY</a>
	<i>Immune disorders:</i>		
	Hypersensitivity,	18	Lecture using PPT
	Auto immunity (rheumatoid arthritis)	19	Lecture using PPT
	& Immunodeficiency (AIDS),	20	Lecture using PPT followed by class assignment
	Vaccines - BCG, DPT, Polio vaccine.	21	Lecture using PPT



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Justin Jose Teaching Plan

Class II DC Core

Research Methodology Biophysics

Course and Biostatistics

Semester

IV

Course

Code ZY4CRT04

Module	Topic	Week	Methods of Teaching-Learning
Module 2	<i>Animal Collection Tools &amp; techniques</i>		
12 Hrs	Collection of Animals - tools and Equipments, pre-requisites for animal collection, Basic norms for collecting organisms.	1	<a href="#">Lecture, Live class with PPT, Peer Teaching</a>
	Anesthetization, Killing, Fixation	2	Lecture, Live class with PPT, Peer Teaching
	Collection and Preservation of Insects- Equipments and Accessories, Methods of insect collection	3	Lecture, Live class with PPT, Peer Teaching
	collection of birds, food baits, baited box funnel traps etc	4	Lecture, Live class with PPT, Peer Teaching
	Collection of Fishes-fishing nets different types, fishing traps different types	5	Lecture, Live class with PPT, Peer Teaching
	Collection of planktons- tow net, Hansen net, Trawl net, Fixation and Preservation of Planktons	6	Lecture, Live class with PPT, Peer Teaching
	Killing of insects- Killing bottle, Preservation of Insects - temporary, permanent, dry, pinning, carding, triage carding or pointing, micropinning.	7	Lecture, Live class with PPT, Peer Teaching



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Class II DC Core

Research Methodology Biophysics

Course and Biostatistics

Semester

IV

Course

Code ZY4CRT04

Module	Topic	Week	Methods of Teaching-Learning
	Preservation of biological specimens - Taxidermy procedure	8	Lecture, Live class with PPT , Peer Teaching
	preservation of fish	9	Lecture, Live class with PPT , Peer Teaching
	Rearing of Lab animals - Factors to be considered, major aspects of animal rearing, Housing and environment, Breeding and genetics, Hygiene and Disease control	10	Lecture, Live class with PPT , Peer Teaching
	Sample & Sampling techniques: Collection of data, classification of data, frequency distribution tables, graphical representations, Bar diagrams	11	Lecture, Live class with PPT , Peer Teaching
	Setting or spreading , Liquid preservation, permanent mounting (maceration dehydration clearing mounting finishing)	12	Lecture, Live class with PPT , Peer Teaching
	Units of measurements- units, SI system, Equivalent weight, normality, molarity	13	Lecture, Live class with PPT , Peer Teaching
Module 5	BIOSTATISTICS		



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Research Methodology Biophysics

Course and Biostatistics

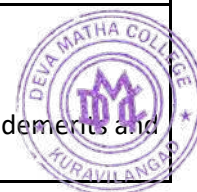
Semester

IV

Course

Code ZY4CRT04

Module	Topic	Week	Methods of Teaching-Learning
10 hrs	Sample & Sampling techniques. Collection of data, classification of data, frequency distribution tables, graphical representation: - Bar diagrams,	14	Live session, Demonstration, Assignment
	<i>Measures of Central Tendency:</i>		Video introduction <a href="https://www.youtube.com/watch?v=mk8tOD0t8M0">https://www.youtube.com/watch?v=mk8tOD0t8M0</a>
	Mean, Mode	15	(Problem solving Practice - Direct method only)
	Median	16	(Problem solving Practice - Direct method only)
	Measures of dispersion: .		
	Range, Quartile Deviation,	17	(Problem solving Practice)
	Mean Deviation,	18	(Problem solving Practice)
	Standard Deviation,	19	Problem solving Practice, (Merits & demerits and problems on SD)



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Research Methodology Biophysics

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r IV

Course

Code ZY4CRT04

Module	Topic	Week	Methods of Teaching-Learning
	Standard error.	20	(Problem solving Practice)
	Correlation	21	PPT on Types of correlation.( in brief) graphical representation
	Test of Hypothesis and Test of Significa	22	Chi square test problem solving and practice problems
	Procedure for testing hypothesis, type	23	Lecture and PPT, practice problems, T test and assignment





DEVA MATHA COLLEGE  
KURAVILANGAD



Justin Jose Teaching Plan  
Class II DC Complementary

Course Applied Zoology

Semester

IV

Course

Code ZY4CMT04

Module	Topic	Week	Methods of Teaching-Learning
Module 2	<i>Sericulture: Four species of silkworms, life history of silkworm</i>	1	
12 Hrs	Silk worm rearing techniques	2,3,4,5	<a href="#">PPT video resources on Environmental conditions for rearing, Chawki Rearing, Late age rearing, feeding techniques</a>
	Mounting of silkworm - Chandrika, defective cocoons,	6,7	Lecture and video resources on mounting methods
	harvesting and stifling of cocoons.	8	PPT on Harvesting and stifling methods
	Silkworm diseases and pest, preventive and control measures.	9,10,11	PPT and online resource from <a href="http://egyankosh.ac.in/bitstream/123456789/9088/1/Unit-1.pdf">http://egyankosh.ac.in/bitstream/123456789/9088/1/Unit-1.pdf</a>
Module 3	Vermicomposting	12	Introductory class discussion on advantages
6 hrs	Vermiculture: Species of earthworms	13	Lecture using PPT
	ecological classification of earthworms	14	Lecture using PPT
	life cycle and eproduction of earthworms	15	Lecture using PPT
	Physical & chemical effects of earthworms on soil	16	Lecture using PPT
	site selection, preparation of pit, maintenance,	17	Video resource



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KURAVILANGAD



Justin Jose Teaching Plan  
Class II DC Complementary

Course Applied Zoology

Semester

IV

Course

Code ZY4CMT04

Module	Topic	Week	Methods of Teaching-Learning
	monitoring and harvesting of vermicompost.	18	Lecture with PPT



# DEVA MATHA COLLEGE KURAVILANGAD



Justin Jose Teaching Plan

Class III DC Core

Human Physiology Biochemistry &

Course Endocrinology

Semester

V

Course

Code

Module	Topic	Week	Methods of Teaching-Learning
Module V	<b>Carbohydrates:</b> Basic structure, biological importance	1	Self Study and assignment
5 Hrs	Classification of monosaccharides, oligosaccharides, polysaccharides with examples.	1	<a href="#">PPT , Self study and assignment</a>
	Proteins: Basic structure and classification of amino acids; structure	2	PPT , Self study and assignment
	Proteins :biological importanceand classification of proteins with examples.	2	Lecture PPT , Self study and assignment
	Lipids: Structure of fatty acid, saturated and unsaturated fatty acid,	3	Lecture PPT , Self study and assignment
	biological importanceand classification of lipids with examples.	3	Lecture PPT , Self study and assignment
	Vitamins and minerals: Major fat soluble and water soluble vitamins.	4	Lecture PPT , Self study and assignment
	Important minerals and trace elements required for living organisms. Biological importance of vitamins and minerals.	4	Lecture PPT , Self study and assignment
	Enzymes: Chemical nature of enzymes, enzyme activation, enzyme inhibition, allosteric enzymes	5	Lecture PPT , Self study and assignment
	isoenzymes, co-enzymes. Michaelis Menten enzyme kinetics.	5	Lecture PPT , Self study and assignment
Module VI	Carbohydrate metabolism: Glycogenesis, Glycogenolysis, Gluconeogenesis, Hexose	6,7	Lecture PPT , Self study and assignment



# DEVA MATHA COLLEGE KURAVILANGAD



Justin Jose Teaching Plan

Class III DC Core

Human Physiology Biochemistry &

Course Endocrinology

Semester

V

Course

Code

Module	Topic	Week	Methods of Teaching-Learning
10 Hrs	monophosphate Shunt, Glycolysis, Citric Acid Cycle,	8,9	Lecture PPT ,Class discussion and assignment
	Electron Transport Chain and ATP synthesis. Ethanol metabolism.	10, 11	Animation Resource Virtual cell. ETC assignment
	Protein metabolism: Deamination, Transamination, Transmethylation, Decarboxylation,Ornithine cycle.	11,12	Lecture PPT ,Class discussion and assignment
	Lipid metabolism: Biosynthesis of fatty acids,	13,14	Video resource, Lecture PPT
	Beta oxidation, physiologically important compounds synthesized from cholesterol.	15, 16	Lecture PPT and Assignment



# DEVA MATHA COLLEGE KURAVILANGAD



Justin Jose Teaching Plan

Class III DC Core

Environmental Biology and Human

Course Rights

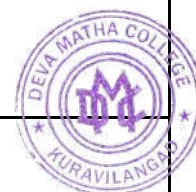
Semeste

r V

Course

Code

Module	Topic	Week	Methods of Teaching-Learning
Module 5	Unit 1 - Human Rights		
18 Hrs	An Introduction to Human Rights, Meaning, concept and development –History of Human Rights	1,2	<a href="#">Video Resource, Lecture</a>
	Rights-Different Generations of Human Rights-	3	Video Resource, Lecture
	International Human Rights Documents - UDHR ,ICCPR,ICESCR.-	4,5	Video Resource, Lecture, Interactive video Puzzle
	Unit 2 - Human Rights and United Nations	6	Video Resource, Lecture
	UN system- Role of UN secretariat- Economic and Social Council	7,8	Video Resource, Lecture, Interactive video Puzzle
	The Commission Human Rights-The Security Council and Human rights	8,9	Video Resource, Lecture
	The Committee on the Elimination of Racial Discrimination-	9	Video Resource, Lecture
	The Committee on the Elimination of Discrimination Against Women- the Committee on Economic, Social and Cultural Rights	10,11	Video Resource, Lecture
	The Human Rights Committee- Critical Appraisal of UN Human Rights Regime	12,13	Video Resource, Lecture
	Unit 3- Human Rights National Perspective		Video Resource, Lecture
	Human Rights in Indian Constitution – Fundamental Rights- The Constitutional Context of Human Rights	13,14	Video Resource, Lecture
	Human Rights-directive Principles of State Policy and Human Rights- Human Rights of	14,15	Video Resource, Lecture
	Women-children –minorities- Prisoners- Science Technology and Human Rights-	15,16	Video Resource, Lecture



# DEVA MATHA COLLEGE KURAVILANGAD



Justin Jose Teaching Plan

Class III DC Core

Environmental Biology and Human

Course Rights

Semester

V

Course

Code

Module	Topic	Week	Methods of Teaching-Learning
	National Human Rights Commission- State Human Rights Commission- Human Rights Awareness in Education.	17,18	Video Resource, Lecture



**DEVA MATHA COLLEGE  
KURAVILANGAD**



**Justin Jose Teaching Plan**

**Class III DC OPEN COURSE**

**OPEN COURSE : Public Health and**

**Course Nutrition**

**Semeste**

**r V**

**Course**

**Code ZY5OPT02**

Module	Topic	Week	Methods of Teaching-Learning
Module 6	<i>Public health and diseases</i>		
15 Hrs	Water borne diseases-	1	<a href="#">Lecture and class discussion</a>
	Cholera	2	Lecture using PPT online resources <a href="https://www.who.int/news-room/fact-sheets/detail/cholera">https://www.who.int/news-room/fact-sheets/detail/cholera</a>
	Typhoid.	3	to WHO online resource and CDC <a href="https://www.who.int/news-room/fact-sheets/detail/typhoid-fever">https://www.who.int/news-room/fact-sheets/detail/typhoid-fever</a>
	Prevention of Water borne diseases.	4	Lecture and class discussion followed by referring to WHO online resource and CDC
	Food borne diseases and Prevention	5	Lecture and class discussion
	Botulinum	6	to WHO online resource and CDC Online quiz on Botulism
	Salmenellosis	7	to WHO online resource and CDC Edpuzzle interactive material
	Hepatitis A	8	Lecture and class discussion followed by referring to WHO online resource and CDC Quiz on
	Vector borne diseases & Control measures	9	Lecture using PPT
	Chikungunya	10	Quiz on Chikungunya
	Filariasis	11	Lecture and class discussion
	Dengu fever	12	Lecture using PPT
	Zoonotic disease	13	Lecture and class discussion
	Leptospirosis & its control	14	Lecture and class discussion
	Emerging diseases -	15	Lecture using PPT
	<i>Swine flue (H1N1),</i>	16	Lecture and class discussion followed by referring to WHO online resource and CDC
	bird flue (H5N1),	17	Lecture and class discussion followed by referring to WHO online resource and CDC
	Anthrax	18	Lecture and class discussion followed by referring to WHO online resource and CDC
	SARS	19	Lecture and class discussion followed by referring to WHO online resource and CDC



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Justin Jose Teaching Plan

Class III DC OPEN COURSE

OPEN COURSE : Public Health and

Course Nutrition

Semeste

r V

Course

Code ZY5OPT02

Module	Topic	Week	Methods of Teaching-Learning
	Re-emerging diseases	20	Lecture and class discussion followed by referring to WHO online resource and CDC
	TB	21	Lecture and class discussion followed by referring to WHO online resource and CDC
	Malaria	22	Lecture and class discussion followed by referring to WHO online resource and CDC
		23	Video Project on Disease epidemiology, symptoms, prevention and cure





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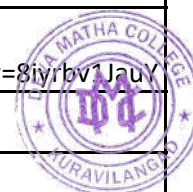
Class III DC Core

Course Microbiology and Immunology

III

Code ZY6CRT10.

Module	Topic	Week	Methods of Teaching-Learning
Module	<i>Immunology</i>		
9 hrs	Introduction to immunology, types of immunity – innate, acquired, passive, active	1,2	<a href="#">PPT openstax online resource, class discussion and youtube video</a> <a href="https://www.youtube.com/watch?v=PzunOgYHeg">https://www.youtube.com/watch?v=PzunOgYHeg</a> , <a href="#">assignment on difference bw Innate and Adaptive Immunity</a>
	mechanism of innate immunity (barriers, inflammation, phagocytosis).	3	PPT and class discussion
	Primary lymphoid organs	4	Lecture using PPT
	Secondary lymphoid organs	5	Lecture using PPT
	Cells of Immune system	6	Introductory Lecture using PPT
	cells, macrophages, plasma cells, memory cells	7,8,9	Lecture using PPT followed by class assignment
	Class Quiz on Module 4	9	Online Quiz
Module	Types of antigens.	10	Lecture using PPT
9 Hrs	Basic structure of immunoglobulins	11	Lecture and class interactive session video resource <a href="https://www.youtube.com/watch?v=Cvu1ApHkh">https://www.youtube.com/watch?v=Cvu1ApHkh</a>
	Classes of immunoglobulins and	12,13	Assignment on functions of Immunoglobulin
	Antigen antibody reactions	14	Interactive live class on mechanism of Ag Ab reaction
	Precipitation test, agglutination test	15	PPT and class discussion
	WIDAL	16	interactive puzzle (Edpuzzle) on WIDAL
	VDRL	17	PPT and class discussion
	HIV test (ELISA)	18	interactive puzzle (Edpuzzle) on ELISA
	Monoclonal antibodies, Polyclonal antibodies	19	Lecture using PPT online resource <a href="https://www.youtube.com/watch?v=8iyrbv1JauY">https://www.youtube.com/watch?v=8iyrbv1JauY</a>
	<i>Immune disorders:</i>		
	Hypersensitivity, Type 1 anaphylaxis	20	Lecture using PPT



# DEVA MATHA COLLEGE KURAVILANGAD



Justin Jose Teaching Plan

Class III DC Core

Course Microbiology and Immunology

Level III

Code ZY6CRT10.

Module	Topic	Week	Methods of Teaching-Learning
	Hypersensitivity, Type II Transfusion reaction	21	Lecture using PPT followed by class assignment
	Hypersensitivity, Type III Arthus reaction	22	Lecture using PPT followed by class assignment
	Hypersensitivity, Type IV Mantoux test	23	Lecture using PPT followed by class assignment
	Auto immunity (rheumatoid arthritis and Pernecious )	24	Lecture using PPT
	& Immunodeficiency (AIDS),	25	Lecture using PPT followed by class assignment
	Introduction Types of vaccines	26	Lecture using PPT
	Current Vaccines, Recent trends in vaccine preparation	27	Lecture using PPT



# DEVA MATHA COLLEGE KURAVILANGAD



Justin Jose Teaching Plan

Class III DC Elective

Elective: Nutrition Health and

Course Lifestyle Management

Semester

VI

Course

Code ZY6CBT04.

Module	Topic	Week	Methods of Teaching-Learning
Module			
10 Hrs	Causes of lifestyle diseases: Defects of modern food habits and unbalanced diet options	15	<a href="#">PPT and class discussion</a>
	food adulteration, environmental pollution,	16	Lecture using PPT
	poor life style choices, drug abuse, tobacco	17	Lecture using PPT
	smoking, alcohol and drug consumption,	18,19	Introductory Lecture using PPT
	lack of adequate exercise, wrong body posture,	20	Lecture using PPT followed by class assignment
	disturbed biological clock, stressful environmental conditions	21	Lecture using PPT followed by class assignment
	<b>Module V</b>		
14 Hrs	Prevention and control of life style diseases:	1,2	PPT and class discussion
	Healthy life style habits and practices, healthy eating habits, exercise and	3,4,5	Lecture using PPT
	a strict no to alcohol, drugs, and other illegal drugs.	6	Lecture using PPT
	Uncontrollable factors like age, gender, heredity and race.	7	Introductory Lecture using PPT
	Healthy diet: disease prevention through appropriate diet and nutrition, avoiding foods that are high in fats, salt and refined products. Avoid junk food and replace by natural food/organic food.	8,9	Lecture using PPT followed by class assignment
	Physical exercise: Moderate exercise for fitness of body,	10	PPT and class discussion
	walking, stretching, right postures of sitting & standing, relaxation and cutting down of stress,	11	Lecture using PPT
	sports, aerobic exercise and yoga.	12	Lecture using PPT



DEVA MATHA COLLEGE  
KURAVILANGAD



Justin Jose Teaching Plan

Class III DC Elective

Elective: Nutrition Health and

Course Lifestyle Management

Semester

VI

Course

Code ZY6CBT04.

Module	Topic	Week	Methods of Teaching-Learning
	<i>Health literacy as a public health goal: Awareness programs in schools,</i>	13,14	Lecture using PPT followed by class assignment

