



# University of Science & Technology Meghalaya

Department of Physics

## Lesson Plan

Session: 2021-22(Odd Semester)

Program : B.Sc.

Semester: V

Name of the Course: Classical Dynamics

Course Code: BSP-503(A)

Name of the Faculty: Devashree Borgohain

### Details Plan

Unit	Topic	Targeted No. of classes	Tentative Schedule (DoC-DoE)	Tentative Pedagogy	Unit Allotted for Sessional Test	Remarks
Unit 1	<b>Classical mechanics of point particles</b>	14	20/09/2021 to 12//11/2021	One to one communication, Assignment and homework was given, NPTEL lectures will also be provided to the students, Class test will also be conducted after completion of the unit.	Test-I &II	This paper is shared Dr. Enamullah
Unit 2	<b>Canonical transformation</b>	20	13/11/2021 to 11/12/2021	One to one communication, Assignment and homework was given, NPTEL lectures will also be provided to the students, Class test will also be conducted after completion of the unit.	Test III	

Suggested Books:

1. Classical Mechanics, H.Goldstein, C.P. Poole, J.L. Safko, 3rd Edn. 2002, Pearson Education.
2. Classical Mechanics, J C Upadhyaya
3. Mechanics, L. D. Landau and E. M. Lifshitz, 1976, Pergamon.
4. Classical Electrodynamics, J.D. Jackson, 3rd Edn., 1998, Wiley.
5. The Classical Theory of Fields, L.D Landau, E.M Lifshitz, 4th Edn., 2003, Elsevier.
6. Introduction to Electrodynamics, D.J. Griffiths, 2012, Pearson Education.
7. Classical Mechanics: An introduction, Dieter Strauch, 2009, Springer.
8. Solved Problems in classical Mechanics, O.L. Delange and J. Pierrus, 2010, Oxford Press



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# University of Science & Technology Meghalaya

Department of Physics

## Lesson Plan

Session: 2021-22(Odd Semester)

Program : B.Sc.

Semester: V

Name of the Course: Advanced Mathematical Physics

Course Code: BSP-504(B)

Name of the Faculty: Devashree Borgohain

### Details Plan

Unit	Topic	Targeted No. of classes	Tentative Schedule (DoC-DoE)	Tentative Pedagogy	Unit Allotted for Sessional Test	Remarks
Unit 1	<b>Matrix</b>	12	20/09/2021 to 10/11/2021	One to one communication, Assignment and homework was given, NPTEL lectures will also be provided to the students, Class test will also be conducted after completion of the unit.	Test-I	This paper is shared Dr. Mayuri Devee
Unit 3	<b>Calculus of variation</b>	20	12/11/2021 to 11/12/2021	One to one communication, Assignment and homework was given, NPTEL lectures will also be provided to the students, Class test will also be conducted after completion of the unit.	Test II & III	

Suggested Books:

1. Mathematical Methods for Physicists : George B. Arfken and Hans J. Weber
2. Mathematical Physics : B. D. Gupta
3. Mathematical Physics : H. K. Dass
4. Mathematical Physics : Satya Prakash
5. Mathematical Methods for Physicists : Tai L. Chow



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# University of Science & Technology Meghalaya

Department of Physics

## Lesson Plan

Session: 2021-22(Odd Semester)

Program : BSC

Semester: III

Name of the Course : Mathematical Physics II

Course Code: BSP-301

Name of the Faculty: Devashree Borgohain

### Details Plan

Unit	Topic	Targeted No. of classes	Tentative Schedule (DoC-DoE)	Tentative Pedagogy	Unit Allotted for Sessional Test	Remarks
Unit 1	Matrix	16	20/09/2021 to 12/10/2021	One to one communication, Assignment and homework was given, NPTEL lectures will also be provided to the students, Class test will also be conducted after completion of the unit.	Test-I	
Unit-2	Frobenius Method and Special Function	10	13/10/2021 to 26/10/2021	One to one communication, Assignment and homework was given, NPTEL lectures will also be provided to the students, Class test will also be conducted after completion of the unit.		

Unit 3	Some special integral	14	27/10/2021 to 19/11/2021	One to one communication, Assignment and homework was given, NPTEL lectures will also be provided to the students, Class test will also be conducted after completion of the unit.	Test-II	
Unit 4	Partial differential equations	10	20/11/2021 to 10/12/2021	One to one communication, Assignment and homework was given, NPTEL lectures will also be provided to the students, Class test will also be conducted after completion of the unit.		

Suggested Books:

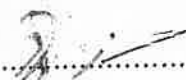
1. Mathematical Methods for Physicists : George B. Arfken and Hans J. Weber
2. Mathematical Physics : B. D. Gupta
3. Mathematical Physics : H. K. Dass
4. Mathematical Physics : Satya Prakash
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# University of Science & Technology Meghalaya

Department of Physics

## Lesson Plan

Session: 2020-21(Odd Semester)

Program: BSc

Semester: III rd

Name of the Course: Basic Instrumentation skills Course Code: BSP 306

Name of the Faculty: Dr. Sanchita Roy

### Details Plan

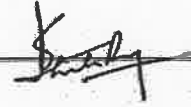
Unit	Topic	Targeted No. of classes	Tentative Schedule (DoC-DoE)	Tentative Pedagogy	Unit Allotted for Sessional Test	Remarks
1.	Basic of measurement	6	21/09/2021-06/10/2021	Following Bloom's taxonomy to conduct Online classes/ Assignments/ Class tests etc.	Test-I	
2.	Electronic voltmeter	4	12/10/2021 – 20/10/2021	Following Bloom's taxonomy to conduct Online classes/ Assignments/ Class tests etc.	Test-II	Sessional I test will be conducted till this unit
3.	Cathode ray oscilloscope	6	26/10/2021 to 10/11/2021	Following Bloom's taxonomy to conduct Online classes/ Assignments/ Class tests etc.		Sessional I test will be conducted till this unit
4.	Specifications of a CRO and their significance	5	16/11/2021 to 30/11/2021	Following Bloom's taxonomy to conduct Online classes/ Assignments/ Class tests etc.		Sessional II test will be conducted till this unit
5.	Signal generators and their analysis instruments	4	01/12/2021 till 15/12/2021	Following Bloom's taxonomy to conduct Online classes/ Assignments/ Class tests etc.		Till low frequency signal generators, included in sessional II test

### Suggested Books:

1. Digital circuits and systems, by Venugopal, Tata McGrawhills
2. Digital electronics by Subrata Ghoshal, Cengage learning
3. Electronic devices by Thomas L. Floyd, Pearson India, 2008.



Dr.Sanchita Roy  
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# University of Science & Technology Meghalaya

## Department of Physics

### Lesson Plan

Session: 2021-2022(Odd Semester)

Program:B.Sc.

Semester:III

Name of the Course:Digital Systems and Applications

CourseCode:BSP-303

Name of the Faculty:Dr. H.P. Jaishi

#### Details Plan

Unit	Topic	Targeted No. of classes	Tentative Schedule Unit wise (DoC-DoE)	Tentative Pedagogy	Unit Allotted for Sessional Test	Remarks
1	Difference between analog and digital circuits, binary numbers, decimal to binary and binary to decimal conversion, BCD, octal and hexadecimal numbers.	5	20/09/2021-27/09/2021	Lecture, Demonstrating with suitable examples, Classroom discussion, Student presentation, assignment	Test-I Unit 1	
1	De Morgan's theorems, Boolean laws, simplification of logic circuit using Boolean algebra, fundamental products.	4	28/09/2021-01/10/2021	Lecture, Demonstrating with suitable examples, Classroom discussion, Student presentation, assignment		
1	Binary addition, binary subtraction using 2's complement, AND, OR and NOT gates (realization using diodes and transistor), NAND and NOR gates as universal gates, XOR and XNOR gates.	7	04/10/2021-19/10/2021	Lecture, Demonstrating with suitable examples, Classroom discussion, Student presentation, assignment		
2	Sequential Circuits: SR, D, JK and T-Flip Flops	7	20/10/2021-01/11/2021	Lecture, Demonstrating with suitable examples, Classroom discussion, Student presentation, assignment	Test-II Unit 2	
2	Combinational Circuits: Encoder,	7	02/11/2021-15/11/2021	Lecture, Demonstrating with		


	Decoder, MUX and DEMUX			suitable examples, Classroom discussion, Student presentation, assignment		
3	IC- 555 TIMER: Basic timing circuit, Astable and Monostable mode of operation and applications	10	16/11/2021-01/12/2021	Lecture, Demonstrating with suitable examples, Classroom discussion, Student presentation, assignment	Test-III Unit 3	
3	CRO: Working and Application	2	02/12/2021-06/12/2021	Lecture, Demonstrating with suitable examples, Classroom discussion, Student presentation, assignment		
4	Integrated Circuit: active & passive components. discrete components, wafer, chip, advantages and drawbacks of ICs	7	07/12/2021-16/12/2021	Lecture, Demonstrating with suitable examples, Classroom discussion, Student presentation, assignment		
4	Scale of integration: SSI, MSI, LSI and VLSI (basic idea and definitions only), classification of ICs, examples of linear and digital ICs, introduction to microprocessors.	7	20/12/2021-29/12/2021	Lecture, Demonstrating with suitable examples, Classroom discussion, Student presentation, assignment		

**Suggested Books/Reference Books:**

1. Digital Fundamentals by Thomas L. Floyd
2. Digital Design: With an Introduction to the Verilog Hdl by M. Morris Mano and Michael D. Ciletti.
3. Digital Circuits and Design by Arivazhagan S and S. Salivahanan.
4. Modern Digital Electronics by R.P. Jain
5. Fundamentals of Digital Circuits by A. Anand Kumar
6. 2000 Solved Problems in Digital Electronics by S. Bali



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## LESSON PLAN

Program: Bachelor of Science

Course code: BSP- 302

Course Title: Thermal Physics

Course Credit: 04

Faculty Name: Dr. Ritun Chakraborty

Department: Physics

Sl. No.	Units	Topic	No. of proposed classes	Comments
1	1	Introduction to Thermodynamics	16	
2	2	Entropy	14	
3	2	Thermodynamic Potentials		
4	3	Maxwell's Thermodynamic Relations	14	
5	3	Kinetic Theory of Gases		
6	3	Molecular Collisions		
7	4	Real Gases	10	

Name and signature of the faculty

Signature of the HoD

## LESSON PLAN

Program: Master Of Science

Course code: MSP-304(A)

Coursetitle: Condensed Matter Physics-I Coursecredit: 04

Faculty Name: Dr. Ritun Chakraborty

Department: Physics

Sl. No.	Units	Topic	No. of proposed classes	Comments
01	2	Optical properties of solids	10	This course is shared.
02	3	Superconductivity	12	
03	4	Critical Phenomena	13	

Name and signature of the faculty

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# LESSON PLAN

Program: Bachelor of Science Course code: BSP- 502

Course Title: Solid State Physics Course Credit: 04

Faculty Name: Dr. Ritun Chakraborty Department: Physics

Sl. No.	Units	Topic	No. of proposed classes	Comments
01	1	Crystal structure of solids	10	This is a shared course.
02	2	Elementary lattice dynamics'	8	
03	3	Magnetic properties of matter	10	
03	4	Dielectric properties of materials	6	
04	6	Superconductivity	4	

Name and signature of the faculty

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