# K.S. SCHOOL OF ENGINEERING AND MANAGEMENT, BENGALURU-560109

## DEPARTMENT OF BASIC SCIENCE

### SESSION: 2020-2021 (ODD SEMESTER)

### LESSON PLAN

**NAME OF THE STAFF** : **Mrs. SWARNA S**

**COURSE CODE/TITLE** : **18CHE12/ENGINEERING CHEMISTRY**

**SEMESTER/YEAR** : **I / 1-D-Sec (ECE)**

| Sl. No. | Topic to be covered | Mode of Delivery | Teaching Aid | No. of Periods | Cumulative No. of Periods | Proposed Date | Execution Date |
|---|---|---|---|---|---|---|---|
| | **MODULE 1** | | | | | | |
| 1 | **Module-I: Electrochemistry and Energy storage systems.** Use of free energy in chemical equilibria: Thermodynamic functions: Introduction, I law of thermodynamics, Definition of energy & free energy. II law of thermodynamics, definition of entropy. Cell potential: Meaning of EMF. | L+AV | MS Teams | 1 | 1 | 28/12/2020 | 28/12/20 |
| 2 | Derivation of Nernst equation for single electrode potential. | L+ I | MS Teams | 1 | 2 | 29/12/2020 | 29/12/20 |
| 3 | Numerical problems on Nernst equation. | PS( Tx) | MS Teams | 1 | 3 | 29/12/2020 | 29/12/20 |
| 4 | Numerical problems on Nernst equation. | PS( Tx) | MS Teams | 1 | 4 | 31/12/2020 | 31/12/20 |
| 5 | Electrochemical energy systems: Introduction, types of electrodes, Meaning of reference electrodes, construction, working, advantages and applications of Calomel electrode. | L+D | MS Teams | 1 | 5 | 1/01/2021 | 1/1/21 |
| 6 | **Tutorial** | L+AV | MS Teams | 0 | 5 | 02/01/2021 | 2/1/21 |
| 7 | Ion-selective electrode – Definition, examples, membrane electrodes, construction and principle of Glass electrode. | L+D | MS Teams | 1 | 6 | 04/01/2021 | 4/1/21 |
| 8 | Determination of pH using glass electrode, Concentration cells: Definition, examples, derivation of an | L+AV, | MS Teams | 1 | 7 | 05/01/2021 | 4/1/21 |

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| | equation to find the EMF of concentration cells, | | | | | | |
| 9 | Numerical problems on Concentration cell | PS( Tx) | MS Teams | 1 | 8 | 05/01/2021 | 5/1/21 |
| 10 | **Energy storage systems**: Introduction, classification - primary, secondary and reserve batteries with examples. | L+D | MS Teams | 1 | 9 | 07/01/2021 | 5/1/21 |
| 11 | Construction, working and applications of Ni-MH and Li-ion batteries. | L+AV | MS Teams | 1 | 10 | 8/01/2021 | 5/1/21 |
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| 12 | **Tutorial** | L+D | MS Teams | 0 | 10 | 9/01/2021 | 7/1/21 |
| 13 | **Module-II:Corrosion and Metal Finishing** **Corrosion:** Definition, Wet & Dry corrosion, Electrochemical theory taking corrosion of iron as an example. | L+D | MS Teams | 1 | 11 | 11/01/2021 | 8/1/21 |
| 14 | Factors affecting the rate of corrosion: ratio of anodic to cathodic areas, nature of corrosion product, nature of medium – pH (greater than 10, between 3 and 10, lower than 3), conductivity and temperature. | L+I | MS Teams | 1 | 12 | 12/01/2021 | 11/1/21 |
| 15 | Types of corrosion- Differential metal corrosion and differential aeration corrosion: Pitting and water line corrosion with diagrams, | L+I | MS Teams | 1 | 13 | 12/01/2021 | 12/1/2 |
| 16 | Corrosion control: Anodizing – Anodizing of aluminium.Metal coatings – Galvanization. | L+I | MS Teams | 1 | 14 | 15/01/2021 | 15/1/21 |
| 17 | **Tutorial** | L+D | MS Teams | 0 | 14 | 16/01/2021 | 16/1/21 |
| 18 | Cathodic protection : Definition, sacrificial anode and impressed current methods, | L+ AV | BB | 1 | 15 | 20/01/2021 | 20/1/21 |
| 19 | **Metal Finishing:** Definition and technological importance of metal finishing, | L+D | BB | 1 | 16 | 21/01/2021 | 21/1/21 |
| 20 | Principles governing metal finishing- Polarization, decomposition potential and overvoltage. | L+B | BB | 1 | 17 | 22/01/2021 | 22/1/21 |
| 21 | **Tutorial** | L+D | BB | 0 | 17 | 23/01/2021 | 23/1/21 |
| 22 | Electroplating: Introduction, Electroplating of chromium (hard and decorative), its applications. | L+I | BB | 1 | 18 | 25/01/2021 | 25/1/21 |
| 23 | Electroless plating: Introduction, electroless plating of nickel. | L+I | BB | 1 | 19 | 27/01/2021 | 25/1/21 27/1/21 |

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| 24 | Electroless plating of copper and its applications, distinction between electroplating and electroless plating processes. | L+I | BB | 1 | 20 | 28/01/2021 | 1/2/21 |
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| 25 | **Module-III: Energy System Chemical Fuels:** Introduction, classification based on occurrence and state of aggregation, definitions of CV, LCV and HCV. | L+ D | BB | 1 | 21 | 29/01/2021 | 2/2/21 |
| 26 | **Tutorial** | L+D | BB | 0 | 21 | 30/01/2021 | 3/2/21 |
| 27 | Determination of calorific value of solid/liquid fuel using bomb calorimeter: Principle, diagram, construction, working and calculation. | L+ AV | BB, LCD | 1 | 22 | 1/02/2021 | 4/2/21 |
| 28 | Numerical problems on calorific values. | PS(TX) | BB | 1 | 23 | 2/02/2021 | 5/2/21 |
| 29 | Numerical problems on calorific values. | PS(TX) | BB | 1 | 24 | 3/02/2021 | 6/2/21 |
| 30 | Knocking of petrol engine – Definition, mechanism, ill effects and prevention, | L+ I | BB | 1 | 25 | 4/02/2021 | 8/2/21 |
| 31 | Power alcohol, unleaded petrol and biodiesel. | L+ I | BB | 1 | 26 | 5/02/2021 | 9/2/21 |
| 32 | **Tutorial** | L+D | BB | 0 | 26 | 6/02/2021 | 10/2/21 |
| 33 | **Fuel Cells:** Introduction, differences between conventional cell and fuel cell, limitations & advantages. | L+I | BB | 1 | 27 | 8/02/2021 | 11/2/21 |
| 34 | Construction, working & applications of methanol-oxygen fuel cell with $H_2SO_4$ electrolyte, and solid oxide fuel cell (SOFCs). | L+I | BB | 1 | 28 | 9/02/2021 | 12/2/21 |
| 35 | **Solar Energy:** Photovoltaic cells-introduction, construction and working of a typical PV cell. | L+ I | BB | 1 | 29 | 10/02/2021 | 12/2/21 |
| 36 | Preparation of solar grade silicon by Union Carbide Process/Method. Advantages & disadvantages of PV cells. | L+I | BB | 1 | 30 | 11/02/2021 | 15/2/21 |
| | **MODULE 4** | | | | | | |
| 37 | **MODULE -IV: Environmental Pollution and Water Chemistry Environmental Pollution:** Introduction, Air pollutants: Sources, effects and control of primary air pollutants: Carbon monoxide &Particulate matter, | L+I | BB | 1 | 31 | 12/02/2021 | 16/2/21 |
| 38 | **Tutorial** | L+D | BB | 0 | 31 | 13/02/2021 | 17/2/21 |

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| 39 | Primary air pollutants Oxides of nitrogen and hydrocarbons. | L+I | BB | 1 | 32 | 15/02/21 | 18/2/21 |
| 40 | Oxides of sulphur, Carbon diooxide, Mercury and Lead. | L+ I | BB | 1 | 33 | 16/02/2021 | 20/2/21 |
| 41 | Secondary air pollutant: Ozone, Ozone depletion. | L+I | BB | 1 | 34 | 17/02/2020 | 23/2/21 |
| 42 | **Waste Management:** Solid waste, e-waste, Biomedical waste: Sources, Characteristics & disposal methods (Scientific land filling, composting, recycling and reuse). | L+I | BB | 1 | 35 | 22/02/2021 | 24/2/21 |
| 43 | **Water Chemistry:** Introduction, sources and impurities of water; boiler feed water, boiler troubles with disadvantages-scale and sludge formation. | L+ I | BB | 1 | 36 | 23/02/2021 | 25/2/21 |
| 44 | Boiler corrosion (due to dissolved $O_2$, $CO_2$ and $MgCl_2$), Sources of water pollution, Sewage, Definitions of Biological oxygen demand (BOD) and Chemical Oxygen Demand (COD), Determination of COD. | L+ I | BB | 1 | 37 | 24/02/2021 | 2/3/21 |
| 45 | Numerical problems on COD. | PS(TX) | BB | 1 | 38 | 25/02/2021 | 3/3/21 |
| 46 | Chemical analysis of water: Sulphates (gravimetry) and Fluorides (colorimetry). | L+I | BB | 1 | 39 | 26/02/2021 | 4/3/21 |
| 47 | **Tutorial** | L+D | BB | 0 | 30 | 27/02/2021 | 4/3/21 |
| 48 | Sewage treatment: Primary, secondary (activated sludge) and tertiary methods. Softening of water by ion exchange process. Desalination of sea water by reverse osmosis. | L+ I | BB | 1 | 40 | 1/03/2021 | 5/3/21 |
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| 49 | **MODULE-V: Instrumental methods of analysis and Nanomaterials**<br>**Instrumental methods of analysis:** Introduction, principle, advantages and limitations. | L+D | BB | 1 | 41 | 2/03/2021 | 6/3/21 |
| 50 | Instrumentation and applications of Colorimetry (Estimation of copper in brass), | L+ D, | BB | 1 | 42 | 3/03/2021 | 6/3/21 |
| 51 | Flame Photometry(estimation of sodium and potassium). | L+D | BB | 1 | 43 | 4/03/2021 | 8/3/21 |
| 52 | Instrumentation and applications of Atomic Absorption Spectroscopy, | L+ D, | BB | 1 | 44 | 5/03/2021 | 9/3/21 |

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| 53 | **Tutorial** | L+D | BB | 0 | 44 | 6/03/2021 | 10/3/21 |
| 54 | Potentiometry (estimation of FAS). | L+D | BB | 1 | 45 | 8/03/2021 | 13/3/21 |
| 55 | Instrumentation and applications of Conductometry (Strong acid with a strong base, weak acid with a strong base, mixture of strong acid and a weak acid with a strong base). | L+ D, LE | BB | 1 | 46 | 9/03/2021 | 13/3/21 |
| 56 | **Nanomaterials:** Introduction, size dependent properties: Surface area, Electrical, Optical, Catalytic and Thermal properties. | L+I | BB | 1 | 47 | 10/03/2021 | 15/3/21 |
| 57 | Synthesis of nanomaterials: Top down and bottom up approaches, Synthesis by bottom up approach: Sol-gel. | L+ I | BB | 1 | 48 | 12/03/2021 | 16/3/21 |
| 58 | **Tutorial** | L+D | BB | 0 | 48 | 13/03/2021 | 17/3/21 |
| 59 | Synthesis of nanomaterials: precipitation and chemical vapour deposition method. | L+I | BB | 1 | 49 | 19/03/2021 | 18/3/21 |
| 60 | Nanoscale materials: Fullerenes, Carbon nanotubes and graphenes – properties and applications (synthesis not required). | L+I | BB | 1 | 50 | 20/03/2021 | 19/3/21 |
| 61 | **Revision** | L+D | BB | 0 | 50 | 25/03/2021 | 19/3/21 |

**Total No. of Lecture Hours = 50**

**Total No. of Tutorial Hours = 10**

**Total No. of Revision Hours = 1**

**Course In charge**

**Head of the Department**

Dr. C. VASUDEV
Professor & Head
Department of Basic Science
KS School of Engineering and Management
Bangalore - 560 109.

**Principal**

Dr. K. RAMA NARASIMH
Principal/Director
K S School of Engineering and Man
Bengaluru - 560 109

# K.S. SCHOOL OF ENGINEERING AND MANAGEMENT, BENGALURU - 560109
## DEPARTMENT OF BASIC SCIENCE
## SESSION: 2020-2021 (ODD SEMESTER)
## LESSON PLAN

**NAME OF THE STAFF** : MANOHARKUMAR K N.

**COURSE CODE/TITLE** : 18MAT11/ CALCULUS AND LINEAR ALGEBRA

**SEMESTER/YEAR** : I / I

| Sl. No. | Topic to be covered | Mode of Delivery | Teaching Aid | No. of Periods | Cumulative No. of Periods | Proposed Date | Delivered Date |
|---|---|---|---|---|---|---|---|
| | **MODULE 1** | | | | | | |
| 1 | Review of elementary differential calculus | L,PS | MS TEAMS | 1 | 1 | 28-12-2020 | 28/12/2020 |
| 2 | Polar curves - angle between the radius vector and tangent | L,PS | MS TEAMS | 2 | 3 | 29-12-2020<br>30-12-2020 | 29/12/2020<br>30/12/2020 |
| 3 | Angle between two curves,. | L,PS | MS TEAMS | 1 | 4 | 31-12-2020 | 31/12/2020 |
| 4 | Pedal Equations-Problems | L,PS | MS TEAMS | 2 | 6 | 01-01-2021<br>02-01-2021 | 01/01/2021<br>02/01/2021 |
| 5 | Curvature and radius of curvature-Cartesian form | L,PS | MS TEAMS | 1 | 7 | 04-01-2021 | 04/01/2021 |
| 6 | TUTORIALS | L,PS | MS TEAMS | 0 | 7 | 05-01-2021 | 05/01/2021 |
| 7 | Curvature and radius of curvature-POLAR FORM | L,PS | MS TEAMS | 1 | 8 | 06-01-2021 | 06/01/2021 |
| 8 | Applications to evolutes and involutes | L,PS | MS TEAMS | 2 | 10 | 07-01-2021<br>11-01-2021 | 07/01/2021<br>11/01/2021 |
| 9 | TUTORIALS | L,PS | MS TEAMS | 0 | 10 | 12-01-2021 | 12/01/2021 |
| | **MODULE 2** | | | | | | |
| 10 | Taylor's and Maclaurin's series expansions for one variable | L,PS | MS TEAMS | 1 | 11 | 13-01-2021 | 13/01/2021<br>16/01/2021 |
| 11 | Indeterminate forms - L'Hospital's rule. | L,PS | MS TEAMS | 2 | 13 | 16-01-2021<br>21-01-2021 | 20/01/2021<br>21/01/2021 |
| 12 | Partial differentiation; Total derivatives-differentiation of composite functions. | L,PS | B.B | 1 | 14 | 22-01-2021 | 22/01/2021<br>23/01/2021 |

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| 13 | Maxima and minima for a function of two variables | L,PS | BB | 2 | 16 | 23-01-2021<br>25-01-2021 | 25/01/2021 |
| 14 | Method of Lagrange multipliers with one subsidiary condition. | L,PS | BB | 1 | 17 | 27-01-2021 | 27/01/2021 |
| 15 | Method of Lagrange multipliers with one subsidiary condition. | L,PS | BB | 1 | 18 | 28-01-2021 | 01/02/2021 |
| 16 | Method of Lagrange multipliers with one subsidiary condition. | L,PS | BB | 1 | 19 | 29-01-2021 | 02/02/2021 |
| 17 | Applications of maxima and minima with illustrative examples | L,PS | BB | 1 | 20 | 30-01-2021 | 03/02/2021 |
| | **MODULE 3** | | | | | | |
| 18 | Exact and reducible to exact differential equations. Bernoulli's equation | L,PS | BB | 2 | 22 | 01-02-2021<br>03-02-2021 | 04/02/2021<br>05/02/2021 |
| 19 | TUTORIALS | L,PS | BB | 0 | 22 | 02-02-2021 | 06/02/2021 |
| 20 | Applications of ODE's-orthogonal trajectories | L,PS | BB | 2 | 24 | 04-02-2021<br>05-02-2021 | 08/02/2021<br>09/02/2021 |
| 21 | Newton's law of cooling | L,PS | BB | 1 | 25 | 06-02-2021 | 10/02/2021 |
| 22 | L-R circuits | L,PS | BB | 1 | 26 | 08-02-2021 | 11/02/2021 |
| 23 | TUTORIALS | L,PS | BB | 0 | 26 | 09-02-2021 | 15/02/2021 |
| 24 | Newton's law of cooling | L,PS | BB | 1 | 27 | 10-02-2021 | 16/02/2021 |
| 25 | Nonlinear differential equations: Introduction to general and singular solutions ; Solvable for p only; | L,PS | BB | 1 | 28 | 11-02-2021 | 17/02/2021<br>20/02/2021 |
| 26 | Clairaut's and reducible to Clairaut's equations only | L,PS | BB | 2 | 30 | 12-02-2021<br>13-02-2021 | 22/02/2021 |
| | **MODULE 4** | | | | | | |
| 27 | Linear Algebra-Rank of a matrix-Echelon form | L,PS | BB | 1 | 31 | 15-02-2021 | 23/02/2021 |
| 28 | TUTORIALS | L,PS | BB | 0 | 31 | 16-02-2021 | 02/03/2021 |
| 29 | Solution of system of linear equations-Consistency | L,PS | BB | 1 | 32 | 17-02-2021 | 03/03/2021 |
| 30 | Gauss elimination method | L,PS | BB | 1 | 33 | 22-02-2021 | 04/03/2021 |
| 31 | TUTORIALS | L,PS | BB | 0 | 33 | 23-02-2021 | 05/03/2021 |
| 32 | Gauss Jordon method | L,PS | BB | 1 | 34 | 24-02-2021 | 06/03/2021 |
| 33 | Approximate solution by Gauss Seidal method | L,PS | BB | 2 | 36 | 25-02-2021<br>26-02-2021 | 08/3/2021 |
| 34 | Eigen values and Eigen vectors method | L,PS | BB | 2 | 38 | 27-02-2021<br>01-03-2021 | 09/03/2021 |

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| 35 | TUTORIALS | L,PS | BB | 0 | 38 | 02-03-2021 | 12/03/2021 |
| 36 | Rayleigh's power method | L,PS | BB | 1 | 39 | 03-03-2021 | 13/3/2021 |
| 37 | Diagonalization of a square matrix of order two | L,PS | BB | 1 | 40 | 04-03-2021 | 15/3/2021 |
| | **MODULE 5** | | | | | | |
| 38 | Review of elementary integral calculus.<br>Multiple integrals: Evaluation of double and triple integrals | L,PS | BB | 2 | 42 | 05-03-2021<br>06-03-2021 | 16/3/2021 |
| 39 | Evaluation of double integrals-change of order of integration | L,PS | BB | 2 | 44 | 08-03-2021<br>09-03-2021 | 17/3/2021 |
| 40 | Evaluation of double integrals-changing into polar co-ordinates. | L,PS | BB | 2 | 46 | 10-03-2021<br>12-03-2021 | 18/3/2021 |
| 41 | Applications to find area volume and centre of gravity | L,PS | BB | 1 | 47 | 13-03-2021 | 19/3/2021 |
| 42 | Beta and Gamma functions: Definitions, Relation between beta and gamma functions | L,PS | BB | 3 | 50 | 19-03-2021<br>20-03-2021<br>25-03-2021 | 23/3/21<br>01/04/21<br>03/04/21 |
| | **REVISION** | | | | | | |
| 43 | REVISION | L,PS | BB | 0 | 50 | | |
| 44 | REVISION | L,PS | BB | 0 | 50 | | |
| 45 | REVISION | L,PS | BB | 0 | 50 | | |
| 46 | REVISION | L,PS | BB | 0 | 50 | | |
| 47 | REVISION | L,PS | BB | 0 | 50 | | |
| 48 | REVISION | L,PS | BB | 0 | 50 | | |

**Total No. of Lecture Hours = 43**

**Total No. of Tutorial Hours = 07**

**Total No. of Revision Hours = 00**

**Course In charge**

**Head of the Department**

Dr. C. VASUDEV
Professor & Head
Department of Basic Science
KS School of Engineering and Management
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**Principal**

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K.S. SCHOOL OF ENGINEERING AND MANAGEMENT, BENGALURU - 560109

DEPARTMENT OF BASIC SCIENCE

SESSION: 2020-2021 (ODD SEMESTER)

LESSON PLAN

NAME OF THE STAFF : DIVYA R

COURSE CODE/TITLE : 18MAT31/ TRANSFORM CALCULUS,FOURIER SERIES AND NUMERICAL TECHNIQUES

SEMESTER/YEAR : III / II

| Sl. No. | Topic to be covered | Mode of Delivery | Teaching Aid | No. of Periods | Cumulative No. of Periods | Proposed Date | Execution Date |
|---|---|---|---|---|---|---|---|
| | **MODULE 1** | | | | | | |
| 1 | Numerical solutions of ODE's: First order first degree | L+D,PPT | Online Zoom app | 1 | 1 | 1/9/2020 | 1/9/20 |
| 2 | Taylor series method-Problems | L+D,PPT | Online Zoom app | 2 | 3 | 3/9/20<br>4/9/20 | 3/9/20<br>7/9/20 |
| 3 | TUTORIAL | L+D,PPT | Online Zoom app | 0 | 3 | 5/9/20 | 5/9/20 |
| 4 | Modified Euler's method-Problems | L+D,PPT | Online Zoom app | 2 | 5 | 8/9/20<br>10/9/20 | 8/9/20<br>10/9/20 |
| 5 | TUTORIAL | L+D,PPT | Online Zoom app | 0 | 5 | 12/9/20 | 12/9/20 |
| 6 | Runge Kutta method of fourth order-Problems | L+D,PPT | Online Zoom app | 1 | 6 | 14/9/20 | 14/9/20 |
| 7 | Milne's Predictor and Corrector method | L+D,PPT | Online Zoom app | 1 | 7 | 15/9/20 | 15/9/20 |
| 8 | TUTORIAL | L+D,PPT | Online Zoom app | 0 | 7 | 19/9/20 | — |
| 9 | Adams Bash-forth Predictor and Corrector method | L+D,PPT | Online Zoom app | 1 | 8 | 21/9/20 | 21/9/20 |

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| | **MODULE 2** | | | | | | |
| 10 | Numerical solutions of second order ODE's: Runge Kutta method of fourth order | L+D,PPT | Online Zoom app | 2 | 10 | 22/9/20<br>24/9/20 | 23/9/20<br>24/9/20 |
| 11 | TUTORIAL | L+D,PPT | Online Zoom app | 0 | 10 | 26/9/20 | — |
| 12 | Milne's Predictor and Corrector method | L+D,PPT | Online Zoom app | 2 | 12 | 28/9/20<br>29/9/20 | 29/9/20<br>1/10/20 |
| 13 | Calculus of Variation: Variation of function and functional, Variational problems | L+D,PPT | Online Zoom app | 2 | 14 | 1/10/20<br>8/10/20 | 8/10/20<br>12/10/20 |
| 14 | TUTORIAL | L+D,PPT | Online Zoom app | 0 | 14 | 3/10/20 | 3/10/20 |
| 15 | TUTORIAL | L+D,PPT | Online Zoom app | 0 | 14 | 10/10/20 | 3/10/20 |
| 16 | Euler's equation derivation: Problems | L+D,PPT | Online Zoom app | 2 | 16 | 12/10/20<br>13/10/20 | 13/10/20<br>14/10/20 |
| 17 | Geodesics, Hanging chain problem | L+D,PPT | Online Zoom app | 1 | 17 | 14/10/20 | 15/10/20 |
| | **MODULE 3** | | | | | | |
| 18 | Laplace Transform: Definition and Laplace transforms of elementary functions. | L+D,PPT | Online Zoom app | 2 | 19 | 15/10/20<br>19/10/20 | 19/10/20<br>20/10/20 |
| 19 | Laplace transforms of Periodic functions | L+D,PPT | Online Zoom app | 2 | 21 | 20/10/20<br>21/10/20 | 21/10/20<br>22/10/20 |
| 20 | Inverse Laplace Transforms: Definition and Problems | L+D,PPT | Online Zoom app | 2 | 23 | 22/10/20<br>27/10/20 | 27/10/20<br>28/10/20 |
| 21 | TUTORIAL | L+D,PPT | Online Zoom app | 0 | 23 | 24/10/20 | 24/10/20 |
| 22 | Inverse Laplace transforms by Convolution theorem | L+D,PPT | Online Zoom app | 1 | 24 | 28/10/20 | 29/10/20 |
| 23 | Solution of Linear Differential Equations using Laplace transforms | L+D,PPT | Online Zoom app | 1 | 25 | 29/10/20 | 2/11/20 |
| | **MODULE 4** | | | | | | |
| 24 | Fourier Series: Periodic functions, | L+D,PPT | Online MS team | 1 | 26 | 2/11/20 | 3/11/20 |

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| | Dirichlet's Conditions. | | | | | | |
| 25 | Fourier series of Periodic function in the interval $(-\pi, \pi)$ | L+D,PPT | MS teams | 2 | 28 | 3/11/20<br>4/11/20 | 4/11/20<br>5/11/20 |
| 26 | Fourier series of Periodic function in the interval $(0, 2\pi)$) | L+D,PPT | Online MS teams | 1 | 29 | 5/11/20 | 9/11/20 |
| 27 | TUTORIAL | L+D,PPT | Online MS teams | 0 | 29 | 7/11/20 | 7/11/20 |
| 28 | Fourier series of Periodic function in the interval $(-l, l)$ | L+D,PPT | Online MS teams | 1 | 30 | 12/11/20 | 10/11/20 |
| 29 | Fourier series of Periodic function in the interval $(0, 2l)$ | L+D,PPT | Online MS teams | 1 | 31 | 17/11/20 | 11/11/20 |
| 30 | Half range Fourier series | L+D,PPT | Online MS teams | 1 | 32 | 18/11/20 | 12/11/20 |
| 31 | Harmonic Analysis | L+D,PPT | Online MS teams | 1 | 33 | 19/11/20 | 23/11/20 |
| 32 | TUTORIAL | L+D,PPT | Online MS teams | 0 | 33 | 21/11/20 | — |
| | **MODULE 5** | | | | | | |
| 33 | Fourier Transforms: Infinite Fourier transforms | L+D,PPT | Online MS teams | 1 | 34 | 23/11/20 | 24/11/20 |
| 34 | Fourier Sine and Cosine transforms | L+D,PPT | Online MS teams | 1 | 35 | 24/11/20 | 25/11/20 |
| 35 | Inverse Fourier transforms | L+D,PPT | Online MS teams | 1 | 36 | 25/11/20 | 26/11/20 |
| 36 | Z-Transforms: Definition, Standard Z transforms | L+D,PPT | Online MS teams | 1 | 37 | 26/11/20 | 30/11/20 |
| 37 | Damping and Shifting rules-problems, Initial and Final value theorem-problems | L+D,PPT | Online MS teams | 1 | 38 | 30/11/20 | 1/12/20 |
| 38 | Inverse Z Transforms, Applications to solve difference equations | L+D,PPT | Online MS teams | 2 | 40 | 1/12/20<br>2/12/20 | 2/12/20<br>7/12/20 |
| 39 | TUTORIAL | L+D,PPT | Online MS teams | 0 | 40 | 5/12/20 | 5/12/20 |
| 40 | Revision | | | | | | 8/12/10 |
| 41 | Revision | | | | | | 10/12/10 |

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| 42 | Revision | | | | | | 14/12/20 |
| 43 | Revision | | | | | | 15/12/20 |
| 44 | Revision | | | | | | 17/12/20 |
| 45 | Revision | | | | | | 19/12/20 etc |

**Total No. of Lecture Hours = 40**

**Total No. of Tutorial Hours = 10**

**Total No. of Revision Hours =05**

**Course In charge**

**Head of the Department**

Dr. C. VASUDEV
Professor & Head
Department of Basic Science
KS School of Engineering and Management
Bangalore - 560 109.

**Principal**

Dr. K. RAMA NARASIMHA
Principal/Director
K S School of Engineering and Management
Bengaluru - 560 109

K.S. SCHOOL OF ENGINEERING AND MANAGEMENT, BENGALURU - 560109

DEPARTMENT OF BASIC SCIENCE

SESSION: 2020-2021 (ODD SEMESTER)

LESSON PLAN

NAME OF THE STAFF : PAVITHRA J

COURSE CODE/TITLE : 18PHY12/ ENGINEERING PHYSICS

SEMESTER/YEAR/SECTION: I/I / B

| Sl. No. | Topic to be covered | Mode of Delivery | Teaching Aid | No. of Periods | Cumulative No. of Periods | Proposed Date | Execution Date |
|---|---|---|---|---|---|---|---|
| | **MODULE I** | | | | | | |
| 1 | Definition of SHM and derivation of differential equation of motion for SHM | L+D, I | LCD | 1 | 1 | 28/12/020 | 28/12/20 |
| 2 | Mass suspended to spring, Derivation of expressions for force constants for series and parallel combination of springs. | L+D, DE, PS | LCD | 1 | 2 | 29/12/2020 | 29/12/20 |
| 3 | Complex notation of simple harmonic motion ($Ae^{i(\omega t + c)}$), Phasor representation of simple harmonic motion. Definition of free oscillations with examples, mention the equation of motion, Natural frequency of vibration. | L+D, DE, PS | LCD | 1 | 3 | 29/12/2020 | 29/12/20 |
| 4 | Damped oscillations: Definition with examples, Derivation of decaying amplitude | L+I, PS | LCD | 1 | 4 | 30/12/2020 | 2/1/21 |
| 5 | Tutorial | L+D, PS | PS | 1 | 0 | 31/12/2020 | 31/12/20 |
| 6 | Discussion of 3 cases viz, over damping, critical damping and underdamping. Quality factor: Definition, equation and its significance, | L+D, PS | LCD | 1 | 5 | 2/1/2021 | 4/1/21 |
| 7 | Forced oscillations: Definition, derivation of expressions for amplitude and phase of forced vibrations. Discussion of 3 cases (i) $p<<\omega$, (ii) $p=\omega$ and (iii) $p>>\omega$ | L+I, D, PS | LCD | 1 | 6 | 4/1/2021 | 5/1/21 |
| 8 | Resonance: Definition, Examples, Condition for resonance and mention expression for maximum amplitude.Sharpness of Resonance: Definition and significance, mention the effect of damping on sharpness of resonance, Helmholtz Resonator-Description and mention the expression for resonant frequency. | L+I | LCD | 1 | 7 | 5/1/2021 | 5/1/21 |
| 9 | Shock waves:<br>Definition of Mach number, classification of objects based on Mach number (subsonic, supersonic, Transonic and hypersonic). Definition and properties of | L+D, I, DE, PS | LCD | 1 | 8 | 5/1/2021 | 6/1/21 |

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| | shock waves. Definition of control volume, Laws of conservation of mass, energy and momentum. | | | | | | |
| 10 | Construction and working of Reddy shock tube, Applications of shock waves. | L+I | LCD | 1 | 9 | 6/1/2021 | 9/1/21 |
| 11 | Tutorial | L+D, PS | PS | 1 | 0 | 7/1/2021 | 7/1/21 |
| 12 | Numerical problems | PS | PS | 1 | 10 | 9/1/2021 | 11/1/21 |
| | **MODULE 2** | | | | | | 11/1/21 |
| 13 | Introduction to need Quantum mechanics, Wave nature of particles: De-Broglie hypothesis followed by wavelength equations, extended to accelerated electron | L+D,I, PS | LCD | 1 | 11 | 11/1/2021 | 12/1/21 |
| 14 | Heisenberg's uncertainty principle and its application, (Non-existence of electron inside the nucleus) | L+D, PS | LCD | 1 | 12 | 12/1/2021 | 12/1/21 |
| 15 | Wave function, Properties and physical significance of wave function, Probability density and Normalization of wave function. | L+I | LCD | 1 | 13 | 12/1/2021 | 13/1/21 |
| 16 | Setting up of one dimensional time independent Schrodinger wave equation. | L+I | LCD | 1 | 14 | 13/1/2021 | 15/1/21 |
| 17 | Eigen values and Eigen functions. Application of Schrodinger wave equation for a particle in a potential well of infinite depth and for free particle | L+I, PS | LCD | 1 | 15 | 16/1/2021 | 22/1/21 |
| 18 | Tutorial | L+D, PS | PS | 1 | 0 | 21/1/2021 | 21/1/21 |
| 19 | Explanation of the process of induced absorption, Spontaneous and Stimulated emission, Einstein's coefficients (expression for energy density). | L+D, I, PS | BB | 1 | 16 | 22/1/2021 | 23/1/21 |
| 20 | Requisites of a Laser system, Condition for laser action. | L+D, I, PS | BB | 1 | 17 | 23/1/2021 | 23/1/21 |
| 21 | Mention different modes of vibrations of $CO_2$,Construction and working of $CO_2$ laser | L+I | BB+LCD | 1 | 18 | 23/1/2021 | 25/1/21 |
| 22 | Construction and working of semiconductor Laser, Application of Lasers in Defense (Laser range finder), Application of Lasers in Engineering (Data storage) | L+D, I, CL(S), PS | BB+LCD | 1 | 19 | 25/1/2021 | 25/1/21 |
| 23 | Tutorial | L+D, PS | PS | 1 | 0 | 28/1/2021 | 1/2/21 |
| 24 | Numerical problems | PS | PS | 2 | 20 | 29/1/2021 | 2/2/21 |
| | **MODULE 3** | | | | | | |
| 25 | Review of classical free electron theory, Failure of classical free electron theory, Quantum free electron theory, Assumptions. | L+D, I | BB | 1 | 21 | 30/1/2021 | 5/2/21 |
| 26 | Fermi factor at different temperature, density of states (qualitative only) Fermi–Dirac Statistics, Mention the expression | L+I, PS | BB | 1 | 22 | 30/1/2021 | 6/2/21 |

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| | for electrical conductivity based on quantum free electron theory. | | | | | | |
| 27 | Derivation of the expression for Fermi energy at zero Kelvin. Merits of quantum free electron theory. | L+I, PS | BB | 1 | 23 | 1/2/2021 | 6/2/21 |
| 28 | Fundamentals of semiconductor. Description of Fermi level in intrinsic semiconductor. Mention the expression for electron and hole concentration in intrinsic semiconductors. Derivation of relation between Fermi energy and energy gap for an intrinsic semiconductor. | L+D, I | BB | 1 | 24 | 2/2/2021 | 8/2/21 |
| 29 | Tutorial | L+D, PS | PS | 1 | 0 | 4/2/2021 | 4/2/21 |
| 30 | Derivation of the expression for electrical conductivity of semiconductors | L+I, PS | BB | 1 | 25 | 5/2/2021 | 9/2/21 |
| 31 | Explanation of Hall effect with Hall voltage and Hall field, Derivation of the expression for Hall coefficient. | L+I, FS | BB | 1 | 26 | 6/2/2021 | 12/2/21 |
| 32 | Fundamentals of dielectrics. Polarization, mention the relation between dielectric constant and polarization. Types of polarization. Polar and non-polar dielectrics | L+D, I | BB | 1 | 27 | 6/2/2021 | 12/2/21 |
| 33 | Definition of internal field in case of solids and mention its expression for one dimensional case and three dimensional cases and Lorentz field. Derivation of Clausius-Mossotti equation. | L+I, PS | BB | 1 | 28 | 8/2/2021 | 15/2/21 |
| 34 | Description of solid, liquid and gaseous dielectrics. Applications of dielectrics in transformers. | L+I, PS | BB | 1 | 29 | 9/2/2021 | 16/2/21 |
| 35 | Tutorial | L+D, PS | BB | 1 | 0 | 11/2/2021 | 11/2/21 |
| 36 | Numerical problems | PS | BB | 2 | 30 | 12/2/2021 | 19/2/21 |
| | **MODULE 4** | | | | | | 19/2/21 |
| 37 | Elasticity:Explain the concept of elasticity, plasticity, and stress and strain. Discuss two types of stresses namely tensile stress and compressive stress. | L+D, DE, I | BB+LCD | 1 | 31 | 13/2/2021 | 20/2/21 |
| 38 | Explain Hooke'slaw, stress strain curve, strain hardening and softening. Briefly discuss the effect of stress, temperature, annealing, impurities on elasticity, | L+I | BB+LCD | 1 | 32 | 13/2/2021 | 21/2/21 |
| 39 | Explain three different elastic moduli. Poisson's ratio:Define lateral strain and linear strain and hence Poisson's ratio | L+I, PS | BB+LCD | 1 | 33 | 15/2/2021 | 22/2/21 |
| 40 | Relation between shear strain, longitudinal and compression strain. Show that longitudinal strain + compression strain = shear strain by considering a cubical elastic body. | L+I, PS | BB | 1 | 34 | 16/2/2021 | 23/2/21 |
| 41 | Derive the relation between Y, $\sigma$ and $\eta$ | L+I, PS | BB | 1 | 35 | 22/2/2021 | 2/3/21 |
| 42 | Derive the relation between K, Y and $\sigma$. | L+I, PS | BB | 1 | 36 | 23/2/2021 | 5/3/21 |

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| | Derive the relation between K, η and Y. Discuss the limiting values of σ and limitations of Poisson's ratio. | | | | | | |
| 43 | Tutorial | L+D, PS | BB | 1 | 0 | 26/2/2021 | — |
| 44 | Bending of beams: Definition of beams, different types of beams, neutral surface/plane and neutral axis. Define bending moment. Derive the expression for bending moment in terms of moment of inertia. | L+I, DE, PS | BB | 1 | 37 | 27/2/2021 | 6/3/21 |
| 45 | Mention the expression for bending moment for circular and rectangular cross sections. Describe a single cantilever and hence derive the expression for Y. | L+I, DE, PS | BB, Model, LV | 1 | 38 | 27/2/2021 | 6/3/21 |
| 46 | Twisting couple on cylindrical wire, explain torsional oscillations, derive the expression for couple per unit twist for a solid cylinder. Mention the expression for Time period of torsional Oscillations. | L+I, DE, PS | BB, Model, LV | 1 | 39 | 1/3/2021 | 9/3/21 |
| 47 | Numerical problems | PS | BB | 1 | 40 | 2/3/2021 | 12/3/21 |
| 48 | Tutorial | L+D, PS | BB | 1 | 0 | 4/3/2021 | 4/3/21 |
| | **MODULE 5** | | | | | | |
| 49 | Description of propagation mechanism of light through an optical fiber. Angle of acceptance and numerical aperture (NA): Theory with condition for propagation. Modes of propagation and V number and types of optical fibers(qualitative) | L+D, I, PS | BB+LCD, LV | 1 | 41 | 5/3/2021 | 13/3/21 |
| 50 | Attenuation: Definition of attenuation, name the three types of attenuation, Causes of attenuation: Explain absorption, scattering and radiation losses. Mention the expression for attenuation coefficient | L+ I, CL(S), PS | BB+LCD | 1 | 42 | 6/3/2021 | 13/3/21 |
| 51 | Application of optical fiber: Point to point communication: Explain with the help of block diagram. Merits and de merits of optical fiber communication. | L+ I, CL(S), PS | BB+LCD | 1 | 43 | 6/3/2021 | 15/3/21 |
| 52 | Briefly explain scalar,product, vector product, del operation, concept of divergence, gradient and curl along with physical significance | L+I, PS | BB | 1 | 44 | 8/3/2021 | 15/3/21 |
| 53 | Derivation of Gauss divergence theorem and mention Stokes' theorem. Explain briefly Gauss flux theorem in electrostatics and magnetism | L+I | BB | 1 | 45 | 9/3/2021 | 16/3/21 |
| 54 | Explain Ampere's law, Biot-Savart's law and Faraday's laws of electromagnetic induction, Discuss continuity equation, displacement current. | L+I, PS | BB | 1 | 46 | 12/3/2021 | 16/3/21 |
| 55 | Derive the expression for displacement current, Maxwell-Ampere's law. List four Maxwell's equations in differential form. | L+I, PS | BB | 1 | 47 | 13/3/2021 | 18/3/21 |

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| 56 | Derive wave equation in terms of electric field using Maxwell's equations. | L+I, PS | BB | 1 | 48 | 13/3/2021 | 18/3/21 |
| 57 | Mention of plane electromagnetic waves in vacuum along with the equations for E, B and c. Explain the transverse nature of electromagnetic waves, three types of polarization. | L+I, PS | BB | 1 | 49 | 19/3/2021 | 19/3/21 |
| 58 | Numerical problems | PS | BB | 1 | 50 | 20/3/2021 | 20/3/21 |
| | **REVISION** | | | | | | |
| 59 | Revision | L+D | BB | 0 | 50 | 20/3/2021 | 23/3/21 |
| 60 | Revision | L+D | BB | 0 | 50 | 25/3/2021 | 23/3/21 |

**Total No. of Lecture Hours = 50**

**Total No. of Tutorial Hours = 8**

**Total No. of Revision Hours =2**

**Course In charge**

**Head of the Department**

Dr. C. VASUDEV
Professor & Head
Department of Basic Science
KS School of Engineering and Management
Bangalore - 560 109.

**Principal**

Dr. K. RAMA NARASIMHA
Principal/Director
K S School of Engineering and Management
Bengaluru - 560 109

# K.S. SCHOOL OF ENGINEERING AND MANAGEMENT, BENGALURU - 560109

## DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

NAME OF THE STAFF : SANTHOSH KUMAR S

SUBJECT CODE/NAME : 17CS71/WEB TECHNOLOGY AND ITS APPLICATIONS

SEMESTER/SEC/YEAR : VII / B/ IV

ACADEMIC YEAR : 2020-2021

| Sl. No. | Topic to be covered | Mode of Delivery | Teaching Aid | No. of Periods | Cumulative No. of Periods | Proposed Date | Execution Date |
|---|---|---|---|---|---|---|---|
| | **MODULE 1: Introduction to HTML and CSS** | | | | | | |
| 1 | What is HTML and Where did it come from? | L+ D | Online | 1 | 1 | 02-9-2020 | 2/9/2020 |
| 2 | HTML Syntax, Semantic Markup | L+ D | Online | 1 | 2 | 03-9-2020 | 3/9/2020 |
| 3 | Structure of HTML Documents | L+ I | Online | 1 | 3 | 04-9-2020 | 4/9/2020 |
| 4 | Quick Tour of HTML Elements | L+I | Online | 1 | 4 | 07-9-2020 | 7/9/2020 |
| 5 | HTML5 Semantic Structure Elements | L+ D | Online | 1 | 5 | 09-9-2020 | 8/9/2020 |
| 6 | Introduction to CSS, what is CSS, CSS Syntax | L+ D | Online | 1 | 6 | 10-9-2020 | 9/9/2020 |
| 7 | Location of Styles, Selectors | L+ D | Online | 1 | 7 | 11-9-2020 | 10/9/2020 |
| 8 | The Cascade: How Styles Interact | L+ D | Online | 1 | 8 | 14-9-2020 | 11/9/2020 |
| 9 | The Box Model | L+I | Online | 1 | 9 | 16-9-2020 | 10/9/2020 |
| 10 | CSS Text Styling. | L+D | Online | 1 | 10 | 18-9-2020 | 14/9/2020 |
| | **MODULE 2: HTML Tables and Forms** | | | | | | |
| 11 | Introducing Tables | L+ D | Online | 1 | 11 | 21-9-2020 | 18/9/2020 |
| 12 | Styling Tables | L+ D | Online | 1 | 12 | 23-9-2020 | 21/9/2020 |
| 13 | Introducing Forms | L+ I | Online | 1 | 13 | 24-9-2020 | 22/9/2020 |
| 14 | Form Control Elements | L+I | Online | 1 | 14 | 25-9-2020 | 23/9/2020 |
| 15 | Table and Form Accessibility, Microformats | L+I | Online | 1 | 15 | 28-9-2020 | 25/9/2020 |
| 16 | Advanced CSS: Layout, Normal Flow | L+ I | Online | 1 | 16 | 30-9-2020 | 30/9/2020 |
| 17 | Positioning Elements, Floating Elements | L+ D | Online | 1 | 17 | 01-10-2020 | 1/10/2020 |

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|---|---|---|---|---|---|---|---|
| 18 | IA-1 | | | 0 | 17 | 05-10-2020 | |
| 19 | IA-1 | | | 0 | 17 | 07-10-2020 | |
| 18 | Constructing Multicolumn Layouts | L + D | Online | 1 | 18 | 08-10-2020 | 8/10/2020 |
| 19 | Approaches to CSS Layout | L +I | Online | 1 | 19 | 09-10-2020 | 9/10/2020 |
| 20 | Responsive Design. CSS Frameworks | L + D | Online | 1 | 20 | 12-10-2020 | 12/10/2020 |
| **MODULE 3:Javascript, PHP** | | | | | | | |
| 21 | Client-Side Scripting. What is JavaScript and What can it do? | L + D | Online | 1 | 21 | 14-10-2020 | 15/10/2020 |
| 22 | JavaScript Design Principles, Where does JavaScript Go? | L + D | Online | 1 | 22 | 15-10-2020 | 16/10/2020 |
| 23 | JavaScript Syntax, JavaScript Objects | L + I | Online | 1 | 23 | 16-10-2020 | 19/10/2020 |
| 24 | The Document Object Model (DOM) | L +I | Online | 1 | 24 | 19-10-2020 | 19/10/2020 |
| 25 | JavaScript Events, Forms | L+I | Online | 1 | 25 | 21-10-2020 | 22/10/2020 |
| 26 | Introduction to Server-Side Development with PHP | L + D | Online | 1 | 26 | 22-10-2020 | 23/10/2020 |
| 27 | What is Server-Side Development | L + D | Online | 1 | 27 | 23-10-2020 | 24/10/2020 |
| 28 | A Web Server's Responsibilities | L + D | Online | 1 | 28 | 28-10-2020 | 24/10/2020 |
| 29 | Quick Tour of PHP | L+I | Online | 1 | 29 | 29-10-2020 | 29/10/2020 |
| 30 | Program Control, Functions | L+D | Online | 1 | 30 | 02-11-2020 | 03/11/2020 |
| 31 | IA-2 | | | 0 | 30 | 02-11-2020 | |
| 32 | IA-2 | | | 0 | 30 | 04-11-2020 | |
| **MODULE 4: PHP Arrays and Superglobals** | | | | | | | |
| 31 | Arrays | L+ D | Online | 1 | 31 | 05-11-2020 | 05/11/2020 |
| 32 | $_GET and $_POST Superglobal Arrays | L +I | Online | 1 | 32 | 06-11-2020 | 09/11/2020 |
| 33 | $_SERVER Array. $_Files Array | L +I | Online | 1 | 33 | 07-11-2020 | 09/11/2020 |
| 34 | Reading/Writing Files | L +I | Online | 1 | 34 | 09-11-2020 | 12/11/2020 |
| 35 | PHP Classes and Objects, Object-Oriented Overview | L +I | Online | 1 | 35 | 11-11-2020 | 13/11/2020 |
| 36 | Classes and Objects in PHP, Object Oriented Design | L +I | Online | 1 | 36 | 12-11-2020 | 20/11/2020 |
| 37 | Error Handling and Validation. | L + D | Online | 1 | 37 | 13-11-2020 | 20/11/2020 |

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|---|---|---|---|---|---|---|---|
| 38 | What are Errors and Exceptions? | L+D | Online | 1 | 38 | 18-11-2020 | 20/11/2020 |
| 39 | PHP Error Reporting | L+I | Online | 1 | 39 | 19-11-2020 | 21/11/2020 |
| 40 | PHP Error and Exception Handling | L+D | Online | 1 | 40 | 20-11-2020 | 23/11/2020 |
| | **MODULE 5: Managing State, Other Web Applications** | | | | | | |
| 41 | Managing State, The Problem of State in Web Applications | L+D | Online | 1 | 41 | 23-11-2020 | 23/11/2020 |
| 42 | Passing Information via Query Strings, Passing Information via the URI Path | L+D | Online | 1 | 42 | 25-11-2020 | 30/11/2020 |
| 43 | Cookies, Serialization, Session State | L+I | Online | 1 | 43 | 26-11-2020 | 30/11/2020 |
| 44 | HTML 5 Web Storage, Caching | L+I | Online | 1 | 44 | 27-11-2020 | 2/12/2020 |
| 45 | Advanced JavaScript and jQuery, JavaScript Pseudo-Classes, jQuery Foundations | L+I | Online | 1 | 45 | 30-11-2020 | 5/12/2020 |
| 46 | AJAX, Asynchronous File Transmission | L+I | Online | 1 | 46 | 02-12-2020 | 7/12/2020 |
| 47 | Animation, Backbone MVC Frameworks | L+D | Online | 1 | 47 | 04-12-2020 | 7/12/2020 |
| | IA-3 | | Online | 0 | 47 | 07-11-2020 | |
| | IA-3 | | Online | 0 | 47 | 09-11-2020 | |
| 48 | XML Processing and Web Services | L+D | Online | 1 | 48 | 14-12-2020 | 10/12/2020 |
| 49 | JSON | L+I | Online | 1 | 49 | 16-12-2020 | 10/12/2020 |
| 50 | Overview of Web Services | L+I | Online | 1 | 50 | 17-12-2020 | 15/12/2020 |
| | **Revision** | | | | | | |
| 51 | Revision | L+D | Online | 0 | 50 | 17-12-2020 | |

**Total No. of Lecture Hours = 50**

**Total No. of Revision Hours = 01**

**Course In charge**

**Head of the Department**

HOD
Dept. of Computer Science & Engineering
K.S. School of Engineering & Management
Bangalore-560 082.

**Principal**

Dr. K. RAMA NARASIMHA
Principal/Director
K S School of Engineering and Management
Bengaluru - 560 109

# K.S. SCHOOL OF ENGINEERING AND MANAGEMENT, BENGALURU - 560109

## DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

### SESSION: 2020-2021 (ODD SEMESTER)

### LESSON PLAN

**NAME OF THE STAFF** : HEMAPRIYA M

**COURSE CODE/TITLE** : 18EE35 / DIGITAL SYSTEM DESIGN

**SEMESTER/YEAR** : III

**ACADEMIC YEAR** : 2020-2021

| Sl. No. | Topic to be covered | Mode of Delivery | Teaching Aid | No. of Periods | Cumulative No. of Periods | Proposed Date | Execution Date |
|---|---|---|---|---|---|---|---|
| | **MODULE 1** | | | | | | |
| 1 | **Principles of Combinational Logic**: Definition of combinational logic | L+D | LCD | 1 | 1 | 01/09/2020 | 01/9/20 |
| 2 | canonical forms, Generation of switching equations from truth tables | L+D | LCD | 1 | 2 | 03/09/2020 | 3/9/20 |
| 3 | Karnaugh maps-3,4,5 variables, Incompletely specified functions (Don't care terms) Simplifying Max term equations | L+D | LCD | 1 | 3 | 04/09/2020 | 4/9/20 |
| 4 | Karnaugh maps-3,4,5 variables, Incompletely specified functions (Don't care terms) Simplifying Max term equations | L+D | LCD | 1 | 4 | 07/09/2020 | 7/9/20 |
| 5 | Karnaugh maps-3,4,5 variables, Incompletely specified functions (Don't care terms) Simplifying Max term equations | L+D | LCD | 1 | 5 | 08/09/2020 | 8/9/20 |
| 6 | Quine-McCluskey minimization technique | L+D | LCD | 1 | 6 | 10/09/2020 | 10/9/20 |
| 7 | Quine-McCluskey using don't care terms | L+D | LCD | 1 | 7 | 11/09/2020 | 11/9/20 |
| 8 | Reduced prime implicants Tables | L+D | LCD | 1 | 8 | 14/09/2020 | 15/9/20 |

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| **MODULE 2** | | | | | | | |
| 9 | **Analysis and Design of Combinational logic:** General approach to combinational logic design | L+D | LCD | 1 | 9 | 15/09/2020 | 21/9/20 |
| 10 | Decoders, BCD decoders | L+D | LCD | 1 | 10 | 18/09/2020 | 21-9-20 |
| 11 | Encoders | L+D | LCD | 1 | 11 | 21/09/2020 | 22-9-20 |
| 12 | digital multiplexers, Using multiplexers as Boolean function generators | L+D | LCD | 1 | 12 | 24/09/2020 | 24-9-20 |
| 13 | Adders and subtractors | L+D | LCD | 1 | 13 | 25/09/2020 | 25-9-20 |
| 14 | Cascading full adders | L+D | LCD | 1 | 14 | 28/09/2020 | 29-9-20 |
| 15 | Look ahead carry | L+D | LCD | 1 | 15 | 29/09/2020 | 30-9-20 |
| 16 | Binary comparators | L+D | LCD | 1 | 16 | 12/10/2020 | 01-10-20 |
| **MODULE 3** | | | | | | | |
| 17 | **Flip-Flops:** Basic Bistable elements | L+D | LCD | 1 | 17 | 13/10/2020 | 03/10/20 |
| 18 | Latches | L+D | LCD | 1 | 18 | 15/10/2020 | 7/10/20 |
| 19 | Timing considerations | L+D | LCD | 1 | 19 | 16/10/2020 | 8-10-20 |
| 20 | The master-slave flip-flops (pulsetriggered flip-flops) | L+D | LCD | 1 | 20 | 19/10/2020 | 9-10-20 |
| 21 | SR flip-flops | L+D | LCD | 1 | 21 | 22/10/2020 | 12-10-20 |
| 22 | JK flip-flops | L+D | LCD | 1 | 22 | 23/10/2020 | 13-10-20 |
| 23 | Edge triggered flip- flops | L+D | LCD | 1 | 23 | 27/10/2020 | 15-10-20 |
| 24 | Characteristic equations | L+D | LCD | 1 | 24 | 29/10/2020 | 19-10-20 |
| **MODULE 4** | | | | | | | |
| 25 | **Flip-Flops Applications:** Registers | L+D | LCD | 1 | 25 | 02/11/2020 | 20-10-20 |
| 26 | binary ripple counters | L+D | LCD | 1 | 26 | 03/11/2020 | 23-10-20 |
| 27 | synchronous binary counters | L+D | LCD | 1 | 27 | 05/11/2020 | 27-10-20 |
| 28 | Counters based on shift registers | L+D | LCD | 1 | 28 | 06/11/2020 | 29-10-20 |
| 29 | Design of a synchronous counter | L+D | LCD | 1 | 29 | 12/11/2020 | 2-11-20 |
| 30 | Design of a synchronous mod-n counter using clocked T flip-flops | L+D | LCD | 1 | 30 | 13/11/2020 | 3-11-20 |
| 31 | Design of a synchronous mod-n counter using clocked JK flip-flops | L+D | LCD | 1 | 31 | 17/11/2020 | 5-11-20 |
| 32 | Design of a synchronous mod-n counter using clocked SR flip-flops | L+D | LCD | 1 | 32 | 20/11/2020 | 9-11-20 |

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| | | | MODULE 5 | | | | |
| 33 | **Sequential Circuit Design:** Mealy and Moore models | L+D | LCD | 1 | 33 | 23/11/2020 | 21-11-20 |
| 34 | State machine notation | L+D | LCD | 1 | 34 | 24/11/2020 | 23-11-20 |
| 35 | Synchronous Sequential circuit analysis | L+D | LCD | 1 | 35 | 26/11/2020 | 24-11-20 |
| 36 | Construction of state diagrams | L+D | LCD | 1 | 36 | 27/11/2020 | 26-11-20 |
| 37 | counter design | L+D | LCD | 1 | 37 | 04/12/2020 | 27-11-20 |
| 38 | **Memories:** Read only and Read | L+D | LCD | 1 | 38 | 07/12/2020 | 01/12/20 |
| 39 | Write Memories | L+D | LCD | 1 | 39 | 08/12/2020 | 14/12/20 |
| 40 | Programmable ROM, EPROM, Flash memory | L+D | LCD | 1 | 40 | 17/12/2020 | 18/12/20 |

**Total No. of Lecture Hours = 40**

**Total No. of Tutorial Hours = 0**

**Total No. of Revision Hours = 0**

**Hemapriya M**

**Course In charge**

**Head of the Department**

10/3/2021

**Principal**

K.S. SCHOOL OF ENGINEERING AND MANAGEMENT, BENGALURU - 560109

DEPARTMENT OF MANAGEMENT STUDIES

SESSION: 2020-2021 (ODD SEMESTER)

LESSON PLAN

**NAME OF THE STAFF** : ROOPA BALAVENU

**COURSE CODE/TITLE** : 20MBA13 / ACCOUNTING FOR MANAGERS

**SEMESTER/YEAR** : I SEMESTER

**ACADEMIC YEAR** : 2020-2021

| Sl. No. | Topic to be covered | Mode of Delivery | Teaching Aid | No. of Periods | Cumulative No. of Periods | Proposed Date | Execution Date |
|---|---|---|---|---|---|---|---|
| | **MODULE 1** | | | | | | |
| 1 | **Module-1 :Introduction to Accounting :** | L+D | WB+LCD | 1 | 1 | 19/01/21 | 21/1/21 |
| 2 | Financial Accounting: Need and Types of Accounting, | L+D | WB+LCD | 1 | 2 | 19/01/21 | 21/1/21 |
| 3 | Single Entry System | L+D | WB+LCD | 1 | 3 | 22/01/21 | 22/1/21 |
| 4 | Double Entry System, Concepts and Conventions of Accounting, Relation of Accounting with other disciplines, | L+D | WB+LCD | 1 | 4 | 22/01/21 | 22/1/21 |
| 5 | Journal | L+D | WB+LCD | 1 | 5 | 23/01/21 | 25/1/21 |
| 6 | Ledgers | L+D | WB+LCD | 1 | 6 | 25/01/21 | 25/1/21 |
| 7 | Trial balance. | L+D | WB+LCD | 1 | 7 | 25/01/21 | 28/1/21 |
| | **MODULE 2** | | | | | | |
| 8 | **Module -2 Financial Statements :** Introduction | L+D | WB+LCD | 1 | 8 | 29/01/21 | 26/1/21 |
| 9 | Preparation of final accounts of companies in vertical form as per Companies Act of 2013 (Basic problems of Final Accounts), | L+D | WB+LCD | 1 | 9 | 29/01/21 | 1/2/21 |
| 10 | Preparation of final accounts of companies in vertical form as per Companies Act of 2013 (Basic problems of Final Accounts) | L+D | WB+LCD | 1 | 10 | 30/01/21 | 1/2/21 |
| 11 | Preparation of final accounts of companies in vertical form as per Companies Act of 2013 (Basic problems of Final Accounts) | L+D | WB+LCD | 1 | 11 | 01/02/21 | 2/2/21 |
| 12 | Preparation of final accounts of companies in vertical form as per Companies Act of 2013 (Basic problems of Final Accounts) | L+D | WB+LCD | 1 | 12 | 01/02/21 | 2/2/21 |

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| 13 | Preparation of final accounts of companies in vertical form as per Companies Act of 2013 (Basic problems of Final Accounts) | L+D | WB+LCD | 1 | 13 | 02/02/21 | 5/2/21 |
| 14 | Preparation of final accounts of companies in vertical form as per Companies Act of 2013 (Basic problems of Final Accounts) | L+D | WB+LCD | 1 | 14 | 02/02/21 | 5/2/21 |
| 15 | Preparation of final accounts of companies in vertical form as per Companies Act of 2013 (Basic problems of Final Accounts) | L+D | WB+LCD | 1 | 15 | 05/02/21 | 6/2/21 |
| 16 | Window dressing. Case Study problem on Final Accounts of Company-Appropriation accounts. | L+D | WB+LCD | 1 | 16 | 05/02/21 | 8/2/21 |
| 17 | Case Study problem on Final Accounts of Company-Appropriation accounts. | L+D | WB+LCD | 1 | 17 | 06/02/21 | 8/2/21 |
| 18 | Case Study problem on Final Accounts of Company-Appropriation accounts. | L+D | WB+LCD | 1 | 18 | 08/02/21 | 9/2/21 |
| 19 | Case Study problem on Final Accounts of Company-Appropriation accounts. | L+D | WB+LCD | 1 | 19 | 08/02/21 | 9/2/21 |
| | **MODULE 3** | | | | | | |
| 20 | **Module -3 Analysis of Financial Statements** | L+D | WB+LCD | 1 | 20 | 09/02/21 | 11/2/21 |
| 21 | Limitations of Financial Statements; Meaning and Purpose of Financial Statement Analysis | L+D | WB+LCD | 1 | 21 | 09/02/21 | 11/2/21 |
| 22 | Trend Analysis, Comparative Analysis | L+D | WB+LCD | 1 | 22 | 09/02/21 | 12/2/21 |
| 23 | Financial Ratio Analysis | L+D | WB+LCD | 1 | 23 | 12/02/21 | 15/2/21 |
| 24 | Preparation of Financial Statements using Financial Ratios | L+D | WB+LCD | 1 | 24 | 12/02/21 | 15/2/21 |
| 25 | Case Study on Financial Ratio Analysis. | L+D | WB+LCD | 1 | 25 | 13/02/21 | 16/2/21 |
| 26 | Case Study on Financial Ratio Analysis. | L+D | WB+LCD | 1 | 26 | 15/02/21 | 16/2/21 |
| 27 | Case Study on Financial Ratio Analysis. | L+D | WB+LCD | 1 | 27 | 15/02/21 | 22/2/21 |
| 28 | Preparation of Cash flow Statement (indirect method). | L+D | WB+LCD | 1 | 28 | 16/02/21 | 22/2/21 |
| 29 | Lab compulsory for Financial Statement Analysis using excel. | L+D | WB+LCD | 1 | 29 | 16/02/21 | 23/2/21 |
| | **MODULE 4** | | | | | | |
| 30 | **Module -4 Management Accounting** | L+D | WB+LCD | 1 | 30 | 22/02/21 | 23/2/21 |
| 31 | Scope, Purpose of Management Accounting | L+D | WB+LCD | 1 | 31 | 22/02/21 | 26/2/21 |
| 32 | Cost Volume Profit Analysis: Meaning- | L+D | WB+LCD | 1 | 32 | 23/02/21 | 26/2/21 |
| 33 | Methods of determination-Applications. | L+D | WB+LCD | 1 | 33 | 23/02/21 | 2/3/21 |
| 34 | Managerial Decision-Making- Make /Buy etc: | L+D | WB+LCD | 1 | 34 | 26/02/21 | 2/3/21 |
| 35 | Short-run Decision Analysis-Decision situations: | L+D | WB+LCD | 1 | 35 | 26/02/21 | 2/3/21 |

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| 36 | Sales-volume related, | L+D | WB+LCD | 1 | 36 | 27/02/21 | 5/3/21 |
| 37 | Sell or further process, | L+D | WB+LCD | 1 | 37 | 01/03/21 | 5/3/21 |
| 38 | Make or Buy, Operate or shut-down. | L+D | WB+LCD | 1 | 38 | 01/03/21 | 6/3/21 |
| | **MODULE 5** | | | | | | |
| 39 | **Module -5 Functional and Flexible Budgeting** | L+D | WB+LCD | 1 | 39 | 02/03/21 | 6/3/21 |
| 40 | Functional budgets | L+D | WB+LCD | 1 | 40 | 02/03/21 | 8/3/21 |
| 41 | Flexible Budgets: Meaning-Measure of Volume-Cost Behaviour with change in volume- Fixed, variable & mixed costs. | L+D | WB+LCD | 1 | 41 | 05/03/21 | 8/3/21 |
| 42 | Variance Analysis: Cost Variances | L+D | WB+LCD | 1 | 42 | 05/03/21 | 9/3/21 |
| 43 | Revenue Variances- | L+D | WB+LCD | 1 | 43 | 06/03/21 | 9/3/21 |
| 44 | Variance Reporting- | L+D | WB+LCD | 1 | 44 | 08/03/21 | 10/3/21 |
| 45 | Disposition of variances. | L+D | WB+LCD | 1 | 45 | 08/03/21 | 10/3/21 |
| | **MODULE-6** | | | | | | |
| 46 | **Module-6 Emerging Issues in Accounting and Computerised Accounting** | L+D | WB+LCD | 1 | 46 | 09/03/21 | 12/3/21 |
| 47 | Emerging Issues in Accounting: Human Resource Accounting, | L+D | WB+LCD | 1 | 47 | 09/03/21 | 12/3/21 |
| 48 | Forensic Accounting, Sustainability Reporting, Applicability of Ind AS – | L+D | WB+LCD | 1 | 48 | 12/03/21 | 13/3/21 |
| 49 | Indian Accounting Standards. | L+D | WB+LCD | 1 | 49 | 12/03/21 | 15/3/21 |
| 50 | Computerised Accounting Systems-Structuring Database for Accounting- | L+D | WB+LCD | 1 | 50 | 13/03/21 | 15/3/21 |
| 51 | Accounting system Using Database Management systems-Illustration of Accounting Database | L+D | WB+LCD | 1 | 51 | 15/03/21 | 16/3/21 |
| 52 | Accounting system Using Database Management systems-Illustration of Accounting Database | L+D | WB+LCD | 1 | 52 | 15/03/21 | 16/3/21 |
| 53 | **Case Study** | L+D | WB+LCD | 1 | 53 | 16/03/21 | 22/3/21 |
| 54 | **Case Study** | L+D | WB+LCD | 1 | 54 | 16/03/21 | 22/3/21 |
| 55 | **Revision Hours** | L+D | WB+LCD | 1 | 55 | 22/03/21 | 23/3/21 |
| 56 | **Revision Hours** | L+D | WB+LCD | 1 | 56 | 22/03/21 | 23/3/21 |

**Total No. of Lecture Hours = 52**
**Total No. of Case study Hours = 2**
**Total No. of Revision Hours = 2**
**Course In charge: Mrs. Roopa Balavenu** Roopa

**Head of the Department**

## K.S. SCHOOL OF ENGINEERING AND MANAGEMENT, BANGALORE - 560109

### DEPARTMENT OF MECHANICAL ENGINEERING

NAME OF THE STAFF : ABHISHEK M R

COURSE CODE/TITLE : 18ME32/ MECHANICSOF MATERIALS

SEMESTER/YEAR : III / II

ACADEMIC YEAR : 2020-2021

| Sl. No. | Topic to be covered | Mode of Delivery | Teaching Aid | No. of Periods | Cumulative No. of Periods | Proposed Date | Engaged Date |
|---|---|---|---|---|---|---|---|
| | **MODULE 1** | | | | | | |
| 1 | Introduction to Stress, Strain and Hooke law | L+D | BB | 1 | 1 | 02/09/2020 | 1/9/20 |
| 2 | Extension And Shortening of Bar, Bar With Varying Cross Section In Steps | L | BB | 1 | 2 | 03/09/2020 | 2/9/20 |
| 3 | Bar With Continuously Varying Cross Section - Circular And Rectangular | L+PS | BB | 1 | 3 | 05/09/2020 | 3/9/20 |
| 4 | Composite sections And Numerical Problems | L+PS | BB | 1 | 4 | 07/09/2020 | 5/9/20 |
| 5 | Temperature Stress And Numerical Problems | L+PS | BB | 1 | 5 | 08/09/2020 | 7/9/20 |
| 6 | Temperature Stress And Numerical Problems | L+PS | BB | 1 | 6 | 10/09/2020 | 8/9/20 |
| 7 | Shear Stress And Strains Numerical Problems | L+PS | BB | 1 | 7 | 12/09/2020 | 10/9/20. |
| 8 | Generalized Hooke law | L | BB | 1 | 8 | 14/09/2020 | 12/9/20 |
| 9 | Bulk modulus, Relationship between elastic constants | L+PS | BB | 1 | 9 | 15/09/2020 | 14/9/20 |
| 10 | Numerical Problems on elastic constants | L+PS | BB | 1 | 10 | 19/09/2020 | 15/9/20. |
| | **MODULE 2** | | | | | | |
| 11 | Thin cylinder: Hoop's stress, maximum shear stress | L+D | BB | 1 | 11 | 21/09/2020 | 17/9/20 |
| 12 | Numerical Problems on thin cylinders | L | BB | 1 | 12 | 22/09/2020 | 19/9/20 |
| 13 | circumferential and longitudinal strains | L | BB | 1 | 13 | 24/09/2020 | 20/9/20. |
| 14 | Numerical Problems on thick cylinders | L+PS | BB | 1 | 14 | 26/09/2020 | 21/9/20 |
| 15 | Numerical Problems on thick cylinders | L+PS | BB | 1 | 15 | 28/09/2020 | 22/9/20 |
| 16 | Polar Modulus Torsional Rigidity Stiffness of Shafts Power Transmitted By Solid | L+PS | BB | 1 | 16 | 29/09/2020 | 24/9/20. |
| 17 | Polar Modulus Torsional Rigidity Stiffness of Shafts Power Transmitted By Hollow Circular | L+PS | BB | 1 | 17 | 01/10/2020 | 24/9/20 |

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| | Shafts | | | | | | |
| 18 | Numerical | L+PS | BB | 1 | 18 | 03/10/2020 | 26/9/20 |
| | Test I | - | - | - | - | 05/10/2020 | 06/10/20 |
| | **MODULE 3** | | | | | | |
| 19 | Introduction to Columns Eulers Theory For Axially Loaded Elastic Long Columns | L+ D | BB | 1 | 19 | 08/10/2020 | 28/9/20 |
| 20 | Numerical | L+PS | BB | 1 | 20 | 10/10/2020 | 29/9/20. |
| 21 | Numerical | L+PS | BB | 1 | 21 | 12/10/2020 | 12/10/20 |
| 22 | Numerical | L+PS | BB | 1 | 22 | 13/10/2020 | 14/10/20 |
| 23 | Numerical | L+PS | BB | 1 | 23 | 15/10/2020 | 16/10/20 |
| 24 | Derivation of Eulers Load For Various End Conditions Limitations of Eulers Theory Rankines formula | L | BB | 1 | 24 | 17/10/2020 | 19/10/20. |
| 25 | Derivation of Eulers Load For Various End Conditions Limitations of Eulers Theory Rankines formula | L | BB | 1 | 25 | 19/10/2020 | 21/10/20 |
| 26 | Castigliano's theorem I and II | L+PS | BB | 1 | 26 | 20/10/2020 | 22/10/20. |
| 27 | Strain energy due to normal stresses | L+PS | BB | 1 | 27 | 22/10/2020 | 23/10/20 |
| 28 | Strain energy due to bending and torsion | L+PS | BB | 1 | 28 | 24/10/2020 | 24/10/20. |
| | **MODULE 4** | | | | | | |
| 29 | Type of beams, Loads and reactions, Relationship between loads, shear forces and Bending Moment | L+ D | BB | 1 | 29 | 27/10/2020 | 27/10/20 |
| 30 | Shear force and bending moments of cantilever beams | L+PS | BB | 1 | 30 | 29/10/2020 | 28/10/20 |
| | Test II | - | - | - | - | 02/11/2020 | 18/11/20. |
| 31 | Shear force and bending moments of cantilever beams | L+PS | BB | 1 | 31 | 05/11/2020 | 29/10/20 |
| 32 | Shear force and bending moments of simply supported beam | L+PS | BB | 1 | 32 | 07/11/2020 | 02/11/20 |
| 33 | | | | | 33 | 09/11/2020 | 04/11/20 |
| 34 | Shear force and bending moments of simply supported beam | L+PS | BB | 1 | 34 | 10/11/2020 | 05/11/20 |
| 35 | Shear force and bending moments of over hanging beam | L+PS | BB | 1 | 35 | 12/11/2020 | 07/11/20 |
| 36 | Shear force and bending moments of over hanging beam | L+PS | BB | 1 | 36 | 14/11/2020 | 09/11/20 |
| 37 | Introduction Theory of simple Bending Assumptions In Simple Bending | L+PS | BB | 1 | 37 | 17/11/2020 | 11/11/20. |

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| 38 | Relationship Between Bending Stresses And Radius of Curvature | L+PS | BB | 1 | 38 | 19/11/2020 | 13/11/20 |
| 39 | Moment Carrying Capacity of a Section, Shearing Stresses in Beams | L+PS | BB | 1 | 39 | 21/11/2020 | 24/11/20 |
| 40 | Shear Stress Across Rectangular Circular Symmetrical I and T Sections | L+PS | BB | 1 | 40 | 23/11/2020 | 25/11/20. |
| | **MODULE 5** | | | | | | |
| 41 | Plane stress, Stresses on inclined planes | L+ D | BB | 1 | 41 | 24/11/2020 | 26/11/20 |
| 42 | Principal stresses and maximum shear stress | L+PS | BB | 1 | 42 | 26/11/2020 | 30/11/20 |
| 43 | Shear stresses on principal planes, Maximum shear tress | L+PS | BB | 1 | 43 | 28/11/2020 | 02/12/20 |
| 44 | Numerical Problems | L+PS | BB | 1 | 44 | 30/11/2020 | 03/12/20 |
| 45 | Mohr circle for plane stress conditions | L+PS | BB | 1 | 45 | 01/12/2020 | 07/12/20 |
| 46 | Mohr circle for plane stress conditions | L+PS | BB | 1 | 46 | 05/12/2020 | 09/12/20. |
| | Test III | - | - | - | - | 07/12/2020 | 10/12/20. |
| 47 | Mohr circle for plane stress conditions | L+PS | BB | 1 | 47 | 14/12/2020 | 05/01/2020 |
| 48 | Maximum Principal stress theory | L+PS | BB | 1 | 48 | 15/12/2020 | 11/12/20. |
| 49 | Maximum shear stress theory | L+PS | BB | 1 | 49 | 17/12/2020 | 16/12/20. |

**Total no. of Lecture Hours = 49**

**Total no. of Tutorial Hours = 0**

**Total no. of Revision Hours = 0**

**Course In charge**

**Head of the Department**

**Principal**