# GANGA TECHNICAL CAMPUS

<u>DEPARTMENT OF APPLIED SCIENCES AND HUMANITIES</u>

## LESSON PLAN

NAME:Ms. Neha gupta

COURSE:B.tech (computer sciences)

SEMESTER:Fourth

SUBJECT: Mathematics-3

LESSON PLAN DURATION:15 WEEK

Lecture:3    Tutorial:2

| WEEK | | |
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| | **LECTURE DAY** | |
| 1 | 1 | Fourier Series and Fourier Transforms |
| | 2 | Euler's formulae, conditions for a Fourier expansion |
| | 3 | change of interval, Fourier expansion of odd and even functions |
| | 4 | exercise discussion |
| | 5 | exercise discussion |
| 2 | 1 | Fourier expansion of square wave |
| | 2 | Fourier expansion rectangular wave, saw-toothed wave, |
| | 3 | full rectified wave, half range sine and cosine series |
| | 4 | exercise discussion |
| | 5 | exercise discussion |

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| 3 | 1 | Fourier integrals, |
| | 2 | Fourier transforms, Shifting theorem |
| | 3 | Fourier transforms of derivatives |
| | 4 | exercise discussion |
| | 5 | exercise discussion |
| 4 | 1 | Fourier transforms of integrals |
| | 2 | Convolution theorem |
| | 3 | Fourier transform of Dirac-delta function. |
| | 4 | exercise discussion |
| | 5 | exercise discussion |
| 5 | | |
| | 1 | Functions of Complex Variable : Definition |
| | 2 | Exponential function, Trignometric and Hyperbolic functions |
| | 3 | Logrithmic functions |
| | 4 | exercise discussion |
| | 5 | exercise discussion |
| 6 | | |
| | 1 | Limit and Continuity of a function |
| | 2 | Differnetiability |
| | 3 | analytic functions |

| | 4 | exercise discussion |
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| | 5 | exercise discussion |
| 7 | | |
| | 1 | Cauchy-Riemann equations, necessary and sufficient conditions for a function to be analy |
| | 2 | polar form of the Cauchy-Riemann equations. Harmonic functions |
| | 3 | application to flow problems. |
| | 4 | Integration of complex functions. |
| | 5 | exercise discussion |
| 8 | 1 | exercise discussion |
| | 2 | Cauchy-Integral theorem and formula |
| | 3 | exercise discussion |
| | 4 | exercise discussion |
| | 5 | Power series, radius and circle of convergence |
| 9 | 1 | Power series, radius and circle of convergence |
| | 2 | Zeroes and singularities of complex functions, |
| | 3 | Evaluation of real integrals using residues (around unit and semi circle only). |
| | 4 | exercise discussion |
| | 5 | exercise discussion |
| 10 | 1 | Probability Distributions and Hypothesis Testing : Conditional probability |
| | 2 | Bayes theorem and its applications |

| | 3 | expected value of a random variable |
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| | 4 | Properties and application of Binomial |
| | 5 | exercise discussion |
| 11 | 1 | exercise discussion |
| | 2 | Poisson and Normal distributions |
| | 3 | Testing of a hypothesis |
| | 4 | tests of significance for large samples |
| | 5 | exercise discussion |
| 12 | 1 | exercise discussion |
| | 2 | Student's t-distribution |
| | 3 | Chi-square test of goodness of fit |
| | 4 | Linear Programming: |
| | 5 | exercise discussion |
| 13 | 1 | exercise discussion |
| | 2 | Linear programming problems formulation, |
| | 3 | formation of dual of a problem |
| | 4 | graphical method |
| | 5 | simp;ex method |
| 14 | 1 | dual simplex method |
| | 2 | exercise discussion |

| | 3 | exercise discussion |
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| | 4 | exercise discussion |
| | 5 | revision of unit-1 with previous year problems and exercises problem |
| 15 | 1 | revision of unit-2 with previous year problems and exercises problem |
| | 2 | revision of unit-2 with previous year problems and exercises problem |
| | 3 | revision of unit-3 with previous year problems and exercises problem |
| | 4 | revision of unit-3 with previous year problems and exercises problem |
| | 5 | revision of unit-4 with previous year problems and exercises problem |