

ACTION TAKEN REPORT

[w.r.t. meeting held on 16th July 2018]

With the introduction of F.Y.B.Sc, M.Sc. I [Computer Science], skill-based course syllabus and evaluation pattern to BOS members following are the actions taken:

A) F.Y.B.Sc [computer Science] Semester I

- 1) We have included a basic microcontroller part in the syllabus.
- 2) For Programming languages, we will give 10 marks for practical assignments.
- 3) To make the Soft Skills subject more practical oriented we will take the following activities,
 - Assignments on technical writing
 - Practical session through public speaking, Speeches, and Presentation
 - Group Activity and role play
- 4) We have merged Descriptive Statistics Subject of Sem-I & Sem-II in Sem I. (Refer Annexure A)

B) F.Y.B.Sc [computer Science] Semester II

- 1) Refer Annexure-B for the change in syllabus of Web Programming.
- 2) We have merged the Free and Open Source System & Green Technologies subject. (Refer Annexure C)

C) M.Sc. I [Computer Science]

- 1) We have taken 4 theory lectures and 4 practical lectures.
- 2) We have decided to take FOSS cloud and Amazon Cloud for Cloud Computing practical's.
- 3) Refer Annexure-D for the syllabus of Paper IV i.e Robotics and Artificial Intelligence.

D) Evaluation Pattern

- 1) We have decided to take NPTEL Online Courses like Computer Networks and Internet protocols, Computer Architecture, Cloud Computing, and Distributed Systems, Design, and analysis of Algorithms, etc. for students and faculties.
- 2) We decided to take an Internship report from students of M.Sc. I.
- 3) We have decided to call Industry Person in the month of September for final year Project guidance.

E) Skill Based Courses

- 1) 1 Credit is given to the skill-based course.

ANNEXURE-A

Class: F.Y.B.Sc	Branch: Computer Science	Semester: I	
Subject: Descriptive Statistics and Testing of Hypothesis			
Period per Week(Each 48 min)	Lecture	03	
	Practical	03	
Evaluation System		Hours	Marks
	Semester End Exam	2 hrs 30 min	60
	Continuous Internal Assessment	—	40
	Semester End Practical Examination	3	50
	Total	—	150

Course: UGCS106	Descriptive Statistics and Testing of Hypothesis (Credits: 2 Lectures/Week: 3)	Lectures
	<p>Objectives: The purpose of this course is to familiarize students with the basics of Statistics. This will be essential for prospective researchers and professionals to know these basics.</p> <p>Expected Learning Outcomes:</p> <ol style="list-style-type: none"> 1) Enable learners to know descriptive statistical concepts 2) Enable study of probability concept required for Computer learners 3) Enable to understand the fundamental principles of statistical reasoning, achieving proficiency in data analysis 4) Descriptive statistics helps us to understand the data and its properties by use of central tendency and variability. 5) Inferential statistics help us to infer properties of the population from a given sample of data. 6) The central objective of the undergraduate major in Statistics is to equip students with consequently requisite quantitative skills that they can employ and build on in flexible ways. 	
Unit I	<p>Data Presentation Data types : attribute, variable, discrete and continuous variable Data presentation : frequency distribution, histogram o give, curves, stem and leaf display Measures of Central tendency: Mean, Median, mode for raw data, discrete, grouped frequency distribution. Measures dispersion: Variance, standard deviation, coefficient of variation for raw data, quartiles, quantiles Real life examples Correlation and Regression: bivariate data, scatter plot, correlation, Karl Pearson's coefficients of correlation Linear regression: fitting of linear regression using least square regression</p>	15 L
Unit II	<p>Probability : Random experiment, sample space, events types and operations of events Probability definition : classical, axiomatic, Elementary Theorems of probability (without proof) $0 \leq P(A) \leq 1$, $P(A \cup B) = P(A) + P(B) - P(A \cap B)$, $P(A') = 1 - P(A)$, $P(A) \leq P(B)$ if $A \subset B$ Conditional probability, 'Bayes' theorem, independence, Examples on Probability Standard distributions: random variable; discrete, continuous, expectation and variance of a random variable, pmf, pdf, cdf, reliability</p>	15 L

Unit III	<p>Introduction and properties without proof for following distributions; binomial, normal, chi-square, t, F. Examples</p> <p>Hypothesis testing: one sided, two sided hypothesis, critical region, p-value, tests based on t, Normal and F, confidence intervals. Analysis of variance : one-way, two-way analysis of variance</p> <p>Non-parametric tests: need of non-parametric tests, sign test, Wilcoxon's signed rank test, run test, Kruskal-Wallis tests. Post-hoc analysis of one-way analysis of variance : Duncan's test Chi-square test of association</p>	15 L
	<p>Text Book:</p> <p>1) Trivedi, K.S.(2001) : Probability, Statistics, Design of Experiments and Queuing Semester End Examination, with applications of Computer Science, Prentice Hall of India, New Delhi</p> <p>Additional References:</p> <p>1) Ross, S.M. (2006): A First course in probability. 6th Edⁿ Pearson</p> <p>2) Kulkarni, M.B., Ghatpande, S.B. and Gore, S.D. (1999): common statistical tests. Satyajeet Prakashan, Pune</p> <p>3) Gupta, S.C. and Kapoor, V.K. (1987): Fundamentals of Mathematical Statistics, S. Chand and Sons, New Delhi</p> <p>4) Gupta, S.C. and Kapoor, V.K. (1999): Applied Statistics, S. Chand and Son's, New Delhi</p> <p>5) Montgomery, D.C. (2001): Planning and Analysis of Experiments, wiley.</p> <p>Links:</p> <p>1. https://www.tutorialspoint.com/statistics/hypothesis_testing.htm</p> <p>2. https://2012books.lardbucket.org/pdfs/beginning-statistics.pdf</p> <p>3. http://www.math.louisville.edu/~pksaho01/teaching/Math662TB-09S.pdf</p>	

Practical's of UGCS106/ST	
Sr. No.	Descriptive Statistics ,Introduction to Probability & Hypothesis testing (To be implemented using R)
1	Data entry using, functions, c(), scan (), Creating vectors, Mathematical Operations: ** +/- /*// ^ , exp, log, log10, etc, creating vector of text type, useful functions: data, frame, matrix operations, seq(), split() etc.
2	Frequency distribution using cut(), table()
3	Data presentation
4	Measures of central tendency, dispersion
5	Measures of skewness and kurtosis, Correlation and regression
6	Probability, Conditional probability
7	Problems based on binomial distribution & plotting of binomial distribution
8	Problems based on normal distribution & plotting of normal distribution
9	Plotting pdf, cdf, pmf, for discrete and continuous distribution
10	t test, normal test, F test

ANNEXURE- B

<p>Course: UGCS107</p>	<p>Web Programming</p>	
<p>Unit I</p>	<p>Web Design Principles Basic principles involved in developing a web site, Planning process, Five Golden rules of web designing, Designing navigation bar, Page design, Home Page Layout Design Concept.</p> <p>Basics in Web Design Brief History of Internet, What is World Wide Web, Why create a web site, Web Standards Audience requirement.</p> <p>Introduction to Web Publishing or Hosting Creating the Web Site, Saving the site, Working on the web site, Creating web site structure</p>	<p>15L</p>
<p>Unit II</p>	<p>Introduction to HTML What is HTML, HTML Documents, Basic structure of an HTML document, Creating an HTML document, Mark up Tags, Heading-Paragraphs, Line Breaks HTML Tags.</p> <p>Elements of HTML Introduction to elements of HTML, Working with Text, Working with Lists, Tables and Frames, Working with Hyperlinks, Images and Multimedia, Working with Forms and controls.</p> <p>Introduction to Cascading Style Sheets Concept of CSS, Creating Style Sheet, CSS Properties, CSS Styling(Background, Text Format, Controlling Fonts), Working with block elements and objects, Working with Lists and Tables, CSS Id and Class, Box Model(Introduction, Border properties, Padding Properties, Margin properties), CSS Advanced(Grouping, Dimension, Display, Positioning, Floating, Align, Pseudo class, Navigation Bar, Image Sprites, Attribute sector), CSS Color, Creating page Layout and Site Designs.</p>	<p>15L</p>
<p>Unit III</p>	<p>Javascript Concept of script, Types of Scripts, Introduction to javascript, Variables, identifiers constants in javascript and examples of each. Operators in javascripts, various types of javascript, Operator Examples on javascript operators, Control and looping structure, examples on control and looping structures (if, if...else, for, while, do while, switch, etc) Concept of array, how to use it in javascript , types of an array, examples Methods of an array, examples on it. Event handling in javascript with examples Math and date object and examples on it. String object and examples on it, and some predefined functions DOM concept in javascript, DOM objects Window navigator, History object and its methods, Location object with methods and examples Validations in javascript , examples on it..</p>	<p>15L</p>
	<p>Text Book(s):</p> <ol style="list-style-type: none"> 1. HTML 5 in simple steps Kogent Learning Solutions Inc. Dreamtech Press 2. A beginner’s guide to HTML NCSA,14th May,2003 3. JavaScript Bible, Wiley Pub. 4. HTML, DHTML, JavaScript, Perl & CGI Ivan Bayross, BPB Pub 	
	<p>Additional Reference(s):</p> <ol style="list-style-type: none"> 1. HTML, XHTML, and CSS Bible Fifth Edition, Steven M. Schafer, WILEY 2. Learn to Master HTML 5, scriptDemics, StarEdu Solutions Pvt Ltd. 3. Web Designing & Architecture-Educational Technology Centre University of Buffalo 4. Beginning HTML, XHTML, CSS, and JavaScript John Duckett Wiley India <p>Links:</p> <p>https://www.cs.uct.ac.za/mit_notes/web_programming.html</p>	

	https://lecturenotes.in/subject/504/web-programming-wp http://users.nccs.gov/~fwang2/web/javascript.html https://www.w3schools.com/css/css_intro.asp	
Course: UGCS107	Practical's UGCS107	
1	Design a webpage that makes use of 1) Document Structure Tags 2) Various Text Formatting Tags 3) List Tags 4) Image and Image Maps	
2	Design a webpage that makes use of 1) Table tags 2) Form Tags (forms with various form elements) 3) Navigation across multiple pages 4) Embedded Multimedia elements 5) Practicing Hyper linking of webpages	
3	Design a webpage that make use of Cascading Style Sheets with a) CSS properties to change the background of a Page b) CSS properties to change Fonts and Text Styles c) CSS properties for positioning an element	
4	Write JavaScript code for a) Performing various mathematical operations such as calculating factorial / finding Fibonacci Series / Displaying Prime Numbers in a given range / Evaluating Expressions / Calculating reverse of a number b) Validating the various Form Elements	
5	Write JavaScript code for a) Demonstrating different JavaScript Objects such as String, RegExp, Math, Date b) Demonstrating different JavaScript Objects such as Window, c) Navigator, History, Location, Document, Storing and Retrieving Cookies	

ANNEXURE-C

Course: UGCS206	Free and Open Source System & Green Technology (Credits : 2 Lectures/Week: 3)	Lectures
	<p>Objective: Open Source has acquired a prominent place in software industry. Having knowledge of Open Source and its related technologies is an essential for Computer Science student. This course introduces Open Source methodologies and ecosystem to students.</p> <p>Expected Learning Outcome:</p> <ol style="list-style-type: none"> 1) Upon completion of this course, students should have a good working knowledge of Open Source ecosystem, its use, impact and importance. 2) This course shall help student to learn Open Source methodologies, case studies with real life examples. 3) To understand the concept of Green IT. 4) To describe Green IT in relation to technology. 5) To understand data centers, software's and network can be made greener. 6) To relate Green IT to sustainable development. 	

<p>Unit I</p>	<p>Introduction Introduction: Open Source, Free Software vs. Open Source software, Public Domain Software, FOSS does not mean no cost. History: BSD Methodologies Initiatives, Philosophy : Software Freedom, Licenses and Patents: What Is A License Social Impact : Open source vs. closed source, Open source government, Open source ethics. Case Studies Example Projects: Apache web server, GNU/Linux, Android, Mozilla (Firefox), Wikipedia, Drupal, wordpress, GCC, GDB, github, Open Office. Open Source Hardware, Open source Teaching. Open source media.</p>	<p>15L</p>
<p>Unit II</p>	<p>Contributing to Open Source Projects Introduction to github, interacting with the community on github, Communication and etiquette, testing open source code, reporting issues, contributing code. Introduction to Wikipedia, contributing to Wikipedia. Understanding Open Source Ecosystem Virtualization Technologies, Containerization Technologies: Docker, LAMP. Green IT Overview: Introduction , Environmental Concerns and Sustainable Development, Environmental Impacts of IT, Green I , Holistic Approach to Greening IT, Greening IT, Applying IT for Enhancing Environmental Sustainability, Green IT Standards and Eco-Labeling of IT , Enterprise Green IT Strategy Green Devices and Hardware: Introduction , Life Cycle of a Device or Hardware, Reuse, Recycle and Dispose</p>	<p>15L</p>
<p>Unit III</p>	<p>Green Software: Introduction , Processor Power States , Energy-Saving Software Techniques, Evaluating and Measuring Software Impact to Platform Power Green Data Centres: Data Centres and Associated Energy Challenges, Data Centre IT Infrastructure, Data Centre Facility Infrastructure: Implications for Energy Efficiency, IT Infrastructure Management, Green Data Centre Metrics Green Data Storage: Introduction , Storage Media Power Characteristics, Energy Management Techniques for Hard Disks, System-Level Energy Management Sustainable Information Systems and Green Metrics: Introduction, Multilevel Sustainable Information, Sustainability Hierarchy Models, Product Level Information, Individual Level Information, Functional Level Information, Organizational Level Information Green Enterprises the Role of IT: Introduction, Organizational and Enterprise Greening, Information Systems in Greening Enterprises, Greening the Enterprise: IT Usage and Hardware, Inter-organizational Enterprise Activities and Green Issues</p>	<p>15L</p>
<p>Text books: 1. Unix Concepts and Applications by Sumitabha Das, Tata McGraw Hill Education, 2006 2. <i>Harnessing Green IT: Principles and Practices</i>, San Murugesan, G. R. Ganadharan, Wiley & IEEE. Additional references: 1. Linux kernel Home: http://kernel.org 2. Open Source Initiative: https://opensource.org/ 3. Wikipedia: https://en.wikipedia.org/ 4. Github: https://help.github.com/ 5. <i>Green IT</i>, Deepak Shikarpur, Vishwkarma Publications, 2014</p>		

6. *Green Communications: Principles, Concepts and Practice*- Samdanis et al, J. Wiley
7. 12. *Green IT for Sustainable Business Practice: An ISEB Foundation Guide*, Mark G. O'Neill, The Chartered Institute for IT, 2010

Links:

The Linux Foundation: <http://www.linuxfoundation.org/>

Linux Documentation Project: <http://www.tldp.org/>

ANNEXURE- D

Course PGCS104	Robotics and Artificial Intelligence
Unit IV	<p>Artificial Intelligence Introduction, State space search: Generate and test, Simple search, Implementation of Depth First Search, Breadth First Search, Comparison and quality of solutions. Heuristic Search: Heuristic functions, Implementation of Best First Search, Hill Climbing, Local Maxima, Beam search, Tabu search. Finding Optimum paths: Brute force, branch & bound, refine search, Dijkstra's algorithm, A* algorithm. Admissibility of A* algorithm.</p>