

Subject Code: 1PH1010105	Subject Title: BASICS OF COMPUTER APPLICATIONS - I
Pre-requisite Subject	- NONE -

Objectives of course:

Computers have become essential component in any profession. Basic knowledge of computers for preparing documents, do calculations of data gathered during experiments and also draw graphs is must for any professional. To familiarize the students with components of computer system like hardware and software and also to learn proper usage of computers for preparing documents, conduct simple calculations and provide pictorial representation of data. Biostatistics is helpful to the students for development of skills of statistical analysis applicable in the pharmaceutical research.

Learning outcomes:

At the end of semester student will be able to:

1. Analyse the data with right statistical method.
2. Apply regression analysis
3. Have a good understanding of the history and basic concepts of computer science.
4. Have practical exposure of various applications of computers in pharmacy by learning, use of various software & internet.
5. Prepare documents in MS-Word, data tables in MS-Excel, do calculation in MS-Excel of the data collected from various experiments using simple operations and formulas and draw Graphs in MS-Excel
6. Create various types of presentations and posters with animation.
7. Apply their knowledge by access of various search engines, scientific journals and databases & various pharmaceutical websites for scientific information.
8. Prepare project reports in terms of dissertation using computer tools.

Teaching Scheme (Hours per week)				Evaluation Scheme (Marks)					
Lecture	Tutorial	Practical	Credit	Theory(T)		Practical(P)		Total Marks	
				University Assessment	Continuous Assessment	University Assessment	Continuous Assessment	Theory	Practical
2	0	3	5	80	20	80	20	100	100

Subject Contents			
Sr. No.	Topic	Total Hours	Weight (%)
1	Computer Fundamentals Definition, characteristics, history, computer terminology, computer organization, input & output devices, storage devices (including latest devices), classifications of computers (including current computer systems), application of computers in pharmacy, introduction to computer virus, problems associated with virus infection and its remedies.	2	6
2	Operating Systems Definition, functions of an operating system, types of operating systems and their characteristics, difference between operating system and application software. <i>Windows Operating Systems:</i> Desktop, start-menu, components of control panel,	5	18

	accessories, components of my computer and my documents, recycle bin, printer and mouse settings, maximizing, minimizing, restoring and closing of windows, windows explorer, taskbar and its functions. Different file formats, various types of files, file extension, opening files by various programs		
3	Basics of MS Word and its applications Word Essentials, Parts of MS Word screen, Typing and Editing, Finding and Replacing, Autocorrect and Auto text, Reusing Text and Graphics, use of spellcheck & grammar, thesaurus and scientific symbols, viewing of document by various ways, Editing Tools, Text Formatting, Text Character, Formatting Paragraphs, Formatting and Sorting Lists, Page Design and Layout, Page Margins, Page Numbers, Columns, Working with Tables, Creating and formatting of tables and sorting, merging of data in tables etc., inserting, deleting and sizing of rows and columns in tables, Opening, Saving and Protecting Documents, Locating and Managing Documents, Printing.	6	20
4	Basics of MS Excel and its applications Introduction to EXCEL worksheet, calculations in EXCEL, preparation of templates for application in pharmaceutical chemistry, pharmaceutical technology, pharmacology and pharmacognosy (statistical treatment of data for Beers Lamberts curve, solution of problems based on physical chemistry, stability study, area under the curve, etc.) Special attention must be given to arithmetic expressions. Library functions such as logarithm, square root, sum, average, standard deviation, t-test, F-test, Chi-square test, ANOVA etc. Drawing graphs in EXCEL- line graph, histogram and pie-chart. Editing chart features such as annotation, labeling of axis, changing legends etc.	6	20
5	MS PowerPoint Creating and viewing a presentation, adding animations and managing slides etc	2	6
6	Internet and its applications Internet – Basic terms, software and hardware requirement for internet, web browsers, internet tools, study of pharmaceutical web sites, online journals and search engines, searching through pharmaceutical databases, study of patent websites. Use of emails, mail merge and application of address book.	5	18
7	Introduction to the following software MS Paint, MS Access, Outlook, Adobe acrobat reader, Adobe Professional, Chemdraw, ISIS Draw, Nero Burning roam	4	12

BOOKS RECOMMENDED:

Reference Books:

1. Andy Rathbone. Windows XP for Dummies. New York: Hungry Minds, Inc.
2. Michael Price. Office 2007 in simple steps: Dreamtech Press.
3. Thomas CB. Digital Computer Fundamentals. Tata Mc Graw Hill Publishing
4. Joan Preppernau and Joyce Cox, Windows Vista: Step by Step, Prentice Hall of India, New Delhi, 2007.
5. Jerry Joyce, and Marianne Moon, Windows Vista: Plain & Simple, Prentice Hall of India, New Delhi, 2007.
6. Guy Hart Davis, WORD 2000, BPB Publications, New Delhi, 1999
7. Diane Koers, WORD 2000: Fast & Easy, BPB Publications, New Delhi, 2000.

- Joyce Cox, MS Office: Step by Step Prentice Hall of India, New Delhi, 2007
- Maria Reid, Microsoft WORD 2000: Training Guide, BPB Publications
- Pagano M, Kimberlee, Gauvreau. Principles of biostatistics. 10th ed. Lib of American Publication; 2000.
- Charles Bon, Pharmaceutical Statistics: Practical and Clinical Applications, Fourth Edition, Sanford Bolton Marcel Dekker.

Text Books

- Taxali R.K., P.C. Software for Windows 98 made simple – 8th Edition – 2002 – Tata Mc, New Delhi.
- Faruki, Parvez. Basic Computer Applications for Pharmacy. Mahajan Publishing House: Ahmedabad, 2008
- Thakur, Praveen S, Computers in Pharmacy. Birla Publications India. Delhi, 2006
- Rajaraman, V. Fundamentals of Computers. Prentice-Hall of India Pvt. Ltd. New Delhi, 2001
- Tiwari, N. K. Computer Fundamentals with Pharmacy Applications. PharmaMed Press: Hyderabad, 2010
- Patel G.C., Jani G. K., Chaudhary R. M., Advanced mathematics and biostatistics, Atul Prakashan, Ahmedabad
- Gupta S. P., Statistical methods - Sultan Chand & Sons, New Delhi.
- Kachot K.R., Applied Mathematics (Biostatistics) 2nd Edition, 2004, Mahajan Publishing House, Ahmedabad.

E-Resources:

- http://www.tutorialspoint.com/computer_fundamentals/index.htm
- <http://www.computerhope.com/jargon/o/os.htm>
- <http://www.etu.org.za/toolbox/docs/it/webmsword.html>
- <http://www.functionx.com/excel/Lesson01.htm>
- [https://msdn.microsoft.com/en-us/library/aa261159\(v=vs.60\).aspx](https://msdn.microsoft.com/en-us/library/aa261159(v=vs.60).aspx)
- <http://chem.wisc.edu/deptfiles/genchem/Chm346/pdfs/ChemDrawIntro.pdf>
- http://www.cimt.plymouth.ac.uk/projects/mepres/book8/bk8i5/bk8_5i2.htm
- <http://www.wikihow.com/Calculate-Mean,-Standard-Deviation,-and-Standard-Error>
- <http://wmueller.com/precalculus/families/semilog.html>
- <http://www.dummies.com/how-to/content/how-to-calculate-a-regression-line.html>
- <http://www.itl.nist.gov/div898/handbook/eda/section3/eda359.htm>

List of Experiments:

Practical exercises should be based on theoretical topics. The practical should broadly cover the following:

- Exercises on word processing to execute various commands in preparing and editing documents.
- Preparation of documents and implementing various formatting parameters in MS Word.
- Perform mail merge in MS Word.
- Working with auto-indexing, table and figure numbering
- Preparing and editing worksheets in MS EXCEL, Inserting formulas for different functions in MS EXCEL like sum, average, standard deviation, logarithm, square root etc.
- Drawing various charts using pharmaceutical experimental data
- Preparation of power point presentation with animation
- Working with internet browsing and using search engines
- E-mailing using address book.
- Surfing various pharmaceutical web sites, online journals and patent search

- 11 To calculate the mean, median, mode, mean deviation, standard deviation and standard error of any given data.
- 12 To prepare a semi log plot for given data (e.g. the first order kinetic process for degradation and finding dose in pharmacology).
- 13 To calculate correlation value for given data (e.g. Beers plot, dissolution data and in vivo data).
- 14 To calculate regression line for given data (e.g. beers plot, bioavailability data, drug stability data).