

**Government of Karnataka**  
**Department of Technical Education**  
**Board of Technical Examinations, Bengaluru**

Course Title: <b>Concepts of Computer Lab</b>	Course Code : <b>15EC13P</b>
Credits : <b>3 Credits</b>	Semester : <b>1</b>
Teaching Scheme in Hrs (L:T:P) : <b>0:2:4</b>	Course Group : <b>Core</b>
Type of course : <b>Tutorial + Practical</b>	Total Contact Hours : <b>78</b>
CIE : <b>25 Marks</b>	SEE : <b>50 Marks</b>

### Prerequisites

Knowledge of English comprehension and real-world problems.

### Course Objectives

To expose to the field of computers and their basic applications such as word-processing, spread-sheet and presentations.

### Course Outcomes

On successful completion of the course, the students will be able to

1. Understand the basic organisation, working and applications of personal computers.
2. Apply the different tools and utilities of the operating system.
3. Create, edit, spread-sheet and present documents using the relevant application softwares.
4. Analyse the data using spread sheet.
5. Demonstrate specified skills of using presentation module.
6. Develop a mini-project, involving the concepts learnt, to solve a simple real-world problem.

Course Outcome		CL	Experiments linked	Linked PO	Teaching Hrs
CO1	Understand the basic organisation, working and applications of personal computers	R/U/A	Unit-1 Expt 1	1,2,3,4,8, 9,10	03
CO2	Apply the different tools and utilities of the operating system	R/U/A	Unit-1 Expt 2 to 6	1,2,3,4,8, 9,10	15
CO3	Create, edit, spread-sheet and present documents using the relevant application software's-word processor	R/U/A	Expt 7 to 13 of word processor part of Unit-1	1,2,3,4,8, 9,10	21
CO4	Analyse the data using spread sheet	R/U/A	14 to 18 of spread sheet part of Unit-1	1,2,3,4,8, 9,10	15
CO5	Demonstrate specified skills of using presentation module.	R/U/A	19 to 23 of presentation part of Unit-1	1,2,3,4,8, 9,10	15
CO6	Develop a mini-project, involving the concepts learnt, to solve a simple real-world problem.	U/A	Mini project part of Unit-2	1,2,3,4,5,8, 9,10	03
<b>Total sessions include two tests</b>					<b>78</b>

## Course-Po Attainment Matrix

Course	Programme Outcomes									
	1	2	3	4	5	6	7	8	9	10
<b>Concepts of Computer Lab</b>	3	3	3	3	1	--	--	3	3	3
<p><b>Level 3- Highly Addressed, Level 2-Moderately Addressed, Level 1-Low Addressed.</b></p> <p>Method is to relate the level of PO with the number of hours devoted to the COs which address the given PO.</p> <p>If <math>\geq 40\%</math> of classroom sessions addressing a particular PO, it is considered that PO is addressed at Level 3</p> <p>If 25 to 40% of classroom sessions addressing a particular PO, it is considered that PO is addressed at Level 2</p> <p>If 5 to 25% of classroom sessions addressing a particular PO, it is considered that PO is addressed at Level 1</p> <p>If <math>&lt; 5\%</math> of classroom sessions addressing a particular PO, it is considered that PO is considered not-addressed.</p>										

## Course Contents

### UNIT – I: Tutorials and Graded Exercises

**Duration: 75 Hr**

Sl. No	Topic	Duration (Hr)
1.	Identify and understand the (i) types of Computers, (ii) front panel and back panel connections of a Personal Computer system, and (iii) hardware of a Computer.	3
2	a. Define the booting process, demonstrate it and understand its relevance. b. Define OS, give types of OS and list the functions of OS.	3
3	a. Understand the distinction between system-software and application-software with examples. b. Practice the following: Creation of Icons, Folders, files, naming/renaming files and folders, searching file and folders, editing and saving the document using in-built utilities of OS like text editors.	3
4	Practice the following: Usage of paint and calculator utilities, installation and usage of simple application software tools such as pdf reader, zip tools, audio/video players, etc.	3
5	Practice browsing of different internet sites using search engine.	3
6	E-mail: Create E-mail account, send and check email, search mails, download and upload an attachment, and sending group mails.	3
<b>Using Word Processor</b>		
7	Create a business and official letter involving different fonts and font effects (normal, italics, underline and bold), indent and paragraphs, and any other such options necessary in the letters.	3
8	Create a company letter-head containing logo, name and contact details.	3
9	Create a simple newsletter using 3 columns, drop cap, pictures, etc.	3
10	Create a resume or curriculum vitae for job application using bullets, lines, tables, etc.	3

11	Create a mail-merged invitation/ Greeting card	3
12	Prepare the class time-table for your class using insert table option.	3
13	Create the cover page of a project report using word-art, insert picture image and any other relevant items.	3
<b>Using Spread Sheet</b>		
14	Create a worksheet to tabulate student information such as serial number, name, gender, age, register number, branch, and total-marks secured and perform the following operations separately. (a) Enter the information of N students. (b) Sum the total-marks of all N students, (c) Sort the students based on (i) total-marks (ii) alphabetical order, and (iii) Register number, separately.	3
15	Create a worksheet containing the pay details of N employees (containing Basic pay, DA, HRA, Medical allowance, with Deductions- PF, PT, Insurance) and find gross and net salary using relevant formulae for all employees.	3
16	Create a results-sheet containing candidate's register-number, name, and marks for all courses, total-marks, percentage and result. Also indicate maximum marks in the relevant fields. Result must be calculated as below: Distinction if Total Percentage $\geq 70\%$ First Class if Total Percentage $\geq 60\%$ and $< 70\%$ Second Class if Total Percentage $\geq 50\%$ and $< 60\%$ Pass if Total Percentage $\geq 35\%$ and $< 50\%$ provided the candidate has secured at least 35 marks in each Course or Fail otherwise. Create the result sheet for N students and compute the number of students in each class of result.	3
17	Create a simple bar-chart and Pie-chart to highlight the sales of a company for three different periods, also give different colours and legends.	3
18	Create a macro which displays a line-chart using the data in the worksheet.	3
<b>Using Presentation Tool</b>		
19	Prepare a presentation containing 4 to 5 slides to introduce your institution	3
20	Create a simple presentation consisting of 6 to 8 slides about input and output devices. include hyperlink for other slides from the content slide	3
21	Present the theory of Ohm's law with animation or example.	3
22	Create an automated (with timings & animation) presentation with 6 to 8 slides about different types of computers.	3
23	Create a presentation about public awareness (any activity such as swatchha Bharath, air-pollution etc)	3
Two Internal Assessment Tests		6
<b>Total</b>		<b>75</b>

**UNIT – II: Project Activities [CIE- 05 Marks]**

**Duration: 3Hr**

Sl. No.	Activity	Duration (Hr)
1	Prepare a mini-project report (limited to 6 pages) on any one of the following using the concepts studied. i. Report on parts of Mother Board. ii. Report on SMPS and UPS.	3

	iii. Report on latest trends in the field of electronics/computers. iv. Open-ended exercise of similar nature and magnitude.	
<b>2</b>	Prepare a creative presentation(limited to 15 Slides) on any topic.	
<b>Execution Mode</b> <ol style="list-style-type: none"> <li>1. Maximum of 2 students in each batch for the project activity.</li> <li>2. Project activity 1 and 2 are mandatory for every batch.</li> <li>3. Project activities shall be carried out throughout the semester and present the project report at the end of the semester.</li> <li>4. Each of the activity can be carried out off-class; however, demonstration/presentation should be done during laboratory sessions.</li> <li>5. Assessment shall be made based on quality of activity, presentation/demonstration and report.</li> </ol>		

## References

1. *Computer Fundamentals: Concepts, Systems and Application*, D.P.Nagapal, S.Chand and Company, 2008, ISBN: 8121923883.
2. *A Computer Laboratory Referral for Diploma and Engineering Students*, T.R. Jagadeesh, D. S. Rajendra Prasad, M. A. Jayaram, Universities Press (India) Limited, ISBN: 8173712581.
3. <http://www.tutorialsforopenoffice.org/>
4. <http://www.libreoffice.org/get-help/documentation/>
5. [http:// www.kingsoftstore.com/](http://www.kingsoftstore.com/)

## Course Delivery

The course will be normally delivered through two-hour tutorials and four-hour hands-on practice per week. Project activities are carried out off-class throughout the semester and demonstration/presentation in the Lab session.

## Course Assessment and Evaluation Scheme

Method	What		To Whom	When/Where (Frequency in the course)	Max Marks	Evidence Collected	Course outcomes
<b>DIRECT ASSESSMENT</b>	CIE (Continuous Internal Evaluation)	IA Tests	Students	Two IA Tests(Average of two tests will be computed)	10	Blue books	1 to 6
				Record Writing(Average of Marks allotted for each experiment)	10	Record Book	1 to 6
				Mini Project	05	Report	1 to 6
				<b>Total</b>	<b>25</b>		
	SEE (Semester End Examination)	End Exam		End of the course	50	Answer scripts at BTE	1 to 6
<b>INDIRECT ASSESSMENT</b>	Student Feedback on course		Students	Middle of the course		Feedback forms	1 to 3 Delivery of course
	End of Course Survey			End of the course		Questionnaires	1 to 6 Effectiveness of Delivery of instructions & Assessment Methods

\*CIE – Continuous Internal Evaluation

\*SEE – Semester End Examination

**Note:**

1. I.A. test shall be conducted as per SEE scheme of valuation. However obtained marks shall be reduced to 10 marks. Average marks of two tests shall be rounded off to the next higher digit.
2. Rubrics to be devised appropriately by the concerned faculty to assess Mini Project/Student activities.



**MODEL OF RUBRICS FOR ASSESSING STUDENT ACTIVITY**

Dimension	Scale					Students exam Reg no/ Score				
	1.Unsatisfactory	2.Developing	3.Satisfactory	4.Good	5.Exemplary	Reg1	Reg2	Reg3	Reg4	Reg5
1.Research and gather information	Does not collect information relate to topic	Collects very limited information, some relate to topic	Collects basic information, most refer to the topic	Collects more information, most refer to the topic	Collects a great deals of information, all refer to the topic	3				
2.Full fills teams roles and duties	Does not perform any duties assigned to the team role	Performs very little duties	Performs nearly all duties	Performs almost all duties	Performs all duties of assigned team roles	2				
3.Shares work equality	Always relies on others to do the work	Rarely does the assigned work, often needs reminding	Usually does the assigned work, rarely needs reminding	Always does the assigned work, rarely needs reminding.	Always does the assigned work, without needing reminding	5				
4.listen to other team mates	Is always talking, never allows anyone to else to speak	Usually does most of the talking, rarely allows others to speak	Listens, but sometimes talk too much,	Listens and talks a little more than needed.	Listens and talks a fare amount	3				
<b>Total Marks</b>						13/4=3. 25=04				

## Composition of Educational Components

Questions for CIE and SEE will be designed to evaluate the various educational components such as shown in the following table.

Sl. No.	Component	Weightage(%)
1	Remembering and Understanding	25
2	Applying the knowledge acquired from the course	35
3	Analysis	40

## Scheme of Evaluation for Semester EndExam

Sl. No.	Scheme	Max. Marks
1	Testing the skills/abilities from the exercises 1 to 6 of Unit - I	10
2	Write the steps on two exercises one each from word processor/presentation and spread-sheet from Unit –I.	10
3	Execution of both the exercises specified above.	10
4	Presentation/Interpretation of the results	10
5	Viva-voce	10
<b>Total</b>		<b>50</b>
<b>Note:</b>		
1. Candidate shall submit the Lab record for the Examination.		
2. Student shall be allowed to execute directly even if she / he is unable to write the steps.		

## Software Tools

Any open source tool or equivalent proprietary tools can be used in the study of the course.

## Resource Requirements for Computer Concepts Lab

Maximum number of students in each batch is 20. Computers to student's ratio in the Lab should be 1:1 for a batch of twenty Students.

Sl. No.	Equipment	Specification (Typical)	Quantity
1	Personal Computers	Intel Core i5- 4th Generation- Processor, 3 GHZ, 4GB DDR3 RAM, 1 TB Hard Disk, DVD R/W Drive, ATX Cabinet, 19.5'' LED Monitor, Multimedia Keyboard 104 keys, Optical Mouse, Multimedia Speakers	20
2	Anti-Virus Software with Internet Security	20 Users	20
3	Laser Jet Printers	Multi-function Printer	02
4	Laser Jet Printers	Printer	02

5	LAN Switch for Networking	LAN Switch for Networking – 20 Computers	02
6	UPS with Batteries	5 KVA UPS with 4-Hour Backup	01
7	Softwares	Relevant softwares (Open source or proprietary)	10
8	Air Conditioning System		01
9	LCD Projectors with Screen		02

## Model Questions for Practice and Semester End Examination

**Note:** These questions are indicative but not exhaustive.

### UNIT-I

#### Basics of Computers

##### Remember

1. For the given Personal Computer (PC), identify and list out front panel switches, back panel connections, and internal & external physical parts. Mention the functions of each part.

##### Understand

1. Demonstrate the sending (with attachment) & checking of e-mail, sending to a group of people, sorting emails, searching emails and saving emails in a selected folder.
2. Demonstrate the sending and receiving of folders through email attachments.

##### Application

1. Create system & application shortcut icons on desktop, folders and sub-folders in any drive, copying/moving files and folders among different drives/folders.
2. Install and use the utilities like pdf reader, zip tool and audio/video players.

#### Using Word Processor

##### Understand

1. Using word processor application, create a letter to send information on power saving measures to be taken in the company to N employees of the company using mail merge option.
2. Prepare the class time-table for your class using word processor application.

##### Application

1. Create a business letter, demonstrating the use of italics, bold, fonts, indents, paragraph, etc., enquiring for computer quotation.
2. Create an effective letter to your principal requesting to grant leave/industrial visit/sanction scholarship involving the use of paragraphs, indent, different fonts and font effects.
3. Create a company letter-head demonstrating use of picture/logo, contact information and background.
4. Create a simple newsletter using 3 columns, drop cap, pictures, tables, etc.
5. Create a resume/ curriculum-vitae using bullets, lines, tables and other relevant tools.
6. Create an invitation/ Greeting card using insert picture, text box, map, etc.
7. Create the cover page of a project report using word-art, insert picture and text.
8. Create a table in word processor application to contain details such as student name, register number, age, gender, class, father and mother's name of N students.

## Using Spread Sheet

### Understand

1. Using spreadsheet application, create a worksheet to calculate the percentage of marks scored by a student in a semester.

### Application

1. Create a worksheet to tabulate student information such as serial number, name, gender, age, register number, branch, and total-marks secured and perform the following operations separately. (a) Enter the information of N students. (b) Sum the total-marks of all N students, and (c) Sort the students based on total-marks.
2. Create a worksheet to tabulate student information such as serial number, name, gender, age, register number, branch, and total-marks secured and perform the following operations separately. (a) Enter the information of N students. (b) Sum the total-marks of all N students, and (c) Sort the students based on alphabetical order.
3. Create a worksheet containing the pay details of N employees (containing Basic pay, DA, HRA, Medical allowance, with Deductions- PF, PT, Insurance) and find Gross and Net salary using relevant formulae for all employees.
4. Create a results sheet containing candidate's register-number, name, and marks for all courses, total-marks, percentage and result. Also indicate maximum marks in the relevant fields. Result must be calculated as below:
  - a. Distinction if Total Percentage  $\geq 70\%$ , b. First Class if Total Percentage  $\geq 60\%$  and  $< 70\%$ , c. Second Class if Total Percentage  $\geq 50\%$  and  $< 60\%$ , d. Pass if Total Percentage  $\geq 35\%$  and  $< 50\%$  provided the candidate has secured at least 35 marks in each Course or e. Fail otherwise.Create the result sheet for N students and compute the number of students in each class of result.
5. Create a simple bar-chart and Pie-chart to highlight the sales of a company for three different periods, also give different colours and legends.
6. Create a macro which displays a line-chart using the data in the worksheet.

## Using Presentation Tool

### Understand

1. Present the theory of ohm's law with animation or example.
2. Prepare a presentation containing 4 to 5 slides to introduce your institution.
3. Using presentation tool, create a simple presentation consisting of 4 to 5 slides about passive components.

### Application

1. Create a simple presentation consisting of 6 to 8 slides about input and output devices. Include hyperlink for other slides from the content slide.
2. Create an automated (with timings & animation) presentation with 6 to 8 slides about different types of computers.
3. Create a presentation about a public awareness programme.
4. Create an automated (timings & animation) presentation with 5 slides about computer peripherals.

**End**