



**GIRRAJ GOVT COLLEGE (A), NIZAMABAD**  
(COLLEGE WITH POTENTIAL FOR EXCELLENCE)

**B.O.S-2018-19**

**DEPARTMENT OF COMPUTER APPLICATION**



# Syllabus for Computer Applications

Proposed scheme for B.A. Programme under Choice Based Credit System

Code	Course Title	Course Type	HpW	Credits
------	--------------	-------------	-----	---------

## SEMESTER - I

Core 1	Computer Fundamentals	DSC-3A	4T+2P=6	4+1=5
--------	-----------------------	--------	---------	-------

## SEMESTER - II

Core 2	Computer Programming with C	DSC-3B	4T+2P=6	4+1=5
--------	-----------------------------	--------	---------	-------

## SEMESTER - III

SEC1	A: Scilab-1	SEC-1	2T	2
	B: Python-1			
Core 3	Database Management System	DSC-3C	4T+2P	4+1=5

## SEMESTER - IV

SEC2	C: Scilab-2	SEC-2	2T	2
	D: Python-2			
Core 4	Internet Technologies	DSC-3D	4T+2P=6	4+1=5

## SEMESTER - V

GE1	Information Technologies-1	GE-1	2T	2
SEC3	E: R Basics - 1	SEC-3	2T	2
	F: Ruby			
Core 5	Multimedia Systems and Applications	DSC-3E	3T+2P=5	3+1=4
E-I	Elective-A: Computer Networks	DSE-1A	3T+2P=5	3+1=4
	Elective-B: Object Oriented Programming with C++	DSE-2A		
	Elective-C: System programming	DSE-3A		

## SEMESTER - VI

GE2	Information Technologies-2	GE-2	2T	2
SEC4	G: R Basics - 2	SEC-4	2T	2
	H: Ruby on Rails			
Core 6	Visual Programming	DSC-3F	3T+2P=5	3+1=4
E-II	Elective-A: Computer Graphics	DSE-1B	3T+2P=5	3+1=4
	Elective-B: Software Engineering	DSE-2B		
	Elective-C: PHP Programming	DSE-3B		
Total Number of Credits				48

*Chairperson*

Board of Studies  
Dept. of Computer Science & Engg.  
TELANGANA UNIVERSITY  
HYDRAABAD-503 322

*Incharge*

Incharge B. A. Computer Applications  
Girraj Government College,



**GIRRAJ GOVERNMENT COLLEGE (A), NIZAMABAD**  
**DEPARTMENT OF COMPUTERS APPLICATIONS**  
**SUBJECT: COMPUTER FUNDAMENTALS**  
**B.A.COMPUTERS I YEAR SEMISTER I**

---

**CHOICE BASED CREDIT SYSTEM (With effect from <sup>2018-19</sup>~~2017-18~~)**  
**SYLLABUS**

**Unit - I**

Introduction to Computer : Introduction, Digital and Analog Computers, Characteristics of Computer, History of Computer, Generations of Computer, Classification of Computer, The Computer System, Application of Computers.

The Computer System Hardware: Introduction, Central Processing Unit, Memory Unit, Computer Cabinet

Computer Memory : Introduction, Memory Representation, Memory Hierarchy, CPU Registers, Cache Memory, Primary Memory, Secondary Memory, Access Types of Storage Devices, Magnetic Tape, Magnetic Disk, Optical Disk, Magneto-Optical Disk,

**Unit - II**

Input and Output Devices: Introduction, Input-Output Unit, Input Devices, Human Data Entry Devices, Source Data Entry Devices, Output Devices, I/O

Data Representation : Introduction, Number System, Conversion from Decimal to Binary, Octal, Hexadecimal, Conversion of Binary, Octal, Hexadecimal to Decimal , Conversion of Binary to Octal, Hexadecimal, Conversion of Octal, Hexadecimal to Binary, Binary Arithmetic, Signed and Unsigned Numbers, Binary Data Representation, Binary Coding Schemes, Logic Gates.

Interaction of User and Computer: Introduction, Types of Software, System Software, Application Software.,

**Unit - III**

Operating System : Introduction, Objectives of Operating System, Types of OS, Functions of OS, Process Management, Memory Management, File Management, Device Management, Protection and Security, User Interface, Examples of Operating Systems.  
The internet basics.

*Alina*  
Chairperson  
Board of Studies  
Dept. of Computer Science & Engg.  
TELANGANA UNIVERSITY  
NIZAMABAD-503 322

*Alina*  
Chairperson  
Board of Studies  
Dept. of Computer Science & Engg.  
TELANGANA UNIVERSITY  
NIZAMABAD-503 322

*Alina*  
Incharge B. A. Computer Applica  
Girraj Government College,  
NIZAMABAD



#### Unit IV

Information Systems : Introduction, Data, Information and Knowledge, Characteristics of Information, Information System (IS), Computer-Based

Information System (CBIS), Need for Efficient Information System, Categories of Information System, Operations Support System, Management Support System,

(Specialized Information System, Careers in Information Systems.)

#### Books:

1. A. Goel, Computer Fundamentals, Pearson Education, 2010.
2. Reema Thareja, Fundamentals of Computers, Oxford 2015.

#### References:

1. Spoken Tutorial on "Linux (Ubuntu), LibreOffice (Writer, Calc, Impress), Firefox", as E-resource for Learning. <http://spoken-tutorial.org>

*Alina*  
Chairperson  
Board of Studies  
Dept. of Computer Science & Engg.  
TELANGANA UNIVERSITY  
NIZAMABAD-503 322

*Alina*  
Chairperson  
Board of Studies  
Dept. of Computer Science & Engg.  
TELANGANA UNIVERSITY  
NIZAMABAD-503 322

*Alina*  
Incharge B. A. Computer Applications  
Girraj Government College,  
NIZAMABAD,



**GIRRAJ GOVERNMENT COLLEGE(A), NIZAMABAD**  
**DEPARTMENT OF COMPUTERS APPLICATIONS**

**BA COMPUTER I YEAR** <sup>2016-17</sup>  
**CHOICE BASED CREDIT SYSTEM (With effect from ~~2017-18~~)**

**Time:30 min**

**Internal Examination**

**Max.Marks:-20**

**Semester-I**

**I. Multiple Choice Questions**

**Marks: 10 x1=10**

**Note: i) Answer all the Questions.**

**ii) All question carry equal marks**

- Q.1
- Q.2
- Q.3
- Q.4
- Q.5
- Q.6
- Q.7
- Q.8
- Q.9
- Q.10

**II. Fill in the blanks**

**Marks: 10x1=10**

**Note: i) Answer all the Questions.**

**ii) All question carry equal marks**

- Q.1
- Q.2
- Q.3
- Q.4
- Q.5
- Q.6
- Q.7
- Q.8
- Q.9
- Q.10

**Internal Examination**

**Max.Marks:30**

**Exam Duration: 30**

**I. Written Test**

1. Multiple choice questions
2. Filling the blanks

20 marks

10x1=10 marks

10x1=10 marks

**II Assignment:**

05 marks

**III. Student Seminar**

05 marks

*Hing*  
Chairperson  
Board of Studies  
Dept. of Computer Science & Engg.  
TELANGANA UNIVERSITY  
NIZAMABAD-503 322

*Hing*  
Chairperson  
Board of Studies  
Dept. of Computer Science & Engg.  
TELANGANA UNIVERSITY  
NIZAMABAD-503 322

*Abany*  
Incharge B. A. Computer Applica  
Girraj Government College,  
NIZAMABAD.



**GIRRAJ GOVERNMENT COLLEGE (A), NIZAMABAD**  
**DEPARTMENT OF COMPUTERS APPLICATIONS**  
**Core 3:- DATABASE MANAGEMENT SYSTEM**  
**B.A.COMPUTERS II YEAR SEMISTER III Credits:-5**

**CHOICE BASED CREDIT SYSTEM (With effect from 2017-18)**  
**SYLLABUS**

**Unit 1**

Introduction to Databases: Databases and Database Users, Introduction, Example, Characteristics of the Database Approach

Database System Concepts and Architecture: Data Models, Schemas, Three-Schema Architecture and Data Independence, Classification of Database Management Systems.

Data Models: Data Modelling and Data Models, the Importance of Data Models, Data Model Basic Building Blocks, Business Rules, the Evolution of Data Models, Degrees of Data Abstraction

**Unit II**

The Relational Database Model: Logical View of Data, Keys, Integrity Rules, Relational Set Operators Relationships within the Relational Database.

Entity Relationship (ER) Modelling: The Entity Relationship Model (ERM)- Entities, Attributes, Relationships,

Relationship Strength, Weak Entities, Relationship Degree, Recursive Relationships, Associative (Composite) Entities; Developing an ER Diagram.

**Unit III**

ADVANCED DATA MODELING: The Extended Entity Relationship Model, Entity Clustering, Entity Integrity: Selecting Primary Keys.

Normalization: Normalization, The Need for Normalization, The Normalization Process, Surrogate Key Higher-Level Normal Forms, Normalization and Denormalization.

**Unit IV**

Introduction to Structured Query Language (SQL): Introduction to SQL, Data Definition Commands, Data Manipulation Commands, SELECT Queries, Advanced Data Definition Commands.

Advanced SQL: Relational Set Operators, SQL Join Operators, SQL Functions.

*[Handwritten Signature]*  
Incharge B. A. Computer Applications  
Girraj Government College,  
NIZAMABAD.

*[Handwritten Signature]*  
Chairperson  
Board of Studies  
Dept. of Computer Science & Engg.  
TELANGANA UNIVERSITY  
NIZAMABAD-503 322

*[Handwritten Signature]*  
Chairperson  
Board of Studies  
Dept. of Computer Science & Engg.  
TELANGANA UNIVERSITY  
NIZAMABAD-503 322

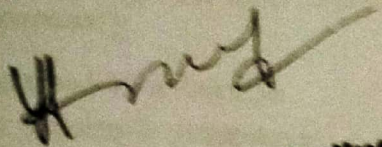


Text Books:

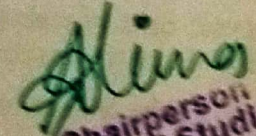
1. Peter Rob and Carlos Coronel, Database Systems: Design, Implementation, and Management, Thomson, Eighth Edition, 2009
2. R. Elmasri, S. Navathe, Fundamentals of Database Systems, Pearson Education, sixth Edition, 2011


Book references:

1. MySQL : Reference Manual
2. Spoken Tutorial on "MySQL", as E-resource for Learning, <http://spoken-tutorial.org>

  
Incharge B. A. Computer Applications  
Girraj Government College,  
NIZAMABAD.

  
Chairperson  
Board of Studies  
Dept. of Computer Science & Engg.  
TELANGANA UNIVERSITY  
NIZAMABAD-503 322

  
Chairperson  
Board of Studies  
Dept. of Computer Science & Engg.  
TELANGANA UNIVERSITY  
NIZAMABAD-503 322

  
Incharge B. A. Computer Applications  
Girraj Government College,  
NIZAMABAD.



**GIRRAJ GOVERNMENT COLLEGE (A), NIZAMABAD**  
**DEPARTMENT OF COMPUTERS APPLICATIONS**  
**Core 4 : INTERNET TECHNOLOGIES Credits:-5**  
**B.A.COMPUTERS II YEAR SEMISTER IV**

**CHOICE BASED CREDIT SYSTEM (With effect from 2017-18)**

**Unit - I**

HTML- Basic HML, The document body, Text, Hyperlinks, Adding More Formatting, Lists, Using Color and Images, Images, Tables, Frames, Forms. Cascading Stylesheets - Introduction, Inline Styles, Embedded Style Sheets, external sheets.

**Unit - II**

JavaScript- Introduction, simple programming, Obtaining User Input with prompt Dialogs, Operators (arithmetic, Decision making, assignment, logical, increment and decrement). Control Structures - if... else selection statement, while, do... while repetitions statement, for statement, switch statement, break and continue statements.

Functions - program modules in JavaScript, programmer defined functions, function definition, recursion,

**Unit - III**

JavaScript: Arrays, Objects - Math Object, String Object, Date Object, Boolean & Number Object, document and window Objects. Event Model - on click, on load, on error, onmouseover, onmouseout, on focus, on submit, on reset.

**Unit - IV**

Introduction, XML Basics, Structuring Data, XML Namespaces, Document Type Definitions (DTDs)

Text books:

- 1. Internet & World Wide Web- H. M. Deitel, P.J. Deitel, A. B. Goldberg-Third Edition

References:

- 1. D.R. Brooks, An Introduction to HTML and Javascript for Scientists and Engineers, Springer
- 2. URL: www.wikipedia.org
- 3. HTML A Beginner's Guide, Tata McGraw-Hill Education, 2009.
- 4. J. A. Ramalho, Learn Advanced HTML 4.0 with DHTML, BPB Publications, 2007

*Alina*  
Chairperson  
Board of Studies  
Dept. of Computer Science & Engg.  
TELANGANA UNIVERSITY  
NIZAMABAD-503 322

*Alina*  
Chairperson  
Board of Studies  
Dept. of Computer Science & Engg.  
TELANGANA UNIVERSITY  
NIZAMABAD-503 322

*[Signature]*  
Incharge B. A. Computer Application  
Girraj Government College,  
NIZAMABAD.

*[Signature]*  
Incharge B. A. Computer Applica  
Girraj Government College,  
NIZAMABAD.



**GIRRAJ GOVERNMENT COLLEGE (A), NIZAMABAD**  
**DEPARTMENT OF COMPUTERS APPLICATIONS**  
**Core 4:- INTERNET TECHNOLOGIES**  
**B.A.COMPUTERS II YEAR SEMISTER IV**

**CHOICE BASED CREDIT SYSTEM (With effect from 2017-18)**  
**Practical: Internet Technologies**

**NOTE:**

All the concepts of programs from Text Book including exercises must be practice, execute and write down in the practical record book.

Faculty must take care about UG standard programs it should be minimum 25 - 30.

In the external lab examination student has to execute at least three programs with compilation and deployment steps are necessary.

External Viva-voce is compulsory. Example programs:

Practical exercises based on concepts listed in theory using HTML.

1. Create HTML document with following formatting – Bold, Italics, Underline, Colors, Headings, Title, Font and Font Width, Background, Paragraph, Line Brakes, Horizontal Line, Blinking text as well as marquee text.
2. Create HTML document with Ordered and Unordered lists, Inserting Images, Internal and External linking
3. Create HTML document with Table:

			Some image here	

4. Create Form with Input Type, Select and Text Area in HTML.
5. Create an HTML containing Roll No., student's name and Grades in a tabular form.
6. Create an HTML document (having two frames) which will appear as follows:

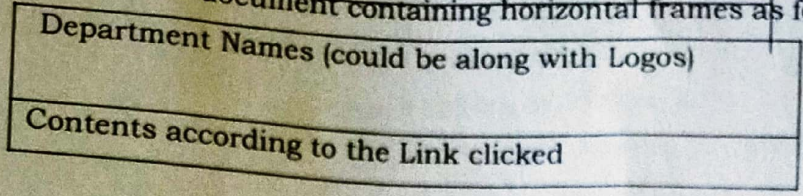
About department	
Department 1	This frame would show the contents according to the link clicked by the user on the left Frame.
Department 1	
Department 1	

*Chairperson*  
*Chairperson*  
**Chairperson**  
**Board of Studies**  
**Dept. of Computer Science & Engg.**  
**TELANGANA UNIVERSITY**  
**NIZAMABAD-503 322**

*Chairman*  
**Incharge B. A. Computer Applicati**  
**Girraj Government College,**  
**NIZAMABAD,**



7. Create an HTML document containing horizontal frames as follows:

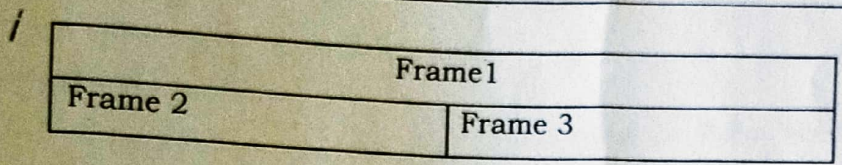


8. Create a website of 6 - 7 pages with different effects as mentioned in above problems.

9. Create HTML documents (having multiple frames) in the following three formats:

rame1

ame2



10. Create a form using HTML which has the following types of controls:

- I. Text Box
- II. Option/radio buttons
- III. Check boxes
- IV. Reset and Submit buttons

**Subscribe to XYZ News Magazine and Emails**

Interested in receiving daily small updates of all latest News? Well, now you can. And best of all it is free! Just fill out this form and submit it by clicking the "send it In" button. We will put you on our mailing list and you will receive your first email in 3-5 days.

Please fill the following boxes to help us send the emails and our news letter

First Name: \_\_\_\_\_

Last Name: \_\_\_\_\_

Business: \_\_\_\_\_

We must have a correct e-mail address to send you the news letter.

Email: \_\_\_\_\_

How did you hear about XYZ News Magazine and Emails?

Here on the Web    In a magazine    Television    Other

Would you like to be on our regular mailing list?

Yes, we love junk emails

*Alina*

*Alina*  
Chairperson  
Board of Studies  
Dept. of Computer Science & Engg.  
TELANGANA UNIVERSITY  
NIZAMABAD-503 322

*Alina*  
Incharge B. A. Computer Application  
Girraj Government College,  
NIZAMABAD.



**GIRRAJ GOVERNMENT COLLEGE(A), NIZAMABAD**  
**DEPARTMENT OF COMPUTERS APPLICATIONS**  
**BA COMPUTER II YEAR**

**CHOICE BASED CREDIT SYSTEM (With effect from 2017-18)**  
**Time: 30 min** **Internal Examination** **Max.Marks:-20**

Semester-I

**I. Multiple Choice Questions**

Marks: 10 x 1 = 10

Note: i) Answer all the Questions.  
ii) All question carry equal marks

- Q.1
- Q.2
- Q.3
- Q.4
- Q.5
- Q.6
- Q.7
- Q.8
- Q.9
- Q.10

**II. Fill in the blanks**

Marks: 10 x 1 = 10

Note: i) Answer all the Questions.  
ii) All question carry equal marks

- Q.1
- Q.2
- Q.3
- Q.4
- Q.5
- Q.6
- Q.7
- Q.8
- Q.9
- Q.10

**Internal Examination**

**Max.Marks:30**

Exam Duration: 30

**I. Written Test**

20 marks

- 1. Multiple choice questions
- 2. Filling the blanks

10 x 1 = 10 marks  
10 x 1 = 10 marks

**II. Assignment:**

05 marks

**III. Student Seminar**

05 marks

*Handwritten signature*

*Handwritten signature*

*Handwritten signature*

Chairperson  
Board of Studies  
Dept. of Computer Science & Engg.  
TELANGANA UNIVERSITY  
NIZAMABAD-500 077

Chairperson  
Board of Studies  
Dept. of Computer Science & Engg.  
TELANGANA UNIVERSITY  
NIZAMABAD-500 077

*Handwritten signature*

Incharge B.A. Computer Applications  
Girraj Government College,  
NIZAMABAD.



**GIRRAJ GOVERNMENT COLLEGE (AUTONOMOUS), NIZAMABAD**  
**B.A. COMPUTER APPLICATIONS**  
**III YEAR -V Semester, PAPER V**  
**CHOICE BASED CREDIT SYSTEM (With effect from 2018-19)**  
**SUBJECT: Multimedia Systems and Applications**

---

	<b>Max. Marks: 70(Theory)</b>
	<b>Internal Assessment: 30</b>
<b>Theory</b>	<b>3Hrs/Week    3Credits</b>
<b>Practical</b>	<b>2Hrs/Week    1Credit</b>

**Unit I**

**Multimedia:** Introduction, Definitions, Where to Use Multimedia- Multimedia in Business, Schools, Home, Public Places, Virtual Reality; Delivering Multimedia.

**UNIT II**

**Text: Meaning:** Fonts and Faces, Using Text in Multimedia, Computers and Text, Font Editing and Design Tools, Hypermedia and Hypertext.

**Images:** Before You Start to Create, Making Still Images, Color.

**Unit III**

**Sound:** The Power of Sound, Digital Audio, MIDI Audio, MIDI vs. Digital Audio, Multimedia System Sounds, Audio File Formats.

**Animation:** The Power of Motion, Principles of Animation, Animation by Computer.

**Unit IV**

**Making Multimedia:** The Stages of a Multimedia Project, Hardware, Software, Authoring Systems

**The Internet and Multimedia:** Internet History, Internetworking, Multimedia on the Web.

**Text :**

1. Tay Vaughan, "Multimedia: Making it work", TMH, Eighth edition.

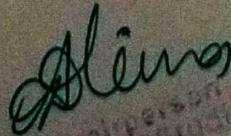
**References:**


1. Ralf Steinmetz and Klara Naharstedt, "Multimedia: Computing, Communications Applications", Pearson.

2. Keyes, "Multimedia Handbook", TMH.

3. K. Andleigh and K. Thakkar, "Multimedia System Design", PHI.

4. Spoken Tutorial on "Blender, GIMP, Inkscape", as E-resource for Learning. <http://spoken-tutorial.org>

  
Chairperson  
Board of Studies  
Dept. of Computer Science & Engg.  
TELANGANA UNIVERSITY  
NIZAMABAD-503 322

  
**Incharge B. A. Computer Application**  
**Girraj Government College,**  
**NIZAMABAD.**



GIRRAJ GOVERNMENT COLLEGE (AUTONOMOUS), NIZAMABAD  
B.A. COMPUTER APPLICATIONS  
III YEAR -V Semester,  
CHOICE BASED CREDIT SYSTEM (With effect from 2018-19)  
SUBJECT: PAPER VII-E(B) Object Oriented With C++

	Max. Marks: 70(Theory)
	Internal Assessment: 30
Theory	3Hrs/Week 3Credits
Practical	2Hrs/Week 1Credit

Unit I

Object-Oriented Concept:

Object-Oriented Paradigm, Data types, Operators and Expressions. Control Flows.

Unit II

Arrays and Strings, Modular Programming with Functions, Pointers and runtime Binding, Structures and Unions.

Unit III

Classes and Objects, inheritance.

UNIT IV

virtual functions, Exception Handling.

Text Book:

1. K R Venugopal, Rajkumar Buyya, Mastering in C++, McGrawHill, 2nd Edition, 2013.

*Aling*  
Chairperson  
Board of Studies  
Dept. of Computer Science & Engg.  
TELANGANA UNIVERSITY  
NIZAMABAD-503 322

*Buyya*  
Incharge B. A. Computer Applications  
Girraj Government College,  
NIZAMABAD,



GIRRAJ GOVERNMENT COLLEGE (AUTONOMOUS), NIZAMABAD  
 B.A. COMPUTER APPLICATIONS  
 FINAL YEAR -V Semester, PAPER VI  
 CHOICE BASED CREDIT SYSTEM (With effect from 2018-19)  
 SUBJECT: Visual Programming.

Max. Marks: 70(Theory)

Internal Assessment: 30

Theory	3Hrs/Week	3Credits
Practical	2Hrs/Week	1Credit

Unit - I

Introduction to VB: Writing windows application with VB, Programming languages -procedural, object oriented event driven; VB Environment, Writing first VB project, compiling, debugging, and running the programs.

Controls : Introduction to controls textboxes, frames, check boxes, option buttons, images, setting their properties designing the user interface, keyboard access, tab controls, default & cancel property, coding for controls.

Data types and Variables: variable, constants declaration and naming rules declaring variables, scope of variable val function.

Unit - II

Operators in VB: Arithmetic operators, Conditional operators, Logical Operators.

Decisions and Conditions: If then else statement, select case statements.

Looping statements: Do while Loop Statements ,For next loop statements.

Unit - III

Functions in VB: Introduction to Functions, creating user defined function, msgbox functions, Inputbox functions

Built in Functions: String functions, Math functions and Formatting Function.

Unit - IV

Sub procedures: Introduction to sub procedures and creating user defined procedure.

Arrays: Introduction to Arrays, declaring Arrays, creating single dimension array , double dimension array at Dynamic Array.

TEXT:

(04) Julia Case Bradley, Anita C. Millspaugh, *Programming in Visual Basic 6.0 (TMHE 2000-14<sup>th</sup> Reprint*

Diane Zak, *Programming with Microsoft Visual Basic 2012* Tony Gaddis, Kip Irvine, *Starting Out With Visual Basic 2012*

*Shimo*  
 Chairperson  
 Board of Studies  
 Dept. of Computer Science & Engg.  
 TELANGANA UNIVERSITY  
 NIZAMABAD-503 322

*[Signature]*  
 Incharge B. A. Computer Applications  
 Girraj Government College,  
 NIZAMABAD.



**GIRRAJ GOVERNMENT COLLEGE (AUTONOMOUS), NIZAMABAD**  
**B.A. COMPUTER APPLICATIONS**  
**III YEAR -V Semester,**  
**CHOICE BASED CREDIT SYSTEM (With effect from 2018-19)**  
**SUBJECT: PAPER VIII-E(A) Computer Graphics**

---

	<b>Max. Marks: 70(Theory)</b>	
	<b>Internal Assessment: 30</b>	
<b>Theory</b>	<b>3Hrs/Week</b>	<b>3Credits</b>
<b>Practical</b>	<b>2Hrs/Week</b>	<b>1Credit</b>

**Computer Graphics:** Graphs and Charts, Computer-Aided Design, Virtual-Reality Environments, Data Visualizations, Education and Training, Computer Art, Entertainment, Image Processing, Graphical User Interfaces  
**Computer Graphics Hardware:** Video Display Devices, Raster-Scan System, Graphics Workstations and Viewing Systems, Input Devices, Hard-Copy Devices, Graphics Networks, Graphics on the Internet.

**Unit II**

**Graphics Output Primitives:** Coordinate Reference Frames, Specifying A Two-Dimensional World-Coordinate Reference Frame in OpenGL, OpenGL Point Functions, OpenGL Line Functions, OpenGL Curve Functions, Fill-Area Primitives, Polygon Fill Areas,

**Unit III**

**Two-Dimensional Geometric Transformations:** Basic Two-Dimensional Geometric Transformations, Matrix Representations, Inverse Transformations, Two - Dimensional Composite Transformations, Raster Methods for Geometric Transformations, OpenGL Raster Transformations, Transformations between Two-Dimensional Coordinate Systems, OpenGL Functions for Two -Dimensional Geometric Transformations.

**Unit IV**

**Two-Dimensional Viewing:** The Two-Dimensional Viewing Pipeline, The Clipping Window, Normalization and Viewport Transformations, OpenGL Two-Dimensional Viewing Functions, Clipping Algorithms, Two-Dimensional Point Clipping, Two-Dimensional Line Clipping, Polygon Fill-Area Clipping, Curve Clipping, Text Clipping.

**Text:**

Donald D. Hearn, M. Pauline Baker, Warren Carithers "Computer Graphics with Open GL" 4th Edition, 2011.

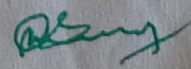
**References:**

J.D. Foley, A van Dam, S.K. Feiner and J.F. Hughes, *Computer Graphics: Principals and Practices*, 2nd Ed., Addison-Wesley, MA, 1990.

D.F. Rogers, *Procedural Elements in Computer Graphics*, 2nd Ed., McGraw Hill Book Company, 2001.

D.F. Rogers and A.J. Admas, *Mathematical Elements in Computer Graphics*, 2nd Ed., McGraw Hill Book Company, 1990.

  
**Chairperson**  
**Board of Studies**  
**Dept. of Computer Science & Engg.**  
**TELANGANA UNIVERSITY**  
**NIZAMABAD-503 322**

  
**Incharge B. A. Computer Applications**  
**Girraj Government College,**  
**NIZAMABAD,**



GIRRAJ GOVERNMENT COLLEGE (AUTONOMOUS), NIZAMABAD  
B.A. COMPUTER APPLICATIONS  
III YEAR -V Semester,  
CHOICE BASED CREDIT SYSTEM (With effect from 2018-19)  
SUBJECT: PAPER VIII-E (B) Software Engineering.

	Max. Marks: 70(Theory)	
	Internal Assessment: 30	
Theory	3Hrs/Week	3Credits
Practical	2Hrs/Week	1Credit

Unit I

Introduction: The Evolving Role of Software, Software Myths.  
Process: Software Engineering: A Layered Technology, the Software Process.

UNIT II

Software Process Models, the Linear Sequential Model, the Prototyping Model, the RAD Model Evolutionary  
Software Process Models, Component-Based Development, The Formal Methods Model, Fourth Generation  
Techniques, Process Technology, Product and Process.

Unit III

Project management: The Management Spectrum, People, The Product, The Process, The Project,  
Risk analysis and management: Reactive versus Proactive Risk Strategies, Software Risks, Risk Identification, R  
projection, Risk Refinement, Risk Mitigation, Monitoring, and Management.

Unit IV

Software testing techniques: Software Testing Fundamentals, Test Case Design, White-Box Testing, Basis Path  
Testing, Black-Box Testing,  
Software testing strategies: A Strategic Approach to Software Testing, Strategic Issues, integration Testing, Unit  
Testing, Validation Testing, System Testing.

Text book:

Roger S. Pressman, Software Engineering (Sixth edition), Tata McGraw Hill, 2009

*Shina*

Chairperson  
Board of Studies  
Dept. of Computer Science & Engg.  
TELANGANA UNIVERSITY  
NIZAMABAD-503 322