Bachelor of Technology (Computer Science & Engineering)
Scheme of Studies/Examination
Semester VII

S. No.	Course No.	Subject	L:T:P	Hours/ Week	Examination Schedule				Duration of Exam (Hrs.)
					Major Test	Minor Test	Practical	Total	
1	CSE 401N	Unix & Linux Program-ming	4:0:0	4	75	25	0	100	3
2	CSE 403N	Computer Graphics and Animation	4:0:0	4	75	25	0	100	3
3	PE-I	Elective* – I	3:0:0	3	75	25	0	100	3
4	PE-II	Elective* – II	3:0:0	3	75	25	0	100	3
5	CSE 405N	Computer Graphics Lab	0:0:2	2	0	40	60	100	3
6	CSE 407N	Project-I**	0:0:9	9	0	100	100	200	3
7	CSE 409N	Unix & Linux Program-ming Lab	0:0:2	2	0	40	60	100	3
8	CSE 411N	Seminar	0:0:2	2	0	100	0	100	
9	CSE 413N	Industrial Training (Viva-Voce)***				100	0	100	
		Total		29	300	480	220	1000	

Code	PE-I	Code	PE-II
CSE-415N	Object Oriented Software Engineering	CSE-421N	Agile Software Engineering
CSE-417N	Cyber Security	CSE-423N	Big Data and Analytics
CSE-419N	Cryptography & Information Security	CSE-425N	Expert Systems

Note:
*The students will choose any two departmental electives courses out of the given elective list in 7thSemester.
**Project should be initiated in the beginning of 7thsemester, and should be completed by the end of 8thsemester with good Report and power-point Presentation etc.
***4-6 weeks hand on training completed after 6thSemester Exams.

JMIETI, Radaur

Lesson Planning of Unix & Linux Porgamming Deptt. . CSE
Semester 7th w.e.f……04.08.2020

Name of Teacher : Mr. Tajinder Kumar

Designation : Assistant Professor

Subject with code : CSE 401N

Objective of Course : 1.Introduces commands and numerous programming concepts and application domains to cover important topics for implementation of the Unix programming concepts.

2.

3.

Week & Month	Topic / Chapter Covered	Academic Activity	Test/Assignment
Aug	User accounts	LECTURE	
Aug	accessing Linux - starting and shutting processes	LECTURE	
Aug	Logging in andLogging out	LECTURE	
Aug	Unix commands like zip, unzip, pack, unpack, compress, uncompress,	LECTURE	
Aug	Shell Programming	LECTURE	
Aug Aug Aug Aug	Unix file system: Linux/Unix files -DO- i-nodes and structure . file systemrelated commands	LECTURE LECTURE LECTURE LECTURE	
Aug	file systemrelated commands	LECTURE	
Sep Sep Sep	Shell as command processor shell variables creating command substitution	LECTURE LECTURE LECTURE	
Sep	Scripts	LECTURE	
Sep	functions, conditionals, loops	LECTURE	
Sep Sep	customizing environment Regular Expressions and Filters: Introducing regular expressions patterns	LECTURE LECTURE	
Sep	syntax, character classes,	LECTURE	
Sep	quantifiers, introduction to grep, egrep	LECTURE	
Oct	Sed	LECTURE	
Oct Oct Oct	programming with awk programming with perl data redundancy elimination using fingerprint generation	LECTURE LECTURE LECTURE	
Oct	Deduplication	LECTURE	

Oct **Oct** **Oct**	data similarities removal using delta techniques for data reduction storage -DO- parallel compression with Xdelta utility	**LECTURE** **LECTURE** **LECTURE**	
Oct	The C Environment: C compiler	**LECTURE**	
Oct **Nov** **Nov**	vi editor -DO- compiler options, , managing projects	**LECTURE** **LECTURE** **LECTURE**	
Nov **Nov** **Nov**	memory management use of makefile, cmake	**LECTURE** **LECTURE** **LECTURE**	
Nov	dependency calculations	**LECTURE**	
Nov **Nov** **Nov** **Nov**	memory management – static and dynamic memory static and dynamic libraries dynamic loader, debugging tools like gdb, fixed-size and variable-size blocks of data files chunks divisor chunking techniques like Frequency Based Chunking and Content Defined Chunking Unix based open source coding.	**LECTURE** **LECTURE** **LECTURE** **LECTURE**	
Nov Nov	Processes, starting and stopping processes, initialization processes rc and init files, job control - at, batch, cron, time	**LECTURE** **LECTURE**	
Dec **Dec**	network files, security, privileges authentication, password administration, Threading	**LECTURE** **LECTURE**	
Dec **Dec** **Dec**	archiving, Signals and signal handlers, Linux I/O system Networking tools like ping, telnet, ftp, route, Firewalls, Backup and Restore tar, cpio, dd Case Study: PCOMPRESS open source free software	**LECTURE** **LECTURE** **LECTURE**	

Outcome of Course:

1. To learn basic and advanced Unix Commands.
2. Expose the role of filters and file compression techniques.
3. To explore knowledge of programming language development tools
4. To expand knowledge of Unix/Linux system administration and networking.

(Sign. of HOD) (Sign. of Teacher Concerned with date)

JMIETI, Radaur

Lesson Planning of Interactive Computer Graphics Deptt. . CSE..
Semester 7th w.e.f…04.08.2020.

Name of Teacher : Ms. Priyanka Kamboj

Designation :Assistant Professor

Subject with code : CSE-403N

Objective of Course : 1. Introduces Computer Graphics that help in designing different kinds of static and movable objects.

Week & Month	Topic / Chapter Covered	Academic Activity	Test/Assignment
Aug	Computer Graphics applications	LECTURE	
Aug	Display Devices	LECTURE	
Aug	Point & Positioning Devices	LECTURE	
Aug	Plotting Techniques for point and Line	LECTURE	
Aug	Line drawing algorithms: DDA	LECTURE	
Aug	Line drawing algorithms: Bresenhams's	LECTURE	
Aug	Circle drawing algorithms	LECTURE	
Aug	Circle drawing algorithms	LECTURE	
Aug	Filled area algorithms: Scan line	LECTURE	
Aug	Polygon filling algorithms	LECTURE	
Sep	Polygon filling algorithms	LECTURE	
Sep	Boundary filled algorithms	LECTURE	
Sep	Boundary filled algorithms	LECTURE	
Sep	Window to view port transformation	LECTURE	
Sep	Window to view port mapping	LECTURE	
Sep	Two Dimensional transformation: translation, scaling, rotation, reflection and Shear	LECTURE	
Sep	Two Dimensional transformation: translation, scaling, rotation, reflection and Shear	LECTURE	
Sep	Homogeneous Coordinate system	LECTURE	
Sep	3-D transformation: Rotation, Shear, translation	LECTURE	
Oct	3-D transformation: Rotation, Shear, translation	LECTURE	
Oct	Numerical Problems of transformation viewing pipeline.	LECTURE	
Oct	Numerical Problems of transformation viewing pipeline.	LECTURE	

Oct	Clipping: Point & Line	**LECTURE**	
Oct	Clipping: Point & Line	**LECTURE**	
Oct	clipping algorithm, 4-bit code algorithm	**LECTURE**	
Oct	clipping algorithm, 4-bit code algorithm	**LECTURE**	
Oct	Cohen-Sutherland Line clipping algorithms	**LECTURE**	
Oct	Cohen-Sutherland Line clipping algorithms		
Oct	Liang-Barsky line clipping algorithms	**LECTURE**	
Nov	Liang-Barsky line clipping algorithms	**LECTURE**	
Nov	Polygon clipping	**LECTURE**	
Nov	Sutherland-Hodgeman Polygon clipping algorithm	**LECTURE**	
Nov	Curve clipping	**LECTURE**	
Nov	Text clipping.	**LECTURE**	
Nov	Projection		
Nov	Parallel	**LECTURE**	
Nov	Perspective	**LECTURE**	
Nov	Vanishing Points	**LECTURE**	
Nov	Representation of 3-D Curves and Surfaces	**LECTURE**	
Nov	Representation of 3-D Curves and Surfaces	**LECTURE**	
Nov	interpolation and approximation alpines	**LECTURE**	
Dec	interpolation and approximation alpines	**LECTURE**	
Dec	parametric conditions	**LECTURE**	
Dec	Geometric continuity conditions	**LECTURE**	
Dec	Beizer curves and surfaces:	**LECTURE**	
Dec	properties of beizer curves	**LECTURE**	
Dec	beizersurfaces.	**LECTURE**	
Dec	beizersurfaces.	**LECTURE**	
Dec	Hidden Surfaces removal	**LECTURE**	

Outcome of Course:

1. Explore the background and standard line and circle drawing algorithms.
2. Exposure of various transformation approaches and its comparative analysis.
3. Illustrate Projection and clipping with explore different techniques.
4. Apply design principles to create different curves and explore hidden lines and surface techniques.

(Sign. of HOD) (Sign. of Teacher Concerned with date)

JMIETI, Radaur

Lesson Planning of …OOSE Deptt. . CSE Semester 7th w.e.f…04.08.2020

Name of Teacher : Mr. Vishal Garg

Designation :Assistant Professor

Subject with code : CSE-415N

Objective of Course : 1. To provide the thorough knowledge to use the concepts and their design attributes for Object Oriented Software Engineering approaches and platforms to solve real time problems.

Week & Month	Topic / Chapter Covered	Academic Activity	Test/Assignment
Aug	Design Objects	LECTURE	
Aug	Class Hierarchy, Inheritance	LECTURE	
Aug	Polymorphism,	LECTURE	
Aug	Object relationships and associations	LECTURE	
Aug	Aggregations and Object Containment	LECTURE	
Aug	Object Persistence	LECTURE	
Aug	Meta classes	LECTURE	
Aug	Object oriented systems development life cycle	LECTURE	
Aug	Software development process	LECTURE	
Aug	Object oriented systems development: a use case driven approach	LECTURE	
Sep	Object oriented systems development: a use case driven approach	LECTURE	
Sep	Object modeling techniques as software as software engineering methodology	LECTURE	
Sep	Object modeling techniques as software as software engineering methodology	LECTURE	
Sep	Rumbaugh methodology	LECTURE	
Sep	Jacobson methodology	LECTURE	
Sep	Booch methodology	LECTURE	
Sep	Patterns	LECTURE	
Sep	Frameworks	LECTURE	
Sep	Unified Modeling language	LECTURE	
Oct	Analysis Process	LECTURE	
Oct	Use-Case Driven Object Oriented Analysis	LECTURE	
Oct	Use-Case Model	LECTURE	

Oct	Object Classification Theory	**LECTURE**	
Oct	Different Approaches for identifying classes	**LECTURE**	
Oct	classes, responsibilities and collaborators	**LECTURE**	
Oct	classes, responsibilities and collaborators	**LECTURE**	
Oct	identifying Object Relationships	**LECTURE**	
Oct	attributes and Methods	**LECTURE**	
Oct	super-sub class relationship	**LECTURE**	
Nov	Apart of Relationship-Aggregation	**LECTURE**	
Nov	Class Responsibilities and Object Responsibilities	**LECTURE**	
Nov	Class Responsibilities and Object Responsibilities	**LECTURE**	
Nov	Object Classification Theory	**LECTURE**	
Nov	Object Oriented design process, Corollaries	**LECTURE**	
Nov	design axioms, design patterns	**LECTURE**	
Nov	object oriented design philosophies	**LECTURE**	
Nov	UML Object Constraint Language	**LECTURE**	
Nov	Designing Classes: The Process,	**LECTURE**	
Nov	Class Visibility, Refining Attributes	**LECTURE**	
Nov	Designing Methods and Protocols	**LECTURE**	
Nov	Packages and managing classes	**LECTURE**	
Dec	Designing interface objects	**LECTURE**	
Dec	View layer interface design	**LECTURE**	
Dec	Macro level interface design process.	**LECTURE**	
Dec	Micro level interface design process	**LECTURE**	

Outcome of Course:

1. To learn the basic concepts of object oriented systems and software engineering.

2. To get exposure of various object modeling methodologies, tools for analyzing and designing software based systems using UML.

3. To explore problems using Use Cases, analyzing relations, responsibilities and collaborations among classes and their behavior in problem domain.

4. To evaluate object oriented design processes using models, design patterns, interfaces designs and communication mechanisms for performing required tasks.

(Sign. of HOD) (Sign. of Teacher Concerned with date)

JMIETI, Radaur

Lesson Planning of Expert Systems Deptt. .CSE. Semester 7th w.e.f 04.08.2020

Name of Teacher :

Designation :

Subject with code : CSE-425N

Objective of Course : 1. In this course the student will learn the methodologies used to transfer the knowledge of a human expert into an intelligent program that can be used to solve real-time problems.

Week & Month	Topic / Chapter Covered	Academic Activity	Test/Assignment
Aug	Introduction to AI programming languages	LECTURE	
Aug	Blind search strategies, Breadth first – Depth first	LECTURE	
Aug	Heuristic search techniques Hill Climbing – Best first	LECTURE	
Aug	A Algorithm, AO* algorithm	LECTURE	
Aug	Game tress, Min-max algorithms, game playing – Alpha beta pruning.	LECTURE	
Aug	Knowledge representation issues predicate logic – logic programming	LECTURE	
Aug	-DO-	LECTURE	
Aug	Semantic nets- frames and inheritance	LECTURE	
Aug	constraint propagation;	LECTURE	
Aug	Representing Knowledge using rules	LECTURE	
Sep	Rules based deduction systems	LECTURE	
Sep	REVISION OF UNIT -I	LECTURE	
Sep	Introduction to Expert Systems	LECTURE	
Sep	Architecture of expert system	LECTURE	
Sep	Representation and organization of knowledge	LECTURE	
Sep	-DO-	LECTURE	
Sep	Basics characteristics, and types of problems handled by expert systems	LECTURE	
Sep	-DO-	LECTURE	
Sep	Techniques of knowledge representations in expert systems	LECTURE	
Oct	-DO-	LECTURE	
Oct	-DO-	LECTURE	
Oct	knowledge engineering	LECTURE	
Oct	System-building aids	LECTURE	

Oct	support facilities	**LECTURE**	
Oct	stages in the development of expert systems	**LECTURE**	
Oct	-DO-	**LECTURE**	
Oct	REVISION OF UNIT -II	**LECTURE**	
Oct	Expert system development	**LECTURE**	
Oct	-DO-	**LECTURE**	
Nov	-DO-	**LECTURE**	
Nov	Selection of tool	**LECTURE**	
Nov	Acquiring Knowledge	**LECTURE**	
Nov		**LECTURE**	
Nov	-DO-	**LECTURE**	
Nov	Building process	**LECTURE**	
Nov	REVISION OF UNIT -III	**LECTURE**	
Nov	Difficulties, common pitfalls in planning	**LECTURE**	
Nov	-DO-	**LECTURE**	
Nov	-DO-	**LECTURE**	
Nov	dealing with domain expert	**LECTURE**	
Nov	-DO-	**LECTURE**	
Dec	-DO-	**LECTURE**	
Dec	difficulties during development	**LECTURE**	
Dec	-DO-	**LECTURE**	
Dec	-DO-	**LECTURE**	
Dec	REVISION OF UNIT-IV	**LECTURE**	

Outcome of Course:

1. Examining the fundamentals and terminologies of expert system

2. To facilitate students to implement various knowledge representation techniques for acquisition and validate various structures in experts system domain.

3. Signifying AI techniques to solve social, industrial and environmental problems.

4. Application of professional aspects in multi-disciplinary approach to meet global standards towards design, realizing and manufacturing

(Sign. of HOD) (Sign. of Teacher Concerned with date)

CSE-405N	**Computer Graphics Lab**					
Lecture	Tutorial	Practical	Minor Test	Practical	Total	Time
0	0	2	40	60	100	3Hrs.
Purpose	To Design and implement various Line and Circle Drawing Algorithms.					
Course Outcomes (CO)						
CO1	To Implement basic algorithms related to Line & Circle Drawing.					
CO2	Implement various Line & Circle Drawing Algorithms.					
CO3	Hands on experiments on 2-D transformations.					
CO4	Conceptual implementation of Clipping and other drawing algorithms..					

List of Practicals:

1. Write a program to implement DDA line drawing algorithm.
2. Write a program to implement Bresenham's line drawing algorithm.
3. Implement the Bresenham's circle drawing algorithm.
4. Write a program to draw a decagon whose all vertices are connected with every other vertex using lines.
5. Write a program to move an object using the concepts of 2-D transformations.
6. Write a program to implement the midpoint circle drawing algorithmany Object Oriented Programming Languagelike Python, C++,Java.
7. Implement the line clipping algorithm using any Object Oriented Programming Language like Python, C++, Java.
8. Implement boundary fill algorithm using any Object Oriented Programming Language like Python, C++, Java.
9. Implement the depth buffer algorithm using any Object oriented language like Python, C++,Java.
10. Perform the Polygon Clipping Algorithm using any Object oriented language like Python, C++,Java.
11. Draw a Rectangle using Bresenham's and DDA Algorithm using any Object oriented language like Python, C++,Java.

Note: At least 5 to 10 more exercises are to be given by the teacher concerned.

JMIETI, Radaur

Lesson Planning of ……Deptt. . …….. Semester w.e.f……...

Name of Teacher :

Designation :

Subject with code : CSE-405N

Objective of Course : 1. To Design and implement various Line and Circle Drawing Algorithms.

2.

3.

Week & Month	Topic / Chapter Covered	Academic Activity	Test/Assignment
1st	Introduction to the subject	**LECTURE**	
2nd	Write a program to implement DDA line drawing algorithm.	**LECTURE**	
3rd	Write a program to implement Bresenham's line drawing algorithm.	**LECTURE**	
4th	Implement the Bresenham's circle drawing algorithm.	**LECTURE**	
5th	Write a program to draw a decagon whose all vertices are connected with every other vertex using lines	**LECTURE**	
6th	Write a program to move an object using the concepts of 2-D transformations.	**LECTURE**	
7th	Write a program to implement the midpoint circle drawing algorithmany Object Oriented Programming Languagelike Python, C++,Java.	**LECTURE**	
8th	Implement the line clipping algorithm using any Object Oriented Programming Language like Python, C++, Java.	**LECTURE**	
9th	Implement boundary fill algorithm using any Object Oriented Programming Language like Python, C++, Java.	**LECTURE**	
10th	Implement the depth buffer algorithm using any Object oriented language like Python, C++,Java.	**LECTURE**	

11th	Perform the Polygon Clipping Algorithm using any Object oriented language like Python, C++,Java.	**LECTURE**	
12th	Perform the Polygon Clipping Algorithm using any Object oriented language like Python, C++,Java.	**LECTURE**	
13th	Draw a Rectangle using Bresenham's and DDA Algorithm using any Object oriented language like Python, C++,Java.	**LECTURE**	
14th	Draw a Rectangle using Bresenham's and DDA Algorithm using any Object oriented language like Python, C++,Java.	**LECTURE**	
15th	Internal Viva	**LECTURE**	

Outcome of Course:

1. To Implement basic algorithms related to Line & Circle Drawing.

2. Implement various Line & Circle Drawing Algorithms.

3. Hands on experiments on 2-D transformations.

4. Conceptual implementation of Clipping and other drawing algorithms..

(Sign. of HOD) (Sign. of Teacher Concerned with date)

CSE-409N	**Unix & Linux Programming Lab**					
Lecture	Tutorial	Practical	Minor Test	Practical	Total	Time
0	0	2	40	60	100	3 Hrs.
Purpose	To provide experimental knowledge of Unix & Linux Programs					
Course Outcomes (CO)						
CO	Exploring knowledge by implementation of programs using UNIX/LINUX.					

List of Practicals

1. Familiarize with Unix/Linux logging/logout and simple commands.
2. Familiarize with vi editor.
3. Using Bash shell develops simple shell programs.
4. Develop advanced shell programs using grep, fgrep&egrep.
5. Compile and debug various C programs using different options.
   Content defined chunking, frequency based chunking, delta/Xdelta, Rabin Fingerprint Generator, Parallel Compression compress.
6. Learning of installation and upgradation of Linux operating system.
7. Install Linux on a PC having some other previously installed operating system. All operating systems should be usable.
8. As supervisor create and maintain user accounts, learn package installation, taking backups, creation of scripts for file and user management, creation of startup and shutdown scripts using at, cron etc.

Note: At least 5 to 10 more exercises are to be given by the teacher concerned.

JMIETI, Radaur

Lesson Planning of ……Deptt. . …….. Semester w.e.f……...

Name of Teacher :

Designation :

Subject with code : CSE-409N

Objective of Course : 1. To provide experimental knowledge of Unix & Linux Programs

2.

3.

Week & Month	Topic / Chapter Covered	Academic Activity	Test/Assignment
1st	Introduction to the subject Familiarize with Unix/Linux logging/logout and simple commands	**LECTURE**	
2nd	Familiarize with Unix/Linux logging/logout and simple commands Familiarize with vi editor.	**LECTURE**	
3rd	Using Bash shell develop simple shell programs	**LECTURE**	
4th	Using Bash shell develop simple shell programs	**LECTURE**	
5th	Develop advanced shell programs using grep, fgrep & egrep.	**LECTURE**	
6th	Develop advanced shell programs using grep, fgrep & egrep.	**LECTURE**	
7th	Compile and debug various C programs using different options.	**LECTURE**	
8th	Learning of installation and upgradation of Linux operating system.	**LECTURE**	
9th	Install, Linux on a PC having some other previously installed operating system. All OSs should be usable.	**LECTURE**	
10th	Install, Linux on a PC having some other previously installed operating system. All OSs should be usable	**LECTURE**	
11th	As supervisor create and maintain user accounts, learn package	**LECTURE**	

12th	installation, taking backups, creation of scripts for file and user management, creation of startup and shutdown scripts using at, cron etc.	**LECTURE**	
13th	As supervisor create and maintain user accounts, learn package	**LECTURE**	
14th	installation, taking backups, creation of scripts for file and user	**LECTURE**	
15th	management, creation of startup and shutdown scripts using at, cron etc.	**LECTURE**	

Outcome of Course:

1. Exploring knowledge by implementation of programs using UNIX/LINUX.
2.
3.

(Sign. of HOD) (Sign. of Teacher Concerned with date)