Program and Course Structure B.Tech (IT)

1. Standard StrTYucture of the Program at University Level

1.1 Vision, Mission and Core Values of the University

Vision of the University

To serve the society by being a global University of higher learning in pursuit of academic excellence, innovation and nurturing entrepreneurship.

Mission of the University

1. **Transformative educational experience**
2. **Enrichment by educational initiatives that encourage global outlook**
3. **Develop research, support disruptive innovations and accelerate entrepreneurship**
4. **Seeking beyond boundaries**

Creative Campaign Can be TEDs: This is guiding principle for promotion and wide circulation among various stakeholder.
Guidelines: Similar Mnemonics can be designed by schools.

Core Values

- **Integrity**
- **Leadership**
- **Diversity**
- **Community**

Note: Detailed Mission Statements of University can be used for developing Mission Statements of Schools/ Departments.

1.2 Vision and Mission of the School

Vision of the School

To become a globally acclaimed institution of higher learning in engineering and technology promoting excellence in research, innovation and entrepreneurship

Mission of the School

1. **To impart quality education with strong industry & academic connectivity in the expanding fields of Engineering and Technology in a conductive and enriching learning environment.**
2. **To product technocrats equipped with technical & soft skills and experiential learning required to stay current with the modern tools in emerging technologies to fulfill professional responsibilities and uphold ethical values.**
3. **To inculcate a culture of interdisciplinary research, innovation and entrepreneurship to provide sustainable solutions to meet the growing challenges and societal needs.**
4. **To foster collaborative learning and to play adaptive leadership role in professional career and pursuit of higher education through effective mentoring and counselling.**

1.2.1Vision and Mission of the Department

Vision of the Department

To be known and recognized as the fountainhead of excellence in technical knowledge and research in Information Technology and engineering, and draw to it the students and scholars across nations.

Mission of the Department

1. To facilitate and foster the academia industry collaboration to enhance entrepreneurship skills and acquaintance with corporate culture.
2. To strengthen core competences of students to be successful, ethical , effective problem solver in Information Technology& Engineering through analytical learning
3. To promote research based activities in emerging areas of technology convergence.
4. To induce moral values and spirit of social commitment.

1.3 Programme Educational Objectives (PEO)

1.3.1 Writing Programme Educational Objectives (PEO)

The Educational Objectives of UG Program in Information Technologyare:

PEO1 : The Graduate will ensconce himself/herself as effective professionals by solving real life problems using exploratory and analytical skills along with the knowledge acquired in the field of Information Technology and Engineering.

PEO2 : The Graduate will demonstrate his/her ability to accustom to rapidly changing environment in advanced areas of Information Technology and scale new height in their profession through lifelong learning.

PEO3 : The Graduate will have the ability to work and communicate effectively as a team member or leader to complete the task with minimal resources, meeting deadlines.

PEO4 : The Graduate will embrace professional code of ethics in the profession while deliberately being part of projects which contributes to the society at large without disturbing the ecological balance.

Methods of Forming PEO's

STEP 1: The needs of the Nation and society are identified through scientific publications, industry interaction and media.

STEP 2. Taking the above into consideration, the PEOs are established by the coordination Committee of the department.

STEP 3. The PEOs are communicated to the alumni and their suggestions are obtained.

STEP 4. The PEOs are communicated to all the faculty members of the department and their feedback is obtained.

STEP 5. The PEOs are then put to the Board of Studies of the department for final approval.

[Note: Prepare a file for the same, how you arrive for PEO's]

1.3.2 Map PEOs with School Mission Statements:

PEO Statements	School Mission 1	School Mission 2	School Mission 3	School Mission 4
PEO1:	**3**	**3**	**2**	**2**
PEO2:	**2**	**3**	**2**	**1**
PEO3:	**2**	**2**	**2**	**3**
PEO4:	**2**	**1**	**3**	**1**

Enter correlation levels 1, 2, or 3 as defined below:

1. **Slight (Low)** **2. Moderate (Medium)** **3. Substantial (High)**

If there is no correlation, put "-"

1.3.2.1 Map PEOs with Department Mission Statements:

PEO Statements	Department Mission 1	Department Mission 2	Department Mission 3	Department Mission 4
PEO1:	**2**	**3**	**2**	**1**
PEO2:	**1**	**3**	**3**	**1**
PEO3:	**3**	**2**	**1**	**1**
PEO4:	**1**	**2**	**2**	**3**
PEO5:	**2**	**3**	**2**	**1**

Enter correlation levels 1, 2, or 3 as defined below:

1. Slight (Low) 2. Moderate (Medium) 3. Substantial (High)

If there is no correlation, put "-"

1.3.3 Program Outcomes (PO's)

PO1: **Engineering knowledge**: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

PO2: **Problem analysis**: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

PO3: **Design/development of solutions**: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.

PO4: **Conduct investigations of complex problems**: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

PO5: **Modern tool usage**: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations.

PO6: **The engineer and society**: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

PO7: **Environment and sustainability**: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

PO8: **Ethics**: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

PO9: **Individual and team work**: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

PO10: **Communication**: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

PO11: **Project management and finance**: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

PO12: **Life-long learning**: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

PSO1: Familiarity and practical proficiency with a broad area of programming concepts and provide new ideas and innovations towards research and societal issues.

PSO2: Understand, analyze and develop computer programs in the areas related to algorithms, system software, multimedia, web design, big data analytics and networking for efficient design of computer-based systems of varying complexity.

PSO3: Apply standard Software Engineering practices and strategies in software project development using open-source programming environment to deliver a quality product for business success.

PSO4: Be acquainted with the contemporary issues, latest trends in technological development and thereby innovate new ideas and solutions to existing environmental and societal problems.

PSO5: To prepare graduates to apply their skills in creating innovative computing solutions by employing effective communication, teamwork, leadership, ethical practices and professionalism.

1.3.4 Mapping of Program Outcome Vs Program Educational Objectives

Mapping	PEO1	PEO2	PEO3	PEO4
PO1	3	3	2	1
PO2	3	3	3	1
PO3	2	2	3	3
PO4	2	2	3	2
PO5	2	3	2	2
PO6	1	2	2	3
PO7	1	1	2	3
PO8	1	1	2	3
PO9	1	2	3	1
PO10	1	1	3	2

PO11	3	2	3	1
PO12	2	3	1	1
PSO1	2	3	1	3
PSO2	3	3	2	2
PSO3	3	3	2	2
PSO4	2	2	1	3
PSO5	3	2	3	1

1. Slight (Low) ***2. Moderate (Medium)*** ***3. Substantial (High)***

School of Engineering and Technology							
B.Tech-Information Technology Engineering							
Batch: 2018 Onwards						TERM: I	
S. No.	**Course Code**	**Course**	**Teaching Load**			**Credits**	**Pre-Requisite/Co Requisite**
			L	**T**	**P**		
THEORY SUBJECTS							
1.	CSE113	Programming for Problem Solving	3	0	0	3	
2.	MTH 142	Calculus and Abstract Algebra	3	1	0	4	
3.	PHY117	Semiconductor Physics	2	1	0	3	
4.	EEE112	Principles of Electrical and Electronics Engineering	2	1	0	3	
5.	EVS103	Environmental Science	2	0	0	2	
Practical/Viva-Voce/Jury							
6.	CSP113	Programming for Problem Solving Lab	0	0	2	1	
7.	CSP101	Introduction to Computer Science and Engineering	0	0	2	1	
8.	MEP106	Computer Aided Design & Drafting	0	0	3	1.5	
9.	EEP112	Principles of Electrical and Electronics Engineering	0	0	2	1	
10.	PHY161/162	Physics Lab –I / Physics Lab-II	0	0	2	1	
11.	FEN101	Functional English Beginners-I	0	0	2	1	
12.	FEN103	Functional English Intermediate-I					

13.	ENP102	Functional English-I	0	0	2	1	
TOTAL CREDITS						**22.5**	

School of Engineering and Technology							
B.Tech-Information Technology Engineering							
Batch: 2018 Onwards						TERM: II	
S. No.	**Course Code**	**Course**	**Teaching Load**			**Credits**	**Pre-Requisite/Co Requisite**
			L	**T**	**P**		
THEORY SUBJECTS							
1.	CSE114	Application based Programming in Python	3	0	0	3	
2.	MTH 145	Probability and Statistics	3	1	0	4	
3.	PHY116	Engineering Physics	2	1	0	3	
4.	CHY111	Engineering Chemistry	3	0	2	4	
5.	HMM111	Human Value & Ethics	2	0	0	2	
Practical/Viva-Voce/Jury							
6.	CSP114	Application based Programming in Python	0	0	2	1	
7.	MEP105	Mechanical Workshop	0	0	3	1.5	
8.	CSP103	Multimedia Application Lab	0	0	2	1	
9.	PHY161/162	Physics Lab –I / Physics Lab-II	0	0	2	1	
10.	FEN102	Functional English Beginners-II	0	0	2	1	
11.	FEN104	Functional English Intermediate-II					
12.	ENP103	Functional English-II	0	0	2	1	
TOTAL CREDITS						**22.5**	

School of Engineering and Technology							
B.Tech-Information Technology Engineering							
Batch: 2018 Onwards						TERM: III	
S. No.	**Course Code**	**Course**	**Teaching Load**			**Credits**	**Pre-Requisite/Co Requisite**
			L	**T**	**P**		
THEORY SUBJECTS							
1.	BTY223	Introduction to Biology for Engineers	2	0	0	2	
2.	MTH201	Discrete Structures	3	1	0	4	
3.	CSE247	Computer Organization and Architecture	3	0	0	3	
4.	CSE242	Data Structures	3	0	0	3	
5.	CSE243	Object Oriented Programming Using Java	3	0	0	3	
Practical/Viva-Voce/Jury							
6	CSP242	Data Structures Lab	0	0	2	1	
7.	CSP243	Object Oriented Programming Using Java	0	0	2	1	
8.	ARP203	Aptitude Reasoning and Business Communication Skills-Basic	0	0	4	2	
9.	CSP297	Project Based Learning (PBL) -1	0	0	2	1	
10.	CSP299	Industrial Internship-I	-	-	-	1	
TOTAL CREDITS						**21**	

School of Engineering and Technology							
B.Tech-Information Technology Engineering							
Batch: 2018 Onwards						TERM: IV	
S. No.	**Course Code**	**Course**	**Teaching Load**			**Credits**	**Pre-Requisite/Co Requisite**
			L	**T**	**P**		
THEORY SUBJECTS							
1.	CSE244	Principles of Operating System	3	0	0	3	
2.	CSE245	Computer Networks	3	0	0	3	
3.	CSE246	Data Base Management System	3	0	0	3	Discrete Structures
4.	INT248	Human computer interaction	3	0	0	3	
5		Program Elective-1	3	0	0	3	
6.	OE1	Open Elective – 1	2	0	0	2	
Practical/Viva-Voce/Jury							
7.	ARP204	Aptitude Reasoning and Business Communication Skills-Intermediate	0	0	4	2	ARP201
8.	CSP244	Principles of Operating System Lab	0	0	2	1	
9.	CSP245	Computer Networks Lab	0	0	2	1	
10.	CSP246	Data Base Management System Lab	0	0	2	1	
11	INP248	Human computer interaction	0	0	2	1	
12	CSP298	Project Based Learning (PBL) -2	0	0	2	1	PBL-I
TOTAL CREDITS						**24**	

School of Engineering and Technology							
B.Tech-Information Technology Engineering							
Batch: 2018 Onwards						TERM: V	
S. No.	**Course Code**	**Course**	**Teaching Load**			**Credits**	**Pre-Requisite/Co Requisite**
			L	**T**	**P**		
THEORY SUBJECTS							
1.	CSE341	Design and Analysis of Algorithm	3	1	0	4	Data Structure
2	CSE343	Software Engineering and Testing Methodologies	3	0	0	3	
3		Program Elective-2	3	0	0	3	
4.		Program Elective-3	3	0	0	3	
5.	OE-2	Open Elective – 2	3	0	0	3	
Practical/Viva-Voce/Jury							
6.		Community Connect	-	-	-	2	
7.	ARP301	Quantitative Aptitude Behavioral and Interpersonal Skills	0	0	4	2	ARP204
8.	CSP341	Design and Analysis of Algorithm Lab	0	0	2	1	Data Structure Lab
9	CSP302	Technical Skill Enhancement Course-1 Simulation Lab	0	0	2	1	Operating system, Database Management system
10.	CSP397	Project Based Learning (PBL) -3	0	0	2	1	PBL-2
11.	CSP399	Industrial Internship-II	-	-	-	1	Industrial Internship-I
TOTAL CREDITS						**24**	

School of Engineering and Technology							
B.Tech-Information Technology Engineering							
Batch: 2018 Onwards						TERM: VI	
S. No.	**Course Code**	**Course**	**Teaching Load**			**Credits**	**Pre-Requisite/Co Requisite**
			L	**T**	**P**		
THEORY SUBJECTS							
1.	HMM305	Management for Engineers	3	0	0	3	
2.	CSE458	Web Technologies	3	0	0	3	Java
3	CSE350	Android Application Development	3	0	0	3	
4	PE4	Program Elective-4	3	0	0	3	
5.	OE-3	Open Elective – 3	3	0	0	3	
Practical/Viva-Voce/Jury							
6.	ARP302	Higher Order Mathematics and Advanced People Skills	0	0	4	2	ARP301
7.	CSP458	Web Technologies Lab	0	0	2	1	Java
8.	CSP350	Android Application Development	0	0	2	1	
9.	CSP350	Technical Skill Enhancement Course-2(Shell Scripting Lab)	0	0	2	1	
10	CSP398	Project Based Learning (PBL) -4	0	0	2	1	PBL-3
TOTAL CREDITS						**21**	

School of Engineering and Technology							
B.Tech-Information Technology Engineering							
Batch: 2018 Onwards						TERM: VII	
S. No.	**Course Code**	**Course**	**Teaching Load**			**Credits**	**Pre-Requisite/Co Requisite**
			L	**T**	**P**		
THEORY SUBJECTS							
1.	CSE346	Artificial Intelligence	3	0	0	3	
2.	PE5	Program Elective-5	3	0	0	3	
3.	PE6	Program Elective-6	3	0	0	3	
4.		Comprehensive Examination	0	0	0	0	Audit
5	OE4	Open Elective - 4	3	0	0	3	
Practical/Viva-Voce/Jury							
6	CSP346	Artificial Intelligence Lab	0	0	2	1	
7.	CSP497	Major Project- 1	-	-	-	3	PBL-4
8.	CSP499	Industrial Internship-III	-	-	-	1	Industrial Internship-II
TOTAL CREDITS						**17**	

School of Engineering and Technology							
B.Tech-Information Technology Engineering							
Batch: 2018 Onwards						TERM: VIII	
S. No.	**Course Code**	**Course**	**Teaching Load**			**Credits**	**Pre-Requisite/Co Requisite**
			L	**T**	**P**		
THEORY SUBJECTS							
Practical/Viva-Voce/Jury							
1.	CSP498	Major Project - 2	-	-	-	8	Major Project - 1
TOTAL CREDITS						**8**	

Program Elective					
Introduction to Mathematical & Statistical Techniques in Information Technology CSE348	Soft computing CSA201	Web Designing CSE352	Mobile Computing CSE452	Wireless Networks CSE454	Distributed System Concepts & Design CSE456
Introduction to Graph Theory and its Applications CSE349	Introduction to Cloud Computing CSE351	Software Project Management CSE353	Software Testing CSE453	Digital Image Processing CSA403	Introduction to Internet of Things CSI201

School: SET		**Batch : 2018**	
Program:B.Tech		**Current Academic Year:**	
Branch:IT		**Semester:V**	
1	Course Code	INT 248	Course Name
2	Course Title	Human Computer Interaction	
3	Credits	4	
4	Contact Hours (L-T-P)	3-0-2	
	Course Status	UG	
5	Course Objective	1. Understand fundamental design and evaluation methodologies of human computer interaction. 2. Demonstrate knowledge of human computer interaction design concepts and related methodologies. 3. Apply theories and concepts associated with effective work design to real-world application.	
6	Course Outcomes	CO1: Explain the capabilities of both humans and computers from the viewpoint of human information processing. CO2: Describe typical human–computer interaction (HCI) models, styles, and various historic HCI paradigms. CO3: Describe and use HCI design principles, standards and guidelines. CO4: Understand the fundamental aspects of designing and evaluating interfaces. CO5:Analyse and identify user models, user support, socio-organizational issues, and stakeholder requirements of HCI systems. CO6:Practic a variety of simple methods for evaluating the quality of a user interface.	
7	Course Description	Students will learn the fundamental concepts of human-computer interaction and user centered design thinking, through working in teams on an interaction design project, supported by lectures, readings, and discussions. They will learn to evaluate and design usable and appropriate software based on psychological, social, and technical analysis. They will become familiar with the variety of design and evaluation methods used in interaction design.	
8	Outline syllabus		CO Mapping
	Unit 1	**Introduction**	
	A	HCI Introduction, CHI, MMI, Human System Interaction, User Friendliness, Interaction	CO1
	B	Techniques and Tasks, Basic Interaction Tasks, Composite Interaction Task, Interaction Styles, Speech Recognition, Natural Language Processing, Fields of HCI,	CO1
	C	The Contents of Human-Computer Interaction, Nature of Human-Computer Interaction, HCI	CO1

		Application Areas, Goals and Aspects of HCI, HCI Groups.	
	Unit 2	**Interfaces**	
	A	Term Interface, Good and Bad Interfaces, Features of a Good Interface,	CO2
	B	User interface, Quality of User Interface, Types of User Interfaces, Command Line Interface, Advantages of Command Line Interface, Graphical User Interface	CO2
	C	Document Interfaces and their types, Single Document Interface (SDI), Multiple Document Interface (MDI), Tabbed Document Interface.	CO2
	Unit 3	**Interface Design**	
	A	WIMP, Different Expansions,	CO3
	B	GUI vs. WIMP, Interaction Paradigms, Hypertext, Hypermedia, Hyperlink, URL, www, Web-browser.	CO3
	C	Eight golden rules of user interface design, Principles of user interface design	CO3
	Unit 4	**Design Models and Ergonomics**	
	A	User interface models, User interface design methodologies, Efficacy of user interface design, Dialogue box design, Development and evaluation of user interface design, user centered design.	CO4
	B	Factors in user interface design, HCI design models, Process of interface analysis,	CO4
	C	User documentation, Ergonomics introduction, Human factors, Physical issues in ergonomics. cognitive issues in ergonomic	CO4
	Unit 5	**Usability**	
	A	Usability introduction & its need, usability acceptability,	CO5
	B	What to measure in Usability. Usability Engineering,	CO5
	C	Life cycle, how to achieve high usability, Usability evaluation and testing, Learnability, Flexibility.	CO5
	Mode of examination	Theory	
	Weightage Distribution	CA: 30% / MTE: 20% / ETE: 50%	
	Text book/s*	1. Alan Dix, Janet Finlay, Gregory Abowd. Ruel Beale "Human Computer Interaction". pHI.	
	Other References	1. Rajiendra Kumar, " Human Computer Interaction" Second Edition, Firewall Media New Delhi. 2. Ben Shneiderman, "Design the User Interface: Strategies for Effective Human-Computer Interaction" Pearson Education.	

CO and PO Mapping

S. No.	Course Outcome	Program Outcomes (PO) & Program Specific Outcomes (PSO)
1.	CO1: Explain the capabilities of both humans and computers from the viewpoint of human information processing.	PO1,PO2,PO3,PO4,PSO1
2.	CO2: Describe typical human–computer interaction (HCI) models, styles, and various historic HCI paradigms.	PO1, PO3, PO4, PSO2
3.	CO3: Describe and use HCI design principles, standards and guidelines.	PO1,PO2,PO3,PO4
4.	CO4: Understand the fundamental aspects of designing and evaluating interfaces.	PO3, PO4, PSO2
5.	CO5: Analyse and identify user models, user support, socio-organizational issues, and stakeholder requirements of HCI systems.	PO9, PO10,PO11, PSO5
6	CO6: Practice a variety of simple methods for evaluating the quality of a user interface.	PO1,PO4,PSO1

PO and PSO mapping with level of strength for Course Name Human Computer Interaction

COs	PO1	PO2	PO3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
CO1	3	3	3	3	--	--	--	1	1	1	-	1	3	2	2	1	2
CO2	3	2	3	3	--	--	--	2	2	2	1	1	2	3	2	1	2
CO3	3	3	3	3	--	--	--	1	1	1	3	2	3	2	1	1	1
CO4	2	2	2	2	1	--	--	2	3	3	3	1	2	2	2	1	3
CO5	3	3	3	3	--	--	--	1	1	1	3	2	3	2	1	1	1
CO6	3	2	1	3	1	1	-	-	-	-	-	-	3	-	-	1	1

School: SET		**Batch: 2018-2022**	
Program: B.Tech		**Current Academic Year: 2018**	
Branch: IT		**Semester: V**	
1	Course Code	INP 248	
2	Course Title	Human Computer Interaction Lab	
3	Credits	2	
4	Contact Hours (L-T-P)	3-0-2	
	Course Status	Compulsory	
5	Course Objective	The objective is to gain knowledge of basic concepts of Human computer Interaction	
6	Course Outcomes	Upon successful completion of this course, the student will be able to: CO1. Identify the basic components of data acquisition on machines. CO2. Understand the working of data analysis and segmentation techniques.. CO3. Analyze the process of data communication between computers. CO4. Develop some application oriented projects on Image Processing, Voice Analysis, Natural Language Processing etc CO5. Identify how to use MATLAB for industry oriented human computer interaction projects.	
7	Course Description	Human Computer Interaction Lab covers the hands-on, understanding and analysis of data acquisition, analysis and communication on computers.	
8	Outline syllabus		CO Mapping
	Unit 1	**Data Acquisition on Computer**	
		1. **To deploy various data acquisition techniques on computers including text, images, data from url etc**	CO1
	Unit 2	**Data Analysis on Computer**	
		1. Develop a computer interaction model to numerically extract the required part of images. **2. Develop a computer interaction model to numerically extract the required part of text.** **3. Develop a computer interaction model to numerically extract the required part of data from url.**	CO2
	Unit 3	**Data Interfacing between computers**	
		1. Communicate some text, images and .dat from a machine to another machine. **2. Intercommunicate between machines in a parallel computing environment.**	CO3
	Unit 4	**Application Oriented Experiments**	
		1. **Develop a video to frame conversion model and revert the process with encrypted frames.** 2. **Reduction in redundancy of a standard dataset.**	CO4
	Unit 5	**Industry Oriented Experiments**	
		1. Use MATLAB for facial features identification from the real captured images through webcam.	CO5

		2. Use MATLAB for voice features identification from the real captured sound through microphone.			
	Mode of examination	Practical/Viva			
	Weightage Distribution	CA	MTE	ETE	
		60%	0%	40%	
	Text book/s*	2. Alan Dix, Janet Finlay, Gregory Abowd. Ruel Beale "Human Computer Interaction". pHI.			
	Other References	1. Rajiendra Kumar, " Human Computer Interaction" Second Edition, Firewall Media New Delhi. 2. Ben Shneiderman, "Design the User Interface: Strategies for Effective Human-Computer Interaction" Pearson Education.			

School: SET		**Batch: 2018**
Program: B.Tech		**Current Academic Year: 2018-19**
Branch: IT		**Semester: V**
1	Course Code	**CSP309**
2	Course Title	SHELL Programming Lab
3	Credits	1
4	Contact Hours (L-T-P)	0-0-2
	Course Status	
5	Course Objective	Introduces the Linux operating system, including: Process and file management, internal and external commands, shell configuration, and shell customization. Explores the use of operating system utilities by shell scripting.
6	Course Outcomes	CO1: Work on multi-user multi-tasking environment. CO2: Identify and use Linux utilities to create and manage file processing operations, organize directory structures. CO3: Effectively use the Linux system to manage the process and file system. CO4: Develop shell scripts for different applications.

7	Course Description	The course is designed to make the students research/industry ready as the industries/research organizations started using the open source applications along with any of the Linux flavor operating systems.			
8	Outline syllabus				CO Mapping
	Unit 1	**Introduction**			
		Multi user Multi task operating system, GUI & CUI features of Linux			CO1
		Basic Linux commands.			CO2
	Unit 2	**Files & Processes**			
		File permission, Changing file permissions, file handling commands: cat, touch, cp, rm, mv, more/less, lp, wc, cmp, diff, comm., gzip&gunzip, zip & unzip, tar. Process basics: PID, PPID, ps, process states, zombies, foreground and background processes, nice, kill.			CO2, CO3
	Unit 3	**Shell & string handling**			
		Different shells, wild cards, meta characters, escaping & quoting, Shell Variables: Environment and user defined,			CO2, CO3
		string handling, Using grep &egrep,			CO2, CO3
	Unit 4	**Introduction to Shell Programming**			
		Shell scripts, execution of shell scripts, logical Operators && and ||, command line arguments			CO3, CO4
		Programs using while loop & for loop			CO3, CO4
	Unit 5	**Shell Programing**			
		if conditional, using test and [ ] to evaluate expressions, Implementation of case conditional control, expr: computation			CO3, CO4
	Mode of examination	Practical			
	Weightage Distribution	CA	MTE	ETE	
		60%	0%	40%	
	Text book/s*	1. Linux: The complete Reference, Richard Petersen, TMH			
	Other References	1. Shell Programming, Yashvant Kanitkar, BPB 2. Sumitabha Das, “Unix Concepts and Applications”, Tata McGraw Hill.			

Course outline

This course introduces the commands used in Linux, so that the students will be familiar with Linux operating system. As the course progresses the students will learn to implement the commands in shell scripting. Further the students can make some applications in Linux by using Shell scripting and writing programs for Process and File management.

Course Evaluation	
Attendance	None
Any other	CA judged on the practical conducted in the lab , weightage may be specified
References	
Text book	1. Linux: The complete Reference, Richard Petersen, TMH
Other References	1. Shell Programming, Yashvant Kanitkar, BPB 2. Sumitabha Das, "Unix Concepts and Applications", Tata McGraw Hill.
Softwares	Any Linux: i.e. Ubuntu / fedora etc.