UNIVERSITY OF JAMMU

NOTIFICATION
(21/Oct/Adp/38)

It is hereby notified for the information of all concerned that the Vice-Chancellor, in anticipation of the approval of the Competent Bodies, has been pleased to authorize the adoption of revised Syllabus of **Bachelor of Engineering (Information Technology Engineering)** for Semester VII & VIII under the **Credit Based System** as per the model curriculum of the **AICTE (as given in the Annexure-I & II)** for the candidates of all **(Govt./Pvt.) Engineering Colleges affiliated with the University of Jammu** for the Examinations to be held in the years indicated against each Semester as under:-

Branch	Semester	For the Examination to be held in the years
IT	**Semester-VII**	**December 2021, 2022, 2023 and 2024**
	Semester-VIII	**May 2022, 2023, 2024 and 2025**

The Syllabi of the course is available on the University Website: www.jammuuniversity.ac.in.

29/10/2
DEAN ACADEMIC AFFAIRS

No. F.Acd/III/21/ 8870-79
Dated: 29 /10/2021

Copy for information & necessary action to:-
1. Dean Faculty of Engineering
2. Principal, GCET/MBSCET/BCET/YCET
3. C.A to the Controller of Examinations
4. Assistant Registrar (Exams/Confidential)
5. Incharge University Website
6. Section Officer (Confidential)

INFORMATION TECHNOLOGY DEPARTMENT

B.E. Information Technology 7th Semester Examination to be held in the Year December 2021, 2022, 2023, 2024

Contact Hrs: 24

COURSE CODE	COURSE TYPE	COURSE TITLE	LOAD ALLOCATION			MARKS DISTRIBUTION		TOTAL	CREDITS	% CHANGE
			L	T	P	Internal	External			
PIT-701	Professional Core Course	Web programming using PHP	2	1	0	50	100	150	4	100%
PIT-702	Professional Core Course	Compiler Design	2	1	0	50	100	150	4	100%
PIT-703	Professional Core Course	Machine Learning	2	1	0	50	100	150	3	100%
ITE-701	Professional Elective Course	Elective-I	2	1	0	50	100	150	3	100%
PIT-712	Professional Core Course	Web programming using PHP Lab	0	0	2	50	-	50	1	100%
PIT-713	Professional Core Course	Machine Learning Lab	0	0	2	50	-	50	1	100%
ITE-711	Professional Elective Course	Elective-I Lab	0	0	2	50	-	50	1	100%
SII-704	Summer Industry Internship	Industrial Training	-	-	-	50	-	50	1	100%
SEM-704	Seminar	Seminar	0	0	4	50	-	50	1	100%

ECO-711	Open Elective Course	Mat Lab Programming	0	0	2	50		50	1	100%
EEO-712		Instrumentation & Non-Conventional Energy								
CSO-713		Programming Lab								
MEO-715		Theory of Machine Lab								
CEO-716		Basic Civil Testing Lab								
NCC-701	Non-Credit Course	_____	2	0	0	Satisfactory/ Unsatisfactory			Non-Credit	100%
TOTAL			10	4	10	450	400	900	20	

CLASS:

Elective-I	
ITE -701 (A)	Linux Programming
ITE-701 (B)	Network Security
Elective-I Lab	
ITE-711 (A)	Linux programming Lab
ITE-711 (B)	Network Security Lab

B.E. Information Technology 7th Semester Examination to be held in the Year December 2021, 2022, 2023, 2024

B.E. 7th SEMESTER
CREDITS: 4
BRANCH: INFORMATION TECHNOLOGY
COURSE NO: PIT-701
COURSE TITLE: Web programming using PHP
DURATION OF EXAM: 3 HOURS

Hours/ Week			Marks Distribution	
L	T	P	Theory	Sessional
2	1	0	100	50

	COURSE OUTCOMES
At the end of the course the student will be able to: -	
CO1	Write PHP scripts to embedding of PHP into HTML program, Data Types, Variable, Operators, Decision Making etc
CO2	Develop PHP programs that use various PHP library functions
CO3	Write program to create session and cookies in PHP application
CO4	Write a program in PHP how to receive and process form submission data.
CO5	Develop database-driven application using PHP and MySQL

Detailed Syllabus

Section- A

Introduction to PERL and Scripting: Scripts and Programs, Origin of Scripting , Characteristics of Scripting Languages PHP: Versions of PHP, Installation of PHP, Testing Installation. Building Blocks of PHP: Variables, Data types, Operators, Expressions, Constants.   (10 hrs)

PHP Basics- Features, Embedding PHP Code in your Web pages, Outputting the data to the browser, Function, Creating a Function, Function Libraries, Arrays, Strings and Loops. (10 hrs)

Section B

Forms: Creating simple input Form. Accessing Form input with user defined arrays, Redirecting User. URL rewriting: Using Hidden field, Using cookies ,Using session, Uploading Files with PHP, Sending Email using PHP.(10 hrs)

Database Connectivity: Connecting to the MySQL: Selecting a database, Adding data to a table, Displaying data, Inserting data, Deleting data and Updating data,Executing multiple queries in PHP.(8 hrs)

	BOOKS RECOMMENDED:	
1.	The World of Scripting Languages	David Barron
2.	Beginning PHP and MySQL, 3" Edition	Jason Gilmore.
3	PHP 5.1,l.	.Bayross and S.Shah

NOTE: There will be eight questions of 20 marks each, four from each section. Students are required to attempt five questions selecting at least two questions from each section. Use of Calculator is allowed.

B.E. Information Technology 7ᵗʰ Semester Examination to be held in the Year December 2021, 2022, 2023, 2024

CLASS: B.E. 7ᵗʰSEMESTER

BRANCH: INFORMATION TECHNOLOGY
COURSE NO: PIT-702   CREDITS: 4
COURSE TITLE: COMPILER DESIGN
DURATION OF EXAM: 3 HOURS

Hours/ Week			Marks Distribution	
L	**T**	**P**	**Theory**	**Sessional**
2	**1**	**0**	**100**	**50**

COURSE OUTCOMES	
At the end of the course the student will be able to: -	
CO1	Remember the functionality of each phase involved in Compilation process and understand intermediate code representations.
CO2	Apply the parsing techniques including Bottom-up and Top-down parsing for the given programming construct described in Context Free Grammar.
CO3	Analyze the concepts of storage administration for different programming environments
CO4	Evaluate different error recovery routines to recover the errors seen at different phases of compilation.
CO5	Create the machine code by considering all the functionalities involved in different phases of the compilation process.

Detailed Syllabus
Section- A

Introduction–Languages Processors, the typical structure of a Complier   (2hrs)

Programming Language –High level programming languages, definition of programming languages, the syntax and semantics of basic data and control structures in high level programming languages.   (3hrs)

Lexical analysis –Role of Lexical Analyzer, input buffering, a simple approach to Design of Lexical Analyzers, Regular Expressions, Finite Automata, Regular expression to Finite Automata, Conversion of NFA to DFA, Minimizing the number of states of a DFA   (8 hrs).

The Syntactic Specification of Programming Languages –Definition of Grammars (Context free grammar), derivation, parse tree, ambiguity, non-context free language constructs.   (3hrs)

Basics Parsing Techniques –Parsers- Shift reduce parsing, Operator precedence parsing, top -down parsing, Predicative parsers, LR parsers   (4hrs)

Section- B

Syntax directed translation- Syntax directed translation schemes. Implementation of syntaxdirected translators.   (3hrs)

Intermediate code Generation - Intermediate code, postfix notation, three address code-quadruples triples, translation of Assignment statement, Boolean Expression, Statements that alter the flow of control (05 hrs)

Symbol Table Organization –The content of symbol table, Data structure of symbol table

Run- Time memory Allocation-Static and Dynamic memory allocation, Static allocation of space– Activation trees, activation records, Procedure calls, parameter passing (8 hrs)

Error Detection and Recovery-Errors, lexical phase errors, syntactic phase errors, semantic errors. (2hrs)

Code optimization- Loop optimization, DAG Representation of basic blocks, Global data flowAnalysis. (3hrs)

Code generation- Issues in the design of code generator, Peephole optimization, a simple code generator Register Allocation & Assignment (2hrs)

BOOKS RECOMMENDED:		
1.	Principles of compiler design	Alfred V.Aho, Jeffrey D Ullman
2.	Theory of parsing Translation & Compiling	Aho. Ullman
3.	Compiler construction	MunishJha

NOTE: There will be eight questions of 20 marks each, four from each section. Students are required to attempt five questions selecting at least two questions from each section. Use of Calculator is allowed.

CLASS: B.E. 8ᵗʰ SEMESTER
BRANCH: INFORMATION   TECHNOLGY
COURSE NO: PIT-703   CREDITS: 3
COURSE TITLE: MACHINE LEARNING
DURATION OF EXAM: 3 HOURS

Hours/ Week			Marks Distribution	
L	**T**	**P**	**Theory**	**Sessional**
2	**1**	**0**	**100**	**50**

COURSE OUTCOMES	
At the end of the course the student will be able to: -	
CO1	To understand basics of machine learning
CO2	To apply different machine learning models using various datasets
CO3	To develop an understanding of the role of machine learning in massive scale automation

Detailed Syllabus

Section- A

Basics of Machine Learning: Definition of Machine learning, Applications, Feature set, Dataset division
Introduction to Machine Learning Techniques: Supervised Learning, Unsupervised Learning and Reinforcement Learning, bias-variance tradeoff, overfitting-underfitting   (5 HOURS)

Supervised learning: Classification and Regression: K-Nearest Neighbor, Linear Regression, Logistic Regression, gradient descent algorithm, Support Vector Machine (SVM), Evaluation Measures: SSE, MME, R2, confusion matrix, precision, recall, F-Score, ROC-Curve.
.   (9 HOURS)

Unsupervised learning: Introduction to clustering, Hierarchical clustering, K-means clustering, Density based clustering   (6 HOURS)

Section B

Bayesian learning: Probability theory and Bayes rule,Naive Bayes learning algorithm,Bayes nets   (4 HOURS)
Decision trees: Representing concepts as decision trees, Recursive induction of decision trees, best splitting attribute: entropy and information gain, Overfitting, noisy data, and pruning.
                                                                                    (8 HOURS)
Reinforcement learning and ensemble methods: Reinforcement learning through feedback network, function approximation, Bagging, boosting, stacking and learning with ensembles, Random Forest   (8 HOURS)

BOOKS RECOMMENDED:		
1.	Machine Learning: The New AI	EthemAlpaydin
2.	Machine Learning	Tom M. Mitchell
3.	Machine Learning: a Probabilistic Perspective	Kevin P. Murphy

NOTE: There will be eight questions of 20 marks each, four from each section. Students are required to attempt five questions selecting at least two questions from each section. Use of Calculator is allowed.

B.E. Information Technology Engineering7th Semester Examination to be held in the Year December 2021, 2022, 2023

CLASS: B.E. 7thSEMESTER

BRANCH: INFORMATION TECHNOLOGY
COURSE NO: ITE -701 (A) (ELECTIVE-I)
CREDITS: 3
COURSE TITLE: LINUX PROGRAMMING
DURATION OF EXAM: 3 HOURS

Hours/ Week			Marks Distribution	
L	**T**	**P**	**Theory**	**Sessional**
2	**1**	**0**	**100**	**50**

	COURSE OUTCOMES
	At the end of the course the student will be able to: -
CO1	Explain multi user OS LUNIX and its basic features
CO2	Interpret LUNIX Commands, Shell basics, and shell environments
CO3	Design and develop shell programming, communication, System calls and terminology.
CO4	Design and develop LINUX File I/O and LUNIX Processes.

Detailed Syllabus

Section- A

Overview of Linux: What is Linux, Linux, s root in Unix, Common Linux Features, advantage of Linux, Overview of Unix and Linux architectures, Overview of Unix and Linux architectures, hardware requirements for Linux, hardware requirements for Linux, Commands for files and directories cd, ls, cp, rm, mkdir, rmdir, pwd, file, more, less, Creating and viewing files using cat, file comparisons   (06 hours)

 Essential Linux commands: Processes in Linux Process fundamentals, Connecting processes with pipes, l Redirecting input, Redirecting output Background processing , Managing multiple processes, Process scheduling – (at,batch), nohupcommand, kill, ps, who, find, sort, touch, file,File processing commands – wc, cut, paste etc ,Mathematical commands – expr, factor etc ,Creating files with vi editor. Editing files with vi editor   (06 hours)

Shell programming: Basics of shell programming ,various types of shell available in Linux ,Comparisons between various shells ,Shell programming in bash ,Conditional statements ,Looping statements, Case statement ,Parameter passing and arguments, Shell variables ,System shell variables shell keywords ,Creating Shell programs for automating system tasks

(08 hours)

Section- B

System administration: Common administrative tasks ,identifying administrative files,Configuration and log files ,Role of system administrator ,Managing user accounts -adding users ,Managing user accounts -deleting users ,Changing permissions and ownerships ,Creating

and managing groups ,Temporary disabling of users accounts ,Creating and mounting file system ,Checking and monitoring system performance ,file security & Permissions ,becoming super user using su ,Getting system information with uname, host name ,Disk partitions & sizes ,rpm command.   (12 hours)

Simple filter commands & Understanding various Servers. Filter Commands-pr, head, tail,Filter Commands -cut, sort.Filter Commands- uniq, tr,Filter using regular expression grep,DHCPDNS,ApacheSquid,Apache,Telnet,FTP,Samba.   (8 hours)

	BOOKS RECOMMENDED:	
1.	UNIX Shell Programming, First edition, BPB.	YeswantKanethkar
2.	Red Hat Linux Bible, Wiley Dreamtech India 2005 edition.	Cristopher Negus
3.	Linux System Programming	Robert Love, O'Reilly, SPD.

NOTE: There will be eight questions of 20 marks each, four from each section. Students are required to attempt five questions selecting at least two questions from each section. Use of Calculator is allowed.

B.E. Information Technology Engineering 7th Semester Examination to be held in the Year December 2021, 2022, 2023

CLASS: B.E. 7ᵗʰ SEMESTER
BRANCH: INFORMATION TECHNOLOGY
COURSE NO: ITE -701 (B) (ELECTIVE-I)
CREDITS: 3
COURSE TITLE: NETWORK SECURITY
DURATION OF EXAM: 3 HOURS

Hours/ Week			Marks Distribution	
L	**T**	**P**	**Theory**	**Sessional**
2	**1**	**0**	**100**	**50**

COURSE OUTCOMES	
At the end of the course the student will be able to: -	
CO1	Understand about the significance of Network Security.
CO2	Know about key principles/policies of Cyber Security.
CO3	Acquire knowledge about the Latest Concepts & Techniques in Cryptography.
CO4	Analyze Private/Public Key Management Basics.
CO5	Implement Digital Signature, MD5 & Authentication Protocols.

Detailed Syllabus

Section- A

Introduction: Introduction to N/w Security, Security Approaches, Security Policies, Principle of Security, Introduction to common attacks, IP-Spoofing, Model for N/w Security, Encryption & Decryption.   (06 hours)

Cryptography: Concepts & Techniques: Introduction to Cryptography, Private/Public Key Cryptography, Plain Text, Cipher Text, Substitution and Transposition techniques, Steganography.   (06 hours)

Symmetric & Asymmetric Key Cryptography: Overview, Algorithm types & modes, DES scheme, RC5, Blowfish, AES scheme, Differential and Linear Crypto analysis, Key distribution and management. Overview, Key management basics, RSA Algorithm, Digital signatures, Message digest, Hash function (SHA), Message Authentication Code (MAC), Authentication protocols**.**   (08 hours)

Section- B

IP Security: Architecture, Authentication header, Encapsulating, Security payload, Security associations, Key management, E-mail security, Web security, Viruses & related threats.
.   **(04 hours)**

Firewalls & Intrusions: Design principles, Characteristics, Types of firewalls, Intruders, Audit Records, Intrusion Detection Systems. (08 hours)

Information Security & Cyber Laws: Information security & laws, IPR, Patent law, Copyright law, Overview of cyber crimes, Security metrics – Classification, Benefits, Security tools–Attack & Penetration Tools, Defensive tools. (08 hours)

	BOOKS RECOMMENDED:	
1.	Cryptography & Network Security	Atul Kahate
2.	Cryptography & Network Security	William Stallings
3.	Computer Networks (Latest Edition)	Andrew S. Tanenbaum

NOTE: There will be eight questions of 20 marks each, four from each section. Students are required to attempt five questions selecting at least two questions from each section. Use of Calculator is allowed.

B.E. Information Technology Engineering7th Semester Examination to be held in the Year December 2021, 2022, 2023

CLASS: B.E. 7ᵗʰ SEMESTER
BRANCH: INFORMATION TECHNOLOGY
COURSE TITLE: ESSENCE OF INDIAN TRADITIONAL KNOWLEDGE
COURSE NO.: NCC-701   CREDITS: 0
DURATION OF EXAMINATION: 3 HOURS

Hours/ Week			Marks Distribution	
L	**T**	**P**	**Theory**	**Sessional**
2	**0**	**0**	**Satisfactory/Unsatisfactory**	

	COURSE OUTCOMES
At the end of the course student will be able to:	
CO1	Know about the Vedic philosophy in detail and its relevance in present scenario.
CO2	Strengthen their mind and body through the knowledge of yoga.

Detailed Syllabus

Section-A

Vedic Philosophy: Concept of Vedas, Ethics & Values, Educational system, Knowledge of science, trade/commerce & medicines as per Vedas, Environmental ethics: Preservation & Purification, Harnessing of natural resources in alienation with nature as per Vedas.

Section-B

Yoga Philosophy: Parts of Yoga, Importance of Yam and Niyam, Stress management through yoga, Purification of mind and body through yoga.

Note for Teacher: The course should aim at enlightening students with the importance of ancient traditional knowledge.

Evaluation of the course: There will be internal evaluation based on two internal sessional and viva -voce.

B.E. Information Technology Engineering7th Semester Examination to be held in the Year December 2021, 2022, 2023

CLASS: B.E. 7th SEMESTER　　　　　　　　　**CREDIT: 1**

Hours/ Week　　Marks Distribution

L	T	P	Practical
0	0	2	50

BRANCH: INFORMATION TECHNOLOGY
COURSE NO.: PIT -712
COURSE TITLE: Web programming using LAB

LABORATORY OUTCOMES	
After Completion of this course the student will be able to: -	
CO1	Write a program to implement control statements in PHP
CO2	Write a program to implement Functions and Arrays in PHP
CO3	Write a program to implement sessions and cookies in PHP
CO4	Write a program toimplementInsertion ,Updation and Deletion of rows in MySQL tables.
CO5	Write a program to implement Database connectivity in PHP with MySQL

Lab Experiments:

Experiment 1	Write a program to implement conditional statements and looping statements in PHP
Experiment 2	Write a program to implement using array and functions .
Experiment 3	Create a login page having user name and password. On clicking submit, a welcome message should be displayed if the user is already registered (i.e.name is present in the database) otherwise error message should be displayed.

Experiment 4	Write a simple PHP program to check that emails are valid.
Experiment 5	Write a program to implement session and cookies in PHP
Experiment 6	Creating simple table with constraints
Experiment 7	Insertion ,Updation and Deletion of rows in MySQL tables
Experiment 8	Sorting of data using PHP
Experiment 9	Write a program to implement Database connectivity in PHP with MySQL

NOTE: Additional Lab experiments/practical will be performed based on the course contents requirements.

B.E. Information Technology Engineering7th Semester Examination to be held in the Year December 2021, 2022, 2023

CLASS: B.E. 7th SEMESTER
BRANCH: INFORMATION TECHNOLOGY
COURSE NO.: PIT -713
CREDIT: 1
COURSE TITLE: MACHINE LEARNING LAB

Hours/ Week			Marks Distribution
L	**T**	**P**	**Practical**
	0	**2**	**50**

LABORATORY OUTCOMES	
After Completion of this course the student will be able to: -	
CO1	Install Python
CO2	Understand various Loops and Conditions
CO3	Understand the supervised and unsupervised approaches
CO4	Implement various classification and regression techniques
CO5	Understand various performance parameters for evaluating the machine learning models

Lab Experiments:

Experiment 1	Implement loops and conditional statements
Experiment 2	Mathematical computing with Python packages like: numpy, MatplotLib, pandas Tensor Flow, Keras
Experiment 3	Linear regression and Logistic regression
Experiment 4	K nearest neighbour, K means clustering
Experiment 5	Support Vector Machine
Experiment 6	Naïve Bayes
Experiment 7	Decision Tree

NOTE: Additional Lab experiments/practical will be performed based on the course contents requirements.

B.E. Information Technology Engineering7th Semester Examination to be held in the Year December 2021, 2022, 2023

CLASS:B.E. 7th SEMESTER
CREDIT: 1
BRANCH: INFORMATION TECHNOLOGY
COURSE NO.: ITE -711 (A) (ELECTIVE-I)
COURSE TITLE: LINUX PROGRAMMING LAB

Hours/ Week   Marks Distribution

L	T	P	Practical
0	0	2	50

LABORATORY OUTCOMES

After Completion of this course the student will be able to: -

CO1	Install LINUX and its working environment.
CO2	Understand Linux commands to manage files and file systems
CO3	Write a shell programs to solve a given problems
CO4	Write Regular expressions for pattern matching and apply them to various filters for a specific task
CO5	Analyze a given problem and apply requisite facets of SHELL programming in order to devise a SHELL script to solve the problem

Lab Experiments:

Experiment 1	Implement the Linux Shell Commands: ls, mkdir, rmdir, cd, cat, banner, touch, file, wc, sort, cut, grep, dd, dfspace, du, ulimit , Commands related to inode, I/O redirection, piping, process control commands, mails,manage the password Vieditors wild card characters used in Linux
Experiment 2	Write a shell programs to perform operations using case statement such as 1)Addition 2)subtraction 3)multiplication 4)Division
Experiment 3	Write a shell scripts to see current date,time username and directory.
Experiment 4	Write a shell programs to find maximum of three numbers
Experiment 5	Write a script to check whether the given no. is even/odd
Experiment 6	Write a script to calculate the average of n numbers
Experiment 7	Write a script to check whether the given number is prime or not
Experiment 8	Write a script to calculate the factorial of a given number

Experiment 9	Write a script to calculate the sum of digits of the given number
Experiment 10	Write a shell script to print file names in directory showing date of creation & serial no. of file.

NOTE: Additional Lab experiments/practical will be performed based on the course contents requirements.

B.E. Information Technology Engineering7th Semester Examination to be held in the Year December 2021, 2022, 2023

CLASS: B.E. 7th SEMESTER

BRANCH: INFORMATION TECHNOLOGY
COURSE NO.: ITE -711 (B) (ELECTIVE-I)
CREDIT: 1
COURSE TITLE: NETWORK SECURITY LAB

Hours/ Week   Marks Distribution

L	T	P	Practical
0	0	2	50

LABORATORY OUTCOMES	
After Completion of this course the student will be able to: -	
CO1	Implementation of Encryption /Decryption Algorithm using **C/C++**.
CO2	Implementation of Symmetric Cryptography Algorithm using **C/C++.**
CO3	Implementation of Asymmetric Cryptography Algorithm using **C/C++.**
CO4	Implementation of Firewalls.
CO5	Study of Information Security Tool.

Lab Experiments:

Experiment 1	To implement the simple substitution technique named Caesar cipher using C language.
Experiment 2	To write a C program to implement the Play fair Substitution technique.
Experiment 3	To write a C program to implement the Hill Cipher substitution technique.
Experiment 4	To write a C program to implement the Rail Fence Transposition technique.
Experiment 5	To write a C program to implement the Data Encryption Standard (DES).
Experiment 6	To write a C program to implement the RSA Encryption algorithm.
Experiment 7	To implement the Diffie-Hellman Key Exchange algorithm using C language.
Experiment 8	To write a C program to implement the MD5 hashing technique.

NOTE: Additional Lab experiments/practical will be performed based on the course contents requirements.

B.E. Information Technology Engineering7th Semester Examination to be held in the Year December 2021, 2022, 2023

CLASS: B.E. 7th SEMESTER
BRANCH: INFORMATION TECHNOLOGY
COURSE NO.: SII-704   CREDIT:1
COURSE TITLE: INDUSTRIAL TRAINING

Hours/ Week   Marks Distribution

L	T	P	Practical
-	-	-	50

COURSE OUTCOMES	
At the end of the course the student will be able to: -	
CO1	Interact and study with a range of students and to practice multiple management skills, including communication, independent action and teamwork.
CO2	Understand the engineering code of ethics and apply them as necessary.
CO3	Demonstrate knowledge of practical application of training.
CO4	Submit a training report along with the certificate issued by the concerned department.

Students are required to undertake 4 to 6 weeks of Practical Training during the summer vacations in the field of Information Technology Engineering and applications in Govt./Semi-Govt./Private sector. Thereafter, each student shall be required to submit a report on the practical training to the concern HOD for the evaluation.

Guidelines for evaluation of Practical Training: The evaluation shall be done by the departmental committee by the end of 7th semester. The committee shall have a convener and at least two members.

Distribution of Marks as per the University statues:

Total Marks for Evaluation		50 marks	
i)	Report	20	40%
ii)	Viva-Voce	15	30%
iii)	Miscellaneous Marks	15	30%

Due weightage will be given to those who have opted for Industrial Training outside the State as well as keeping in view the profile of that Industry.

Award of the Marks:
Marks under (i), (ii) & (iii) will be awarded by the departmental committee constituted for the purpose.

B.E. Information Technology Engineering7th Semester Examination to be held in the Year December 2021, 2022, 2023

CLASS: B.E. 7th SEMESTER
BRANCH: INFORMATION TECHNOLOGY
COURSE NO.: SEM-704
CREDIT: 1
COURSE TITLE: SEMINAR

Hours/ Week

Marks Distribution

L	T	P	Practical
0	0	4	50

COURSE OUTCOMES	
At the end of the course the student will be able to: -	
CO1	Select a topic relevant to the field of Information Technology engineering.
CO2	Undertake a review of the literature on the chosen topic.
CO3	Prepare and present a technical report.

This will involve a detailed study of a topic of interest reproduced in the candidate's own style. For this, a student has to prepare a seminar by doing proper survey of literature, compilation of information so gathered and then presentation of the same followed by question-answer session. The report of which has to be submitted by the student well before the conduct of seminar. The handout submitted by the student will be in accordance with the standards of technical papers.

Guidelines and evaluation of Seminar in 7th semester:

The topic of the Seminar is to be finalized and approved by the departmental committee by the end of 6th Semester. The committee shall have a convener and at least two members.

Distribution of Marks:
Total Marks for Seminar Evaluation = 50 marks

1)	Project Report	15 marks
2)	Presentation	25 marks
3)	Attendance	10 marks.

Award of Marks:
Marks Under (1) will be awarded by the Seminar In charge.
Marks Under (2) and (3) will be awarded by the Departmental committee constituted for the purpose.

CLASS: B.E. 7th SEMESTER

BRANCH :Electrical Engg./Computer Engg./Information Technology/ Mechanical Engg./ Civil Engg.

COURSE NO.: ECO-711

CREDIT: 1

COURSE TITLE: MATLAB PROGRAMMING

COURSE OUTCOMES

Hours/ Week			Marks Distribution
L	**T**	**P**	**Practical**
0	**0**	**2**	**50**

At the end of the course the student will be able to: -	
CO1	Perform various arithmetic calculations.
CO2	Find importance of this software for generating equations of vectors and other mathematical expressions.
CO3	Articulate importance of software's in creating and printing simple,2D &3D plots and execution functions
CO4	Do various library blocks and their interconnections

LIST OF EXPERIMENTS:

1. Study of arithmetic, exponential, Logarithmic, Trigonometric, complex number calculation.

2. To generate equation of straight line, Geometric series, points on circle, multiply, divide and exponential vectors.

3. To create and print simple plots and execution of functions.

4. To generate matrices and vectors, array operations, inline functions anonymous functions etc.

5. To generate functions like execution a function, global variable, structures.

6. To generate 2D, 3D plots.

7. Study of various library blocks and their interconnections.

NOTE: Each student has to perform all the aforementioned Practical / Experiments. Additional Practical / Experiments will be performed based on the course content requirements.

B.E . 7th semester Examination to be held in the Dec 2021, 2022, 2023, 2024

CLASS:B.E. 7TH SEMESTER
BRANCH: Electronics &Communication./Computer Engg./Information Technology/ Mechanical Engg./ Civil Engg.

COURSE CODE: EEO-712
CREDITS: 1
TITLE: NON-CONVENTIONAL ENERGY RESOURCES AND INSTRUMENTATION LAB

MARKS

L	T	P	PRACTICAL
0	0	2	50

Course Outcomes: Student will be able to	
CO1	Measure phase and frequency using CRO andMultimeter
CO2	Students will be able to understand Solar Radiation ,distillation
CO3	To study Solar Energy solar cooker ,street light and its applications
CO4	To study Fuel Cells

LIST OF PRACTICALS:

1. To study the extension of Ammeter and voltmeter ranges.

2. To Study Block Wise Construction of Multi meters & Frequency Counter

3. To Study Block Wise Construction of Analog Oscilloscope & Function Generator.

4. To study the connection of solar panels.

5. To study overall efficiency of solar PV and battery integrated system

6. To Study of Solar Radiation by using Pyranometer.

7. To Study of Solar Distillation or Solar Still.

8. To study the constructional details of a box type solar cooker.

9. To Study of Solar Street Lighting and Lanterns.

10. To Study of Fuel cells.

B.E . 7th Semester Examination to be held in the Year December2021,2022,2023,2024

CLASS: B.E. 7th SEMESTER
CREDIT: 1
BRANCH: Electronics &Engg./Electrical Engg./Information Technology/ Mechanical Engg./ Civil Engg.
COURSE NO.: CSO-713
COURSE TITLE: PROGRAMMING LAB

Hours/ Week   Marks Distribution

L	T	P	Practical
0	0	2	50

LABORATORY OUTCOMES	
After Completion of this course the student will be able to: -	
CO1	Remember the role of languages like C++/ Java/Python/HTML & DHTML/Android
CO2	Understand the syntax and Develop the programs on specific language.
CO3	Implement various programs using C++/Java/Python/HTML.

Lab Experiments:

Experiment 1	WAP To use different arithmetic operation in java/C++/Python or use different tags in HTML.
Experiment 2	WAP to perform manipulation on strings in java / C++ / Python.
Experiment 3	WAP to demonstrate Exception handling in java / C++.
Experiment 4	Program to create frame and table using HTML
Experiment 5	Design a website on your own using HTML and CSS
Experiment 6	Develop an application representing a simple calculator
Experiment 7	Develop an application for working with notification
Experiment 8	Develop an application for connecting to internet and sending e-mail.
Experiment 9	Develop an application for working with device camera

NOTE: Additional Lab experiments/practical will be performed based on the course requirements

B.E . 7th Semester Examination to be held in the Dec 2021, 2022, 2023, 20243

CLASS: B.E. 7th SEMESTER
BRANCH: Electronics & Communication/ Electrical Engg./Computer Engg./Information Technology/ Civil Engg.
COURSE TITLE: THEORY OF MACHINE LAB   **Hours/ Week   Marks Distribution**

COURSE NO.: MEO-715
DURATION OF EXAMINATION: 3 HOURS.

L	T	P	Practical
0	0	2	50

COURSE OUTCOMES	
At the end of the course student will be able to:	
CO 1:	Understand the kinematics of Quick Return Motion.
CO 2:	Know about gyroscopic effect.
CO 3:	Familiar with various cases of vibrating motion.
CO 4:	Describe the mechanics behind the Governors

LIST OF EXPERIMENTS:
1. Find displacement, velocity and acceleration of slider of the Quick-return motion mechanism.
2. To analyze the motorized gyroscope.
3. To analyze static and dynamic balancing apparatus.
4. To analyze the torsional vibration (undamped) of single rotor shaft system.
5. To analyze various types of cams and followers.
6. To analyze various types of gear trains.
7. To analyze various types of Governors with the help of stroboscope and to determine sleeve displacement, speed of Governor and corresponding radius of Governor in case of:
   i) Watt Governor ii) Porter Governor   iii) Proell Governor
8. To analyze Gearbox.
9. To analyze various types of brake systems.
10. To study the phenomenon of whirling of shafts.
11. To study the Coriolis components of acceleration.
NOTE:

   1. At least seven practicals should be performed.
   2. Additional labs/ experiment will be performed based on course content requirements.
   3. Simulation/ virtual labs are used to enhance the practical ability of students.

B.E . 7th Semester Examination to be held in the Year December 2021,2022,2023,2024

CLASS: B.E. 7th SEMESTER
BRANCH: Electronics & Communication/ Electrical Engg./Computer Engg./Information Technology/Mechanical Engg.
COURSE TITLE: BASIC CIVIL TESTING LAB

COURSE NO.: CE0- 716
DURATION OF EXAMINATION: 3 HOURS.

Hours/ Week   **Marks Distribution**

L	T	P	Practical
0	0	2	50

COURSE OUTCOMES	
At the end of the course student will be able to:	
CO 1:	Perform tests on bricks and aggregates
CO 2:	Determine the physical properties of cement .
CO 3:	Determine the Workability and Compressive strength of concrete..

1. To determine water absorption and compressive strength of bricks

2. To determine the consistency and initial and final setting time of a given sample of cement using Vicat's apparatus.

3. To determine the Soundness and Compressive strength of cement.

4. To determine the fineness modulus and bulk density of fine and coarse aggregates.

5. To determine flakiness index and Impact value of coarse aggregates.

6. To determine Workability and Compressive strength of concrete

7. To determine the tensile strength of the steel.

8. To determine the Specific gravity and Atterberg limits of Soil.

9. To determine the compaction characteristics of soil by proctor's test.

10. To determine C_d for Venturimeter

11. To determine C_d for Orificemeter

12. To determine C_d for a Notch.

B.E. Information Technology 8th Semester Examination to be held in the Year May 2022, 2023, 2024, 2025

B.E. Information Technology 8th Semester-Scheme 1   Contact Hrs: 26

COURSE CODE	COURSE TYPE	COURSE TITLE	LOAD ALLOCATION			MARKS DISTRIBUTION		TOTAL	CREDITS	% Change
			L	T	P	Internal	External			
ITE-801	Professional Elective Course	Elective 1	2	1	-	50	100	150	3	100%
ECO-801	Open Elective Course	Embedded Systems	2	1	-	50	100	150	3	100%
EEO-802		Non-Conventional Energy Sources & Instrumentation								
CSO-803		Web Technology								
MEO-805		Advanced Manufacturing Processes								
CEO-806		Essentials of Civil Engineering								
HOE-806		International								

Course Code	Type	Name	L	T	P				Credit	Attendance
NCC-804	Non-Credit Course	Disaster Management & Mitigation	2	0	0	Satisfactory/ Unsatisfactory			Non-Credit	100%
MOC-804	Massive Open Online Course	SYAWAM / NPTEL / Any other MOOC Platform	2	0	-	50	-	50	2	100%
PRJ-804	Project	Project	0	0	16	200	100	300	8	100%
TOTAL			**6**	**2**	**16**	**350**	**300**	**650**	**16**	

Elective-I	
ITE-801 (A)	Software Testing
ITE-801(B)	Data Science

**B.E. Information Technology 8th Semester Examination to be held in the Year
May 2022, 2023, 2024, 2025**

CLASS: B.E. 8thSEMESTER
CREDITS: 3
BRANCH: INFORMATION TECHNOLOGY
COURSE NO: ITE-801(A)
COURSE TITLE: SOFTWARE TESTING
DURATION OF EXAM: 3 HOURS

Hours/ Week			Marks Distribution	
L	**T**	**P**	**Theory**	**Sessional**
2	**1**	**0**	**100**	**50**

	COURSE OUTCOMES
	At the end of the course the student will be able to: -
CO1	Have an ability to apply software testing knowledge and engineering methods.
CO2	Have an ability to design and conduct a software test process for a software testing project.
CO3	Have an ability to identify the needs of software test automation, and define and develop a test tool to support test automation.
CO4	Have an ability understand and identify various software testing problems, and solve these problems by designing and selecting software test models, criteria, strategies, and methods.
CO5	Have an ability to use software testing methods and modern software testing tools for their testing projects.

Detailed Syllabus

SECTION- A

Principles of testing Software development life cycle model: Phases of software project, Quality ,Quality assurance and quality control. Testing Verification and validation. Process models to represent various phases. Life cycle models, Software testing life cycle.   (08 hours)

White Box Testing (WBT) and Black Box Testing: Static testing, Structural testing, Challenges in WBT.Black box testing process.   (04 hours)

Integration Testing: Definition, As a type of testing: Top-down integration. Bottom-up integration.Bi-directional integration. System integration. Choosing integration method, As a phase of testing, Scenario testing: System scenarios. Use case scenarios. Defect bash. (06 hours)

SECTION-B

System and Acceptance Testing. Functionalvs non Functional .Functional system testing, on-functional sytem testing. Acceptance testing.   (6 hours)

Performance testing, Regression testing, Internationalization testing, adhoc testing. Factors governing performance of testing, methodology, tools and process for performance testing.regression Testing. Introduction, Types of regression testing, Regression testing

process.Adhoctesting:Introduction,Buddytesting.pair testing, Exploratory testing.Iterativetesting,Agile and Extreme testing.XP work flow.Defect seeding (08 hours)
Testing Object Oriented Software:Introduction. Comparison of object oriented and procedural software,System testing example.Unit testing of classe.tools for testing object oriented software,Testing web applications. (08 hours)

BOOKS RECOMMENDED:		
1.	Software Testing and Practices	Srinivasan Desikan,GopalaswamyRamesh
2.	Introducing Software Testing	Loise Tares
3.	Software Testing Techniques	Boris Beizer

NOTE: There will be eight questions of 20 marks each, four from each section. Students are required to attempt five questions selecting at least two questions from each section. Use of Calculator is allowed.

B.E. Information Technology 8th Semester Examination to be held in the Year
May 2022, 2023, 2024, 2025

CLASS: B.E. 8th SEMESTER
CREDITS:3
BRANCH: INFORMATION TECHNOLOGY
COURSE NO: ITE-801(B) (ELECTIVE 1)
COURSE TITLE: DATA SCIENCE
DURATION OF EXAM: 3 HOURS

Hours/ Week			Marks Distribution	
L	**T**	**P**	**Theory**	**Sessional**
2	**1**	**0**	**100**	**50**

COURSE OUTCOMES	
At the end of the course the student will be able to: -	
CO1	To understand the need and significance of data science
CO2	To understand statistics and machine learning concepts that are vital for data science
CO3	Predict outcomes with supervised machine learning techniques.

Detailed Syllabus

Section- A

Introduction to Data Science: What is data science, relation to data mining, machine learning, big data and statistics, ExamplesComputing simple statistics- Means, variances, standard deviations, weighted averaging, modesSimple visualizations-Histograms, Boxplots, Scatterplots, Time series, Spatial data   (6 Hours)

Overview of Tasks &Techniques: Prediction Models-The prediction task-Definition, Examples, Format of input / output data, training-test data, cross validation
Prediction algorithms- Decision trees, Rule learners, Linear/logistic regression, Nearest neighbour learning. Support vector machines, Properties of prediction algorithms and practical exercises   (12 Hours)

Section- B

Measuring performance of a model: Accuracy, ROC curves, precision-recall curves, Loss functions for regression, Interpretation of results- Confidence interval for accuracy, Hypothesis tests for comparing models, algorithms   (6 Hours)

Probabilistic Models: Introduction- Probabilities, Rule of Bayes and Conditional Independence, Naïve Bayes, Bayesian Networks   (5 Hours)

Exploratory Data Mining: Introduction to Exploratory Data Mining, Association discovery-
Definition, challenges, Apriori algorithm, Clustering- Definition, Challenges   (9 Hours)

BOOKS RECOMMENDED:		
1.	Data Science from Scratch: First principles with Python	Joel Grus
2.	An Introduction to Statistical Learning	Gareth James, Daniela Witten, Trevor Hastie, Robert Tibshirani
3.	Data Mining: Practical Machine Learning Tools and Techniques	I. Witten, E. Frank, M. Hall

NOTE: There will be eight questions of 20 marks each, four from each section. Students are required to attempt five questions selecting at least two questions from each section. Use of Calculator is allowed.

CLASS: B.E. 8thSEMESTER
CREDITS:3
BRANCH: Electrical Engg./Computer Engg./Information Technology/ Mechanical Engg./ Civil Engg.
COURSE NO: ECO-801
COURSE TITLE: Embedded System
DURATION OF EXAM: 3 HOURS

Hours/ Week			Marks Distribution	
L	**T**	**P**	**Theory**	**Sessional**
2	**1**	**0**	**100**	**50**

COURSE OUTCOMES	
At the end of the course the student will be able to: -	
CO1	Understand the concept of Microcontroller 8051, learn to write simple programs.
CO2	Understand the concept and applications of DC motor and indicators and use in project work.
CO3	Understand the concept of hardware details of ARM7.
CO4	Write the algorithm and design a system based on 8051.

Detailed Syllabus
Section–A

Definition of Embedded system, macro and micro embedded systems: Architecture of 8031/8051/8751. Comparison of Microprocessors and Microcontroller Data types and Directives. Pin description 0f 8051, I/O port functions, Time Delay Generation and calculation. Addressing modes, Logic instructions and programs, single bit instructions and programs, Programming using 8051 timers, counter programming, simplex, half duplex, full duplex transmission, synchronous and asynchronous communication. (16hrs)

Section–B

Architecture: Block Diagram and Pin Diagram of ARM7, Instruction Set, Addressing Modes ARM Processor. System Design based on 8051/ARM Processor. Peripheral Interfaces: LCD, Seven Segment Display, Sensor: IR, temperature. Relays, analog to digital converter, digital to analog converter interfaces with 8051 and ARM7. (14 hrs)

BOOKS RECOMMENDED:	
1. The 8051 Microcontroller (architecture, Programming and Applications)	Kenneth J. Ayala -----Penram International
2. The 8051 Microcontroller and Embedded Systems	Muhammed Ali Mazidi& Janice GillispieMazdi
3. ARM system development guide	Andrew-n-sloss& Dominic Symes Publisher –Morgan Aausamann.

NOTE: **There will be eight questions of 20 marks each, four from each section. Students are required to attempt five questions selecting at least two questions from each section. Use of Calculator is allowed.**

CLASS: B.E. 8TH SEMESTER
CREDITS:3
BRANCH: E&C Engg./Computer Engg./Information Technology/ Mechanical Engg./ Civil Engg.
MARKS: 50
COURSE CODE: EEO-802
TITLE: NON-CONVENTIONAL ENERGY SOURCES AND INSTRUMENTATION
DURATION OF EXAM: 3 HOURS

L	T	P	THEORY	SESSIONAL
3	0	0	100	50

Course Outcomes: Student will be able to	
CO1	Understand the need of energy, Various types of energy and scenario
CO2	Identify non-conventional energy as alternate form of energy and to know how it can be tapped.
CO3	Understanding various methods of measurement and instrumentation
CO4	Understanding about illumination and other lighting schemes.

SECTION-A

Module 1: Introduction: Limitations of conventional energy sources need & growth of alternate energy sources, basic schemes and applications of direct energy conversion. Photovoltaic effect, characteristics of photovoltaic cells, conversion efficiency, solar batteries and applications. Solar energy in India, solar collectors, solar furnaces & applications. Geothermal system, Characteristics of geothermal resources, choice of generators, electric equipment and precautions. Low head hydro plants, definition of low head hydro power, choice of site and turbines. Tidal energy, idea of tidal energy, Tidal electric generator, limitations.   (8 hrs)

Module 2: Wind Energy & MHD Generators: History of wind power, wind generators, theory of wind power, characteristics of suitable wind power sites, scope in India. Basic Principles and Half effect, generator and motor effect, different types of MHD generators, conversion effectiveness. Practical MHD generators, applications and economic aspects.   (5hrs)

Module 3: Fuel Cells & Thermo-electric, Generators: Principle of action, Gibbs free energy, general description of fuel cells, types, Construction, operational characteristics and applications. Seeback effect, peltier effect, Thomson effect, thermoelectric convertors, brief description of the construction of thermoelectric generators, applications & economic aspects.   (5 hrs)

SECTION-B

Module4: MEASURING INSTRUMENTS: Classification, effects utilized in measuring instruments. Indicating instruments: Deflection, controlling and damping forces, various

dampings. Measurement of low resistance: - Potentiometer method, Kelvin double bridge. Ammeters and Voltmeters: Moving coil, moving iron ammeter and voltmeters, Errors in Ammeters and Voltmeters. (7 hrs)

Module 5: MEASUREMENT OF POWER: Wattmeter measurement in single phase A.C. circuits, Wattmeter errors. Measurement of three phase power by two wattmeter methods. Energy meters for A.C. circuits, Theory of Induction type meters. (5 hrs)

Module 6:Illumination: Nature and production of light. Photometric definitions. Incandescent lamps, arc and discharge lamps. Design of illumination schemes for indoor and outdoor uses. Flood lighting. (4 hrs)

RECOMMENDED BOOKS:
1. Non-conventional Energy Resources   D.S. Chauhan
2. Conventional energy sources   G.D. Rai
3. Non-Conventional energy sources   B.H. Khan
4. Solar Energy Fundamentals and Applications   H.P. Garg and Jai Prakash
5. A course in Electrical and Electronics Measurement & instrumentation   A.K. Sawhney

NOTE: There shall be total eight questions, four from each section. Five questions have to be attempted selecting at least two questions from each section. Use of calculator is allowed.

B.E. Information Technology Engineering 8th Semester Examination to be held in the Year May 2022, 2023, 2024,2025

CLASS: B.E. 8th SEMESTER

CREDITS: 3

BRANCH: E&C Engg/.Electrical Engg./ Information Technology/ Mechanical Engg./ Civil Engg.

COURSE NO: CSO-803

COURSE TITLE: WEB TECHNOLOGY

DURATION OF EXAM: 3 HOURS

Hours/ Week			Marks Distribution	
L	**T**	**P**	**Theory**	**Sessional**
2	**1**	**0**	**100**	**50**

COURSE OUTCOMES	
CO1	Remember the role of languages like HTML, DHTML, CSS and android
CO2	Analyze a web page and identify its elements and attributes.
CO3	Implement web pages using HTML, DHTML and Cascading Style Sheets.
CO4	Develop Web applications using HTML/CSS/Javascript.

Detailed Syllabus

Section- A

Introduction to WWW :- Protocols and programs, Secure connections, Application and development tools, The web browser, What is server, Choices, Dynamic IP.
Web Design: Web site design principles, Planning the site and navigation.   (6 Hours)
Introduction to HTML:- The development process, HTML tags and simple HTML forms, Web site structure. Introduction to XHTML: XML, Move to XHTML, Meta tags, Character entities, Frames and frame sets, Inside browser.   (7 Hours)
Style Sheets:-Need for CSS, Introduction to CSS, Basic syntax and structure, Using CSS, Background images, Colors and properties, Manipulating texts, Using fonts, Borders and boxes, Margins, Padding lists, Positioning using CSS, CSS2.   (7 Hours)
Javascript:-Client side scripting, What is Javascript, How to develop Javascript, Simple Javascript, variables, Functions, Conditions, Loops and repetition.   (3 Hours)

Section- B

Advance script: Javascript and objects, Javascript own objects, The DOM and web browser environments, forms and validations.
DHTML: Combining HTML, CSS and Javascript, events and buttons, controlling your browser, Ajax: Introduction, advantages &disadvantages ,Purpose of it ,ajax based web application, alternatives of ajax. **XML:** Introduction to XML, uses of XML, simple XML, XML key components, DTD and schemas, Well formed, using XML with application XML, XSL and

XSLT, Introduction to XSL, XML transformed simple example, XSL elements, Transforming with XSLT.   (7 Hours)

PHP:- Starting to script on server side, Arrays, Function and forms, Advance PHP.

Databases:- Basic command with PHP examples, Connection to server, Creating database, Selecting a database, Listing database, Listing table names, Creating a table, Inserting data, Altering tables, Queries, Deleting database, Deleting data and tables, PHP myadmin and database bugs.   (10 Hours)

	BOOKS RECOMMENDED:	
1.	"HTML Black Book"	Steven Holzner, Dremtech press.
2.	Web Technologies, Black Book.	Dreamtech Press
3.	Web Applications: Concepts and Real-World Design	Knuckles, Wiley-India
4.	Internet and World Wide Web How to program	P.J. Deitel& H.M. Deitel Pearson.

NOTE: There will be eight questions of 20 marks each, four from each section. Students are required to attempt five questions selecting at least two questions from each section. Use of Calculator is allowed.

B.E Examination to be held in the Year May 2022,2023,2024,2025.
CLASS: B.E. 8th SEMESTER
BRANCH: : E&C Engg/.Electrical Engg./ Computer Engg./ Information Technology/ Civil Engg.
COURSE TITLE: ADVANCED MANUFACTURING PROCESSES
COURSE NO.: MEO-805
DURATION OF EXAMINATION: 3 HOURS.

Hours/ Week			Marks Distribution	
L	**T**	**P**	**Theory**	**Sessional**
2	**1**	**0**	**100**	**50**

COURSE OUTCOMES	
At the end of the course student will be able to:	
CO 1:	Understand the fundamentals of non - conventional machining processes.
CO 2:	Understand the working and uses of various mechanical machining processes such as AJM, USM etc.
CO 3:	Understand the purpose of chemical and electrochemical machining.
CO 4:	Understand the purpose of electric discharge machining.
CO 5:	Understand the fundamentals of electron beam and laser beam machining.

Detailed Syllabus

SECTION – A

Introduction to Advanced Manufacturing Processes, Mechanical Processes, Abrasive Jet Technology, Ultrasonic Machining, Water Jet Machining. Fundamental principles, processes parameters, characteristics, Tool design, Metal removal rate-analysis, Part design, Analysis of the processes. Chemical and Electro-chemical machining:- Introduction, Principles & Scheme, Process parameters, Material removal rate, dynamic and hydro-dynamic & hydro-optimization, electrolytes. [17 Hours]

SECTION - B

EDM:-Introduction, basic principles & scheme, circuitry controls, material removal rate, machining accuracy, optimization, selection of tool material and tool design, Di-electric, analysis. Laser Beam Machining & Electron beam machining background, production of laser, machining by Laser and other applications, Electron beam action, Dimensionless analysis to establish correlation behavior EBM parameters.

High Velocity forming of metals, explosive forming principles and applications, Electro-hydraulic and other applications, Analysis of the process.   [19 Hours]

RECOMMENDED BOOKS:
1. Non-traditional machining methods: ASME.
2. New Technology by Bhattayacharya; I.E. (India)
3. Ultrasonic cutting by Rozenberg; Consultants Bureau; N.Y.

NOTE:
1. Question paper will be of 3 Hours' duration
2. There will be 8 questions in all, four from **Section- A** (each of 20 marks) and four from **Section – B** (each of 20 marks)**.**
3. Students are required to attempt five questions in all, at least two question from each section
4. Use of scientific calculator will be allowed in the examination hall.

CLASS	8th SEMESTER					
BRANCH	E&C Engg/.Electrical Engg./ Computer Engg./ Information Technology/ Mechanical Engg. CREDITS: 3					
COURSE TITLE	ESSENTIALS OF CIVIL ENGINEERING					
COURSE NO.	CEO- 806	L	T	P	Marks	
DURATION OF EXAM	3 HOURS	3	0	0	Theory	Sessional
					100	50

	COURSE OUTCOMES :On completion of the course the students will be able to:
CO1	Able to identify the properties of building materials.
CO2	Acquaint with the masonry construction and finishes
CO3	Carry out surveying in the field for engineering projects.
CO4	Plan and schedule the Project by various network techniques of construction planning

Module –I

Brick: Classification of bricks, constituents of good brick earth, harmful ingredients, manufacturing of bricks, testing of bricks.

Timber: Classification of timber, structure of timber, seasoning of timber, defects in timber and prevention of timber.

Aggregates: Classification of aggregates and various tests conducted on aggregates   (9 Hours)

Module -II

Masonry Construction Introduction: various terms used, stone masonry-Dressing of stones, Classifications of stone masonry, safe permissible loads, Brick masonry-bonds in brick work, laying brick work, Defects in brick masonry, composite stone and brick masonry.

Foundations: Purpose, site exploration, Methods of Testing Bearing Capacity of Soils, Types of Foundations, Combined Footing and Raft Foundation. Pile Foundation and its types, Pile Driving,Cofferdams.   (9 Hours)

Module -III
Introduction to surveying, Principles of surveying, Measurement of distance. Chain Surveying, Field Equipment, Methods of Chain Surveying, Plotting from the Field Books and Degree of Accuracy, Tape corrections.

Levelling: Instruments used and field book recording, Methods of Levelling, height of Instrument method and Rise and Fall method, Temporary and permanent adjustments in levels.
.   (9 Hours)

Module -IV
Network techniques in construction management
Bar Charts and Mile stone charts, Elements of network, Development of network, Network rules, Network techniques CPM and PERT, Network analysis, Time estimates, Time computations, classification of activities, Determination of Slack and float, Critical Path.   (9 Hours)

BOOKS RECOMMENDED:
1. BUILDING MATERIAL & CONSTRUCTION   BY SUSHIL KUMAR
2. BUILDING MATERIAL   BY PRABIN SINGH
3. SURVEYING VOL.- I   BY B.C PUNMIA.
4. PERT & CPM - Principles & Applications   BY L SRINATH

NOTE: There shall be total eight questions of 20 marks each, two from each module. Five questions have to be attempted selecting at least one from each module. Use of Calculator is allowed

CLASS	8th SEMESTER					
BRANCH	CSE/ECE/EE/CIVIL/MECH. Engineering				CREDITS: 3	
COURSE TITLE	International Economics					
COURSE NO.	HOE-806	L	T	P	Marks	
DURATION OF EXAM	3 HOURS	3	0	0	Theory	Sessional
					100	50

At the end of the course, students shall be able to:

COURSE OUTCOMES : On completion of the course the students will be able to:	
CO1	Understand the concept of international trade in general as well as with the classical and modern theories.
CO2	Analyze the concept of foreign exchange and foreign trade multiplier in detail and hence shall be able to understand the international market conditions.
CO3	Compete in international corporate world by understanding the various concepts of terms of trade like tariffs, quotas, balance of payment and international organizations, etc.

SECTION A

Concept of International Trade

Meaning, Significance and scope of International Economics, concepts of internal, interregional and international trade and their comparison, Theories of international trade: Absolute Cost Advantage, Comparative Cost Advantage, Opportunity cost theory (features, assumptions and limitations)   (6 hrs)

UNIT - II: Theories of International Trade

Modern Theories of International Trade: General equilibrium theory, Heckscher- Ohilin Theory, Rybznski Theorem, The Stopler – Samuelson Theorem, Factor Price-Equalization Theorem.
                                                          (5 hrs)

UNIT- III: Foreign Exchange and Foreign Trade Multiplier.

Foreign Exchange: Meaning and problems of foreign exchange, Methods of foreign payment, Demand and Supply of foreign currency, Foreign Trade-Multiplier, Exchange control (concept, features, objectives, and methods).   (7hrs)

SECTION B

Unit- IV: Terms of trade

Meaning, Different Terms of Trade Indexes (Net Barter, Gross Barter, Income, Single and Double Factoral), Factors influencing Terms of Trade; Prebisch-Singer Thesis; Doctrine of reciprocal demand-importance and limitations .   (6hrs)

Unit- V: Trade barriers

Tariffs and Quotas (Meaning, classifications and their impact), theory of optimum tariff, devaluation (concept, merits, demerit and limitations)   (5hrs)

Unit VII: Balance of payment and Internationalorganisations

Concept and components of balance of trade and balance of payment, equilibrium and disequilibrium in BOP, consequences of disequilibrium in BOP, Various measures to correct deficit in BOP. International organisations: IMF, World bank, World Trade organisations-objectives, functions.   (7hrs)

Suggested Readings

1. International Economics -H.GMannur

2. International Economics -Paul R. Krugman and Maurice Obstfeld

3. International Economics - Dominick Salvatore

4. International Economics - Sodersten Bo

5. International Economics - OsShrivastva

6. International Economics - M.L. Jhingan

NOTE: There will be eight questions of 20 marks each, four from each section. Students are required to attempt five questions selecting at least two questions from each section. Use of calculator is allowed.

Semester Examination to be held in the Year May 2022, 2023, 2024, 2025
CLASS: 8th SEMESTER

BRANCH: : E&C Engg/.Electrical Engg./ Computer Engg./ Information Technology/Mechanical Engg.
CREDITS: 0
COURSE TITLE: DISASTER MANAGEMENT & MITIGATIONS
CATEGORY: NCC
COURSE NO. NCC-804   **Marks**
                                                                          L T P
                                                                          2 0 0 Satisfactory/Unsatisfactory

COURSE OUTCOMES	
At the end of the course the student will be able to: -	
CO1	Identify various types of disasters, their causes and Impacts
CO2	To understand the disaster management principles, objectives and approaches
CO3	To understand various elements of disaster management.
CO4	To study the modern techniques used in disaster mitigation and management.

Module I
Introduction to Disaster Management: Define and describe disaster, hazard, emergency, vulnerability, risk and disaster dimensions. Important phases of Disaster Management Cycle.
Disasters classification- Natural disaster (floods, draught, cyclones, volcanoes, earthquakes, tsunami, landslides, coastal erosion, soil erosion, forest fires etc.); manmade disasters (industrial pollution, artificial flooding in urban areas, nuclear radiation, chemical spills, transportation accidents, terrorist strikes, etc.)
Module II
Disaster Management: principles, objectives, and approaches. Element of disaster management; role of NGOs, community – based organizations and media; central, and state.
Disaster Mitigation: Hazard assessment, Vulnerability assessment, and Risk assessment. Emergency Management Systems (EMS): Emergency medical and essential public health services, response and recovery operations, reconstruction and rehabilitation.

BOOKS RECOMMENDED:
1. Disaster Management BY Harsh K Gupta
2. Disaster Management Techniques and Guidelines BY B K Singh
3. Disaster Risk Reduction in South Asia BY PradeepSahni
4. Disaster management, A P H Publishers BY Sharma.S.R
NOTE: Evaluation of the course. There will be internal evaluation based on two internal sessional tests

B.E. Information Technology Engineering 8th Semester Examination to be held in the Year May 2022, 2023, 2024, 2025

CLASS: B.E. 8th SEMESTER

CREDITS: 2

BRANCH: INFORMATION TECHNOLOGY
COURSE NO: MOC-804
COURSE TITLE: MOOC

Hours/ Week			Marks	
L	**T**	**P**		**Sessional**
2	**0**	**0**		**50**

The Students shall select a MOOC of duration 4 to 6 weeks available at the time on any reputed platform and shall pursue the same after due approval of the same from the departmental Committee. However, the selected MOOC course should not be similar to the regular courses offered as a part of the department curriculum.

The overall monitoring of the MOOC course will be under the supervision of the teacher Incharge of the department. The Departmental Academic Committee shall assess the student work based on a presentation of the course undertaken/ project completed along with a relevant course completion certificate.

B.E. Information Technology Engineering 8th Semester Examination to be held in the Year May 2022, 2023, 2024,2025

CLASS: B.E. 8th SEMESTER
CREDITS: 8
BRANCH: INFORMATION TECHNOLOGY
COURSE NO.: PRJ-804
COURSE TITLE: PROJECT

	Hours/ Week			Marks Distribution		
L	**T**	**P**	**Internal**	**External**	**Total**
0	0	16	200	100	300

COURSE OUTCOMES	
At the end of the course the student will be able to: -	
CO1	Complete their assigned project work initiated in minor project.
CO2	Demonstrate the project work followed by question-answer session
CO3	Present and submit the detailed project report.

The project will be assigned to the students towards the end of 7th semester and they will start working on those projects at the commencement of their 8th semester.

The students will submit the synopsis of their project work in the 7th semester. The Departmental Academic Committee will finalize and approve the projects. However, a departmental guide will be allotted to each project who shall periodically evaluate the student's performance during the project.

The topic of the project will be decided as per the developments taking place in the field of information technology Engineering. This may require complete literature survey, design, fabrication, simulation of some models and/or some preliminary laboratory experiments etc.

The students will have to submit a detailed project report individually to the internal guide and a copy of the certificate should also be appended to the report.

Guidelines for evaluation of Project work in 8th semester:

There shall be a mid-semester evaluation, followed by an End Semester (Final) Evaluation

Sub-distribution of marks:

1.	For External Examiner	:	100
2.	For Internal Examiner	:	200

Sub-distribution of internal marks:

- Out of the total 250 marks for internal evaluation, 100 marks are for mid-sem evaluation and 150 marks are for final internal evaluation
- Mark distribution of internal Project work as per the University statues shall be based on:

	Distribution	Mid-Sem		Internal Final	
a.	Viva-Voce	15	30%	45	30%
b.	Presentation	15	30%	45	30%
c.	Report	20	40%	60	40%
		50		**150**	
	Total Internal	**200**			

NOTE: The students will submit a detailed project report individually to the Head of the department and a copy of the certificate if awarded should also be appended to the report.

B.E. Information Technology 8th Semester- Scheme 2   **Contact Hrs: 30**

COURSE CODE	COURSE TYPE	COURSE TITLE	LOAD ALLOCATION			MARKS DISTRIBUTION		TOTAL	CREDITS	% CHANGE
			L	T	P	Internal	External			
PII-804	Professional Industry Internship	Industry Internship	-	-	28	350	250	600	14	100%
MOC-804	Massive Open Online Course	SYAWAM / NPTEL / Any other MOOC Platform	2	0	-	50	-	50	2	100%
TOTAL			**2**	**0**	**28**	**400**	**250**	**650**	**16**	

B.E. Information Technology Engineering 8th Semester Examination to be held in the Year May 2022, 2023, 2024,2025
CLASS: B.E. 8th SEMESTER
CREDIT: 14
BRANCH: INFORMATION TECHNOLOGY
COURSE NO.: PII-804
COURSE TITLE: Industry Internship

Hours/ Week			Marks Distribution		
L	T	P	Internal	External	Total
-	-	28	350	250	600

COURSE OUTCOMES	
At the end of the course the student will be able to: -	
CO1	Complete their assigned project work initiated in minor project.
CO2	Demonstrate the project work followed by question-answer session.
CO3	Present and submit the detailed project report.

The project will be assigned to the students towards the end of 7th semester and they will start working on those projects at the commencement of their 8th semester.

The students will submit the details of the company / industry where they intend to do their project work alongwith company's consent letter in the 7th semester. The Departmental Academic Committee will finalize and approve the projects. However, an internal guide will be allotted to each project who shall periodically evaluate the student's performance during the project.

The topic of the project will be decided as per the developments taking place in the field of Information Technology Engineering. This may require complete literature survey, design, fabrication, simulation of some models and/or some preliminary laboratory experiments etc.

The students will have to submit a detailed project report individually to their internal guide and a copy of the certificate if awarded should also be appended to the report. They should also submit a monthly progress of their project duly signed by the concerned authority via mail to their respective guide.

NOTE: Students are also allowed to start their start up, provided they submit a DPR with a detailed proposal of their start up that would define their action plan and idea to the start-up cell. Only after the submitted proposal has been approved by the start-up cell will the students be allowed to work on their project.

Guidelines for evaluation of Project work in 8th semester:

There shall be a mid-semester online evaluation, followed by an End Semester (Final) Evaluation
Sub-distribution of marks:

•	For External Examiner	:	250
•	For Internal Examiner	:	350

Sub-distribution of internal marks:

- Out of the total 350 marks for internal evaluation, 100 marks are for mid-sem evaluation and 250 marks are for final internal evaluation
- Mark distribution of internal Project work as per the University statues shall be based on:

	Distribution	Mid-Sem		Internal Final	
a.	Viva-Voce	30	30%	75	30%
b.	Presentation	30	30%	75	30%
c.	Report	40	40%	100	40%
		100		**250**	
	Total Internal	**350**			

B.E. Information Technology Engineering 8th Semester Examination to be held in the Year May 2022, 2023, 2024, 2025

CLASS: B.E. 8th SEMESTER

CREDITS: 2

BRANCH: INFORMATION TECHNOLOGY

COURSE NO: MOC-804

COURSE TITLE: MOOC

Hours/ Week			Marks	
L	**T**	**P**		**Sessional**
2	**0**	**0**		**50**

The Students shall select a MOOC of duration 4 to 6 weeks, available at the time on any reputed platform and shall pursue the same after due approval of the same from the departmental Committee. However, the selected MOOC course should not be similar to the regular courses offered as a part of the department curriculum.

The overall monitoring of the MOOC course will be under the supervision of the teacher Incharge of the department. The Departmental Academic Committee shall assess the student work based on a presentation of the course undertaken/ project completed along with a relevant course completion certificate.