

(An Autonomous Institution) Puducherry - 605 107

6th - Board of Studies Meeting in the Department of Computer and Communication Engineering

for the Programme B.Tech - Computer and Communication Engineering

Venue

Seminar Hall, Department of CCE

Sri ManakulaVinayagar Engineering College Madagadipet, Puducherry - 605 107

> Date & Time 20.07.2023& 2.45 pm

MINUTES OF BOARD OF STUDIES

The sixth Board of Studies meeting for B.Tech. Computer and Communication Engineering was held on 20th July 2023 at 2.45 P.M in the Seminar Hall, Department of CCE, Sri Manakula Vinayagar Engineering College with the Head of the Department in the Chair.

The following members were present for the BoS meeting

SI.No	ing members were present for the BoS meeting Name of the Member with Designation and official Address	Responsibility in the BoS
1	Dr. V.Bharathi Professor and Head, Department of CCE	Chairman
2	Dr. G. Nagarajan Professor, Department of ECE Pondicherry Engineering College, Puducherry	Member
3	Dr. G. Lakshmi Sutha Professor & Head, Department of ECE, National Institute of Technology, Karaikal	Member
4	Dr. T. T. Mirnalinee, Professor, Department of Computer Science and Engineering, SSN College of Engineering, Chennai	Member
5	Porseezhian Arumugugam Senior Engineering Manager Capgemini Engineering, Bengaluru	Member

6	Dr. S. Premkumar Associate Professor/ECE Sri Manakula Vinayagar Engineering College	Member
7	Ms. V.Logisvary Assistant Professor /ECE Sri Manakula Vinayagar Engineering College	Member
8	Ms. T.Sivaranjani Assistant Professor/CCE Sri Manakula Vinayagar Engineering College	Member
9	Ms. M.Indhumathi Assistant Professor/CCE Sri Manakula Vinayagar Engineering College	Member
10	Mr. Sackthivel Assistant Professor/CCE Sri Manakula Vinayagar Engineering College	Member
11	Mr.M.Gopinath Assistant Professor/CCE Sri Manakula Vinayagar Engineering College	Member
12	Arokiaraj Christian St.Hubert Assistant Professor /CSE Sri Manakula Vinayagar Engineering College	Member
13	Mrs.G.Namitha Assistant Professor /English Sri Manakula Vinayagar Engineering College	Member
14	Mrs. S.Geetha Assistant Professor /physics Sri Manakula Vinayagar Engineering College	Member
15	Dr. S. Savithri Assistant Professor /Chemistry Sri Manakula Vinayagar Engineering College	Member
16	Ms. R. Revathy Assistant Professor /Mathematics Sri Manakula Vinayagar Engineering College	Member
17	Mr.V.Suresh Sr.Lead Engineer,Qualcom, Chennai	Member (Alumni)

AGENDA OF THE MEETING

Item No.	Particulars					
BoS /2023 /UG/CCE 6.1	To review and confirm the minutes of fifth BoS meeting held on 10 th September 2022					
BoS /2023 /UG/CCE 6.2	To discuss and Approve Regulation 2023(R-2023) for the B.Tech Programme for the students admitted from the academic year 2023					
BoS /2023 /UG/CCE 6.3	To discuss and approve curriculum structure and credit distribution fo B.Tech Computer and Communication Engineering Programme under the Regulation R-2023					

BoS /2023 /UG/CCE 6.4	To discuss and approve the syllabi of Semester I and II for B.Tech
	Computer and Communication Engineering Programme under
Control of the contro	2023 regulation
BoS /2023 /UG/CCE 6.5	To apprise and approve the elective courses and certification courses
	opted by our students under regulation 2020.
BoS /2023 /UG/CCE 6.6	Any other items with the permission of chair

MINUTES OF THE MEETING

Dr. V.Bharathi, Chairman, BoS initiated the meeting with a warm welcome and introduced the external members, the internal and co-opted members, and thanked them for accepting the invitation to the 6th BoS meeting. The Chairman proceeded with the presentation to deliberate on the agenda items.

BoS /2023 /UG/CCE 6.1

To review and confirm the minutes of fifth BoS meeting held on 10th September 2022

The fifth BoS Meeting for B.Tech.-Computer and Communication Engineering under regulation 2020 was held on 10-09-2022 and confirmed the following points

- Discussed and Approved Syllabi of Semester VIII under Regulation 2020
- Discussed and Approved Syllabi of Semester VIII Professional Elective Courses under regulation 2020
- Apprised and Approved Open Elective and Professional Elective Courses opted in the academic year 2021-22
- Apprised and Approved Certification Courses opted by students in the academic year 2021-

Minutes are Reviewed and Confirmed

BoS /2023 /UG/CCE 6.2

To discuss and Approve Regulation 2023 (R-2023) for the B.Tech Programme for the students admitted from the academic year 2023-24

The BoS members reviewed the following matters in the Regulation 2023 and approved without

Modification

- Credit Details of the courses
- Credit distribution of various categories of courses
- Honours Degree in the same Engineering discipline
- Assessment Procedure and Awarding Marks for Theory, Practical, Theory cum Practical,
 Ability enhancement courses, Internship, project works and Mandatory courses

Approved and recommended to Academic Council.

BoS /2023 /UG/CCE 6.3

To discuss and approve curriculum structure and credit distribution for B.Tech Computer and Communication Engineering Programme under the Regulation R-2023

The members of the Board of Studies examined the current structure of the curriculum, including category of courses, the distribution of core, compulsory, and elective courses across the different semesters.

- After thorough discussions and deliberations, it was decided to maintain the structure and Credit Distributions as such without modification
- Board discussed about the Courses offered for Cyber Security Honours degree in B. Tech computer and Communication Engineering Programme and Suggested to provide equivalent NPTEL courses are 12 weeks courses.
- The Board discussed the compulsory and elective courses offered in the curriculum. After careful consideration, it was recommended to make the following changes
 - Suggested to change the Professional Elective Course title, "Optical Networks" to "Optical Communication Networks"
 - Suggested to change Professional Elective Course title "LTE and 5G Communication" as Recent Communication Techniques
 - Suggested to provide Open Elective Course offered by Department of Computer and Communication Engineering to other Departments is "Introduction to Communication Techniques"

Suggestions are considered and updated in the Curriculum. The details are provided in Annexure-I

Approved the Semester I-VIII curriculum, Elective courses and Honours Degree courses are recommended to Academic Council.

BoS /2023 /UG/CCE 6.4

To discuss and approve the syllabi of Semester I and II for B.Tech Computer and Communication Engineering Programme under R-2023 regulation

The Board of Studies members reviewed the Semester I and II syllabi in depth and suggested the following changes,

S.No	Regulation	Semester	Subject Name with Code	Unit	· Particulars
1	R-2023	I Substitute	Universal Human Values-II		Suggested to include two more text books and refence website links
2	R-2023		Programming in C Laboratory	-	Suggested to rename the experiments

Suggestions are considered and updated in the syllabi. The details are provided in Annexure-II

Semester I and II syllabi are approved and recommended to Academic council

BoS /2023 /UG/CCE 6.5

To apprise and approve the elective courses and certification courses opted by our students under regulation 2020.

BoS chairman presented the following Professional Elective, open Elective courses, skill Development Courses and certification courses are opted by the students in the academic year 2022-23

Professional Elective	Soft Computing(Sem VI) Computer Vision(Sem V)
Open Elective	Platform Technologies(Sem VI) Product Design and Development (Sem V)
Certification Course	Azure Deovps(Sem VI) Cyber Security(Sem V)
Skill Development Courses	Presentation using ICT Skills(Sem V) Career Development Course-I(Sem V) NPTEL(Sem VI) Technical Seminar(Sem VI)

Appreciated for the methodology adopted for selecting Professional Elective, Open Elective and Certification courses

BoS /2023 /UG/CCE 6.6

Any other suggestions for improvement

The Board Chairman Briefed about the following Department activities carried out in the academic year 2022-23,

- Guest Lectures organized
- Seminar and Workshop conducted
- Students' online certification course completion
- Students Achievements
- NSS activities
- Industrial Visits arranged
- Idea Lab training to the students
- Faculty Training Details

Appreciated for the activities carried in the Department

The Board of Studies resolved to approve the above suggestions for B.Tech. Computer and Communication Engineering brought forward by the Chairman incorporating the above changes. The meeting was concluded at 4:30 PM with a vote of thanks by **Dr. V. Bharathi**, Head ofDepartment, Computer and Communication Engineering.

Dr. V.Bharathi Chairman Professor and Head Department of CCE, SMVEC

Dr. G. Nagarajan Professor, Department of ECE Pondicherry Engineering College, Puducherry

Dr. G. Lakshmi Sutha Professor & Head, Department of ECE, National Institute of Technology, Karaikal

Dr. T. T. Mirnalinee,

Professor, Department of Computer Science and Engineering, SSN College of Engineering. Chennai

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M. Gobinath.

Arokiaraj Christian St.Hubert
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Mrs.G.Namitha
Assistant Professor /English

Mrs. S.Geetha
Assistant Professor /physics

Dr. S. Savithri
Assistant Professor /Chemistry

Ms. R.Revathy
Assistant Professor /Chemistry

Mr.V.Suresh Sr.Lead Engineer, Qualcom, Chennai

Annexure-I

Curriculum of B.Tech Computer and Communication Engineering Under Regulation 2023



SRI MANAKULA VINAYAGAR ENGINEERING COLLEGE

(An Autonomous Institution)

Puducherry

B.TECH. COMPUTER AND COMMUNICATION ENGINEERING

ACADEMIC REGULATIONS 2023 (R-2023)

CURRICULUM AND SYLLABI



VISION AND MISSION OF THE INSTITUTE

Vision

To be globally recognized for excellence in quality education, innovation and research for thetransformation of lives to serve the society

Mission

To provide comprehensive academic system that amalgamates M1 - Quality Education

the cutting edge technologies with best practices.

To foster value based research and innovation in collaboration with M2 -Research and Innovation

industries and institutions globally for creating intellectuals with

new avenues.

M3 - Employability and

Entrepreneurship

To inculcate the employability and entrepreneurial skills through

value and skill based training

To instill deep sense of human values by blending societal M4:- Ethical values

righteousness with academic professionalism for growth of society

VISION AND MISSION OF THE DEPARTMENT

Vision

To promote students with latest technology and research in the field of Computer and Communication Engineering to meet global socio-economic needs

Mission

M1- Technical Knowledge:

To provide academic excellence in the field of computer and

Communication engineering to meet the needs of the Society.

M2-Innovation and Exposure:

To conduct recognized research analytically in multi-disciplinary

Research areas of the framework at National and International levels

M3-Employability and **Entrepreneurship:**

To provide complementary technical, inter and intrapersonal skills for

employability and entrepreneurship

M4-Ethics:

To instruct integrity, ethical principles and interactive skills among the

students to form a better nation

V. M

PROGRAM OUTCOMES

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, 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 modeling 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 lifelong learning in the broadest context of technological change.

W.m.

Programming Skill

PROGRAMME EDUCATIONAL OBJECTIVES (PEOs)

PEO1: Technical Knowledge To satisfy the requirements of industry, Research and

Development organizations by employing technological

knowledge in Computer and Communication Engineering.

PEO2: Leadership Skill

To lead, contribute and innovate new technologies and systems in

the key domains of Computer and Communication Engineering

PEO3:Research and Development

To get exposed to collaborative work that can be implemented for

society's well-being through advanceresearch expertise

PEO4: Professional Behavior

Gains code of conduct, etiquettes to establish boundaries in

environment.

PROGRAMME SPECIFIC OUTCOMES (PSOs)

PSO1- Basic Knowledge in CCE

Use the latest tools and technologies to apply the fundamental

concepts of computer and communication engineering principles to software development, mobilecommunication and computing

to software development, moshecommunication and companing

PSO 2-Network Design and Security Design and Interpret computer networks, Internet of Things with

efficient data analytics and security.

PSO 3- Algorithmic Thinking and Develop efficient algorithms to solve real time problemsthrough

powerful programming and problem solving skills

V. muni

STRUCTURE FOR UNDERGRADUATE ENGINEERING PROGRAM

SI. No	Course Category	Breakdown of Credits
1	Humanities and Social Sciences including Management courses (HS)	15
1		20
3	Basic Science Courses (BS) Engineering Science including workshop, drawing, basics of electrical / mechanical / computer etc. (ES)	29
4	Professional Core Courses (PC)	65
5	Professional Electives Courses (PE)	18
	Open Electives Courses (OE)	9
<u>6</u> 7	Project Work and Internship (PA)	13
8	Ability Enhancement Courses (AEC*)	<u> </u>
9	Mandatory Courses (MC*)	 169

SCHEME OF CREDIT DISTRIBUTION - SUMMARY

	AICTE		Credits per Semester								
SI. No	Suggested Course Category	1	II	III	IV	٧	VI	VII	VIII	Credits	
		5	3	1	1	2	estudo-		3	15	
1	Humanities and Social Science (HS)		3	1		2	rts er u		Section 7 Value	20	
2	Basic Sciences(BS)	4	7	5	4						
3	Engineering Sciences (ES)	12	13		4					29	
	1			16	11	12	15	11		65	
4	Professional Core (PC)				3	3	3	3	6	18	
5	Professional Electives (PE)					3	3	3	12 - 21	9	
6	Open Electives (OE)				1	3	3		0	12	
7	Project Work (PA)					1	1	2	8	14	
	Internship (PA)							1		1	
8		-	-	-	-		-	-	-		
9	Ability Enhancement										
10	Mandatory courses (MC*)	40 -	-	-	-	-	- 04	22	20	169	
	Total	22	21	23	22	23	21	22	20	109	

* AEC and MC are not included for CGPA calculation

HONOURS DEGREE PROGRAMME:

The student is permitted to opt for earning an honours degree in the same discipline of engineering in addition to the degree in his/her own discipline. To earn an honours degree the student is required to earn an additional 18 - 20 credits (over and above the total 170 credits prescribed in the curriculum) starting from fourth semester onwards by completing 5 additional courses offered in respective semesters. A student is eligible to exercise this option if he/she has passed all the courses offered upto third semester in the first attempt itself and has earned a CGPA / GPA* (*for lateral entry) of not less than 8.0. The prescribed courses offered for Honours degree are given in Annexure -V



		SEN	MESTER-I							
SI.No				Pe	rioc	ds		Ма	x. Marks	3
	Course Code	Course Title	Category	L	Т	Р	Credits	CAM	ESM	Total
Theory					i, e					
1	U23MATC01	Engineering Mathematics – I	BS	3	1	0	4	25	75	100
2	U23CSTC01	Programming in C	ES	3	0	0	3	25	75	100
3	U23CSTC02	Problem Solving Approach	ES	3	0	0	3	25	75	100
4	U23ESTC03	Basics of Electrical and Electronics Engineering	ES	3	0	0	3	25	75	100
5	U23HSTC01	Universal Human Values- II	HS	2	0	0	2	25	75	100
Theory	Cum Practical			- m					1	ŀ
6	U23ENBC01	Communicative English - I	HS	2	0	2	3	50	50	100
Practic	al			, Ta .5	who.c			**		
7	U23ESPC01	Basics of Electrical and Electronics Engineering Laboratory	ES	0	0	2	1	50	50	100
8	U23CSPC01	Programming in C Laboratory	ES	0	0	2	1	50	50	100
9	U23ESPC03	Engineering Graphics using AutoCAD	ES	0	0	2	1	50	50	100
Ability	Enhancement Co	urse								
10	U23CCC1XX	Certification Course – I**	AEC	0	0	4	-	100	5,72.00	100
Mandat	tory Course									
-11	U23CCM101	Induction Programme	MC	3 V	Veel	(S				-
	OE - W						21	425	575	1000

750.00	161 T 18 4	SEME	STER - II							
SI.	Course Code	Course Title	Category	P	erio	ds	Credits	Max. Marks		
No.				L	Т	Р		CAM	ESM	Tota
Theory				deres	ST THE			- BTT	NY C	
1	U23MATC02	Engineering Mathematics -II	BS	3	1	0	4	25	75	100
2	U23BSTC01	Physical Science for Engineers	BS	3	0	0	3	25	75	100
3	U23CSTC03	Data Structures	ES	3	0	0	3	25	75	100
4	U23ADTC01	Programming in Python	ES	3	0	0	3	25	75	100
5	U23CCT201	Digital Electronics	ES	3	0	0	3	25	75	100
Theory C	Cum Practical	8 0 2				957	12.75	19.1	DESCRIPTION OF	
6	U23ENBC02	Communicative English - II	HS	2	0	2	3	50	50	100
Practical	(A)	[g] a [a] 10 kg	_, - /	T File	24	7		din Wa	EN T	_==
7	U23ADPC01	Programming in Python Laboratory	ES	0	0	2	1	50	50	100
8	U23CSPC02	Data Structures Laboratory	ES	0	0	2	101	50	50	100
9	U23CCP201	Digital Electronics Laboratory	ES	0	0	2	1	50	50	100
10	U23ESPC02	Design Thinking and IDEA Lab	ES	0	0	2	1.	50	50	100
Ability E	Enhancement Cou	rse	"Reas tend	1040	man	nsiçi	T-11			
- 11	U23CCC2XX	Certification Course - II**	AEC	0	0	4	an ee t	100	5-1-1	100
Mandate	ory Course							130000	P DIADRE	101
12	U23CCM202	Sports Yoga and NSS	MC	0	0	2	YIBIC LA	100		100
7 200	375 1 25						23	575	625	1200

^{**} Certification Courses are to be selected from the list given in Annexure III



01			STER - III							
SI. No.	Course Code	Course Title	Category	P	eric	ds	Credits	IV	lax. Mari	ks
Theo				L	T	P		CAM	ESM	Tota
THEO	ı y								13.5	
1	U23MATC03	Probability and Statistics	BS	3	1	0	4	25	75	T
2	U23CCT302	Computer organization and Architecture	PC	3	0	0	3	25	75 75	100
3	U23CCT303	Analog Electronics	PC	3	0	0	3	25		
4	U23CCT304	Principles of Communication Engineering	PC	3	0	0	3	25	75 75	100
5	U23CCT305	Software Engineering Principles and Testing Techniques	PC	2	2	0	3	25	75	100
Theo	ory Cum Practical			_			159		/5	100
6	U23CSBC01	Design and Analysis of Algorithms	PC	2	0	2	2	50	50	100
Praction	cai		100						30	100
7	U23MAPC01	Engineering Mathematics Laboratory	BS	0	0	2	1	50	50	100
8	U23ENPC01	General Proficiency-I	HS	0	0	2	1	50		
9	U23CCP302	Principles of Communication Engineering Laboratory	PC	0	0	2	1	50	50	100
Ability	Enhancement Co	urse			_				. 50	100
10	U23CCS301	Skill Enhancement Course-I*	AEC	0	0	4				-
11	U23CCC3XX	Certification Course-III*	AEC	-	0	4		100	QMLIA	100
landat	tory Course	- Coulog III	AEC	0	0	4	- Te.	100	51	100
12	U23CCM303	Environmental Science	MC	0	0	2	- т	100	nt-neM	
			IVIC	U	U	4	-	100	-1	100
0.15			-				22	625	575	1200

SI.		Course Title	0-4	Periods				Max. Marks		
No	Code	Course Title	Category		T	Р	Credits	CAM		
The	ory	. 8 1		_	•	•		CAIVI	ESM	Tota
1	U23MATC05	Discrete Mathematics	BS	3	1	0	1	05	1	
2	U23ITTC03	Programming in Java	ES	3	0	0	3	25	75	100
3	U23CCT406	Computer and Communication Networks	PC	3	0	0	3	25 25	75 75	100
4	U23CSTC06	Database Management Systems	PC	3	0	0	2			
5	U23CCE4XX	Professional Elective - I#	PE	3	0	_	3	25	75	100
Theo	ry Cum Practical		T E	3	10	0	3	25	75	100
6	U23CCB401	Operating Systems Principles and Practices	PC	2	0	2	3	50	50	100
Prac	tical		Bar Bar B	-		-			30	100
7	U23ENPC02	General Proficiency – II	HS	0	0	2	4	==	_	
8	U23ITPC03	Programming in Java Laboratory	ES	0	0	2	1	50	50	100
9	U23CCP403	Computer and Communication Networks Laboratory	PC	0	0	2	1	50	50	100
10	U23CSPC04	Database Management Systems Laboratory	PC	0	0	2	1	50	50	100
Abilit	y Enhancement	Course						-	30	100
11	U23CCS402	Skill Enhancement Course-II*	AEC	0	Τ.	1			10000	
12	U23CCC4XX	Certification Course –IV**	AEC	0		4	A	100		100
/land	atory Course	100	AEC	0	0	2	-	100		100
13	U23CCM404	Indian Constitution	MC	0	0	2		400		
	A TOTAL OF THE STATE OF THE STA		IVIO	1 0	10	2		100	-	100
#	Professional Fle	ctives are to be selected from the list					23	675	625	1300



		SEMEST	ER-V								
SI		A-10 ¹		P	erioc	ls	Credits	Ma	Max. Marks		
N o.	Course Code	Course Title	Category	L	Т	Р		CAM	ESM	Total	
The	ory		-	11.7	1	11111			- 1		
1	U23HST202	Research Methodology	HS	2	0	0	2	25	75	100	
2	U23ECTC01	Microcontroller and Interfacing	PC	3	0	0	3	25	75	100	
3	U23CSTC07	Artificial Intelligence	PC	3	0	0	3	25	75	100	
4	U23CCT507	Cyber Physical System Design	PC	3	0	0	3	25	75	100	
5	U23CCE5XX	Professional Elective - II#	PE	3	0	0	3	25	75	100	
6	U23XXO5XX	Open Elective-I\$	OE	3	0	0	3	25	75	100	
Prac	ctical	r g rought		-2							
7	U23CCP504	Cyber Physical System Design Laboratory	BS	0	0	2	1	50	50	100	
8	U23ECPC01	Microcontroller and Interfacing Laboratory	PC	0	0	2	1	50	50	100	
9	U23CSPC05	Artificial Intelligence Laboratory	PC	0	0	2	1	50	50	100	
Pro	ject Work		- TITL V.	nis 2						d.	
10	U23CCW501	Micro Project	PA	0	0	2	1	100	-	100	
Abil	lity Enhanceme	ent Course								1	
11	U23CCC5XX	Certification Course – V**	AEC	0	0	4	-	100	-	100	
Mar	ndatory Course						=				
12	U23CCC505	Essence of Indian Traditional Knowledge	MC	2	0	0		100	427	100	
			7		J.	The Co	21	600	600	1200	

	2 May 194 Y	SEME	STER - VI						330	
SI.	Course			Pe	eriod	s		Ma	ax. Mark	(S
Si. No	Code	Course Title	Category	L,	T	P	Credits	CAM	ESM	Total
Theo	ory		2	MT.			11 12	Terlinia I	id k	
1	U23CCT608	Internet Programming	PC	3	0	0	3	25	75	100
2	U23ITTC04	Machine Learning	PC	3	0	0	3	25	75	100
3	U23ECTC02	Embedded Systems Design	PC	3	0	0	3	25	75	100
4	U23CCE6XX Professional Elective - III#		PE	3	0	0	3	25	75	100
5	U23XXO6XX	Open Elective-II\$	OE	3	0	0	3	25	75	100
Theo	ory Cum Practic		•							
6	U23CCB602	Data Science for Networking	OE	2	0	2	3	50	50	100
Prac	tical	¥								
7	U23CCP605	Internet Programming Laboratory	PC	0	0	2	1	50	50	100
8	U23ITPC04	Machine Learning Laboratory	PC	0	0	2	1	50	50	100
9	U23ECPC02	Embedded Systems Design Laboratory	PC	0	0	2	1	50	50	100
Proj	ect Work									
10	U23CCW602	Mini Project	PA	0	0_	2	1	100		100
Abili	ity Enhancemer	nt Course								Т
11	U23CCC6XX	Certification Course – VI**	AEC	0	0	4	-	100	-	100
Man	datory Course								-	
12	U23CCM606	Professional Ethics	MC	2	0	0	-	100	-	100
							22	625	575	1200

\$ Open Electives are to be selected from the list given in Annexure II



		SEMEST	ER – VII	4						
SI. No	Course Code	Course Title	0.4	F	Perio	ods		N	lax. Mark	(S
The	ory	o alice mac	Category	L	T	Р	Credits	CAM	ESM	Tota
1	U23ECTC03	Internet of Things	D0	Г	T -		1			
2	U23CCT709	Cloud Computing and Distributed	PC	3	0	0	3	25	75	100
		Systems	PC	3	0	0	3	25	75	100
3	U23CCT710	Blockchain Technology and Application	PC	3	0	0	3	05		
4	U23CCE7XX	Professional Elective – IV#	PE	3	0	0		25	75	100
5	U23XXO7XX	Open Elective –III ^{\$}	OE	3	-	_	3	25	75	100
Prac	tical		- OL	3	0	0	3	25	75	100
6	U23ECPC03	Internet of Things Laboratory	DO						200	
7	U23CCP706	Cloud Computing and Distributed	PC	0	0	2	1	50	50	100
		Systems Laboratory	PC	0	0	2	1	50	50	100
	ect Work								- 00	100
8	U23CCW703	Project Phase – I	PA	0	0	4 1				
9	U23CCW704	Internship / Inplant Training	PA			4	2	50	50	100
Vland	atory Course	, and the same of	FA	0	0	2	1	100	ogés 3 i	100
10	U23CCC707	Professional Ethics	1			-	97.1	1.00	til pe	
		TOTAL EUROS	MC	2	0	0	-	100	da	100
							20	475	525	1000

-		SEI	VIESTER - VII					7.00	in the second	and the same	
SI. No.	Course Code	Course Title	0.1		erioc	ls		Max. Marks			
Theory		Course Title	Category	L	T	P	Credits	CAM	ESM	Tota	
1	U23HSTC03	Entrepreneurship and Business						g g i vo	10	₹ .	
•		Management	HS	3	0	- 0	3	25	75	100	
2	U23CCE8XX	Professional Elective – V#	PE	3	0	0	3	05		. 2	
3	U23CCE8XX	Professional Elective – VI#	PE	3	_			25	75	100	
Proje	ct Work		'-	3	0	0	3	25	75	100	
4	U23CCW805	Project phase – II	Г Т	-							
-1 -	2 11	1 Toject phase = II	PA	0	0	16	8	50	100	150	
							17	125	325	450	

Annexure – I
PROFESSIONAL ELECTIVE COURSES

SI. No		- I (Offered in Semester IV)
		Table 11de
1	U23CCE401	Compiler Design
3	U23CCE402	Network Analysis and Management
4	U23CCE403	Information coding Theory
5	U23CCE404	Computer Graphics
	U23CCE405	Signal Processing
rioles	Sional Elective –	II (Offered in Semester V)
SI. No.	F03	e Course Title
1	U23CCE506	Azure Development and Operations
2	U23CCE507	Wireless Adhoc and Sensor Networks
3	U23CCE508	Data Mining and Information Warehousing
4	U23CCE509	Computational Intelligence
5	U23CBEC01	Business Intelligence and Applications
Profess	ional Elective -	II (Offered in Semester VI)
SI. No.	Course Code	
1	U23CCE610	Image Processing and vision Technologies
2	U23CCE611	Advanced Communication Techniques
3	U23CCE612	Artificial Neural Networks
4	U23ITEC02	Natural Language Processing
5	U23ITEC01	Software Defined Networks
rofessi	onal Elective – I	/ (Offered in Semester VII)
SI. No.	Course Code	The Train
1	U23CCE713	Optical Networks
2	U23ITEC03	Robotic Process Automation
3	U23CCE714	Software Project Management
4	U23ECEC01	Satellite Communication
5	U23CCE715	Deep Learning and Applications
		(Offered in Semester VIII)
l. No.	Course Code	Course Title
1	U23CCE816	Multiple Input Multiple Output Communication
2	U23ECEC03	High Speed Networks
3	U23CCE817	Telecommunication and Switching Techniques
4	U23CCE818	Bigdata Analytics
5	U23CCE819	Game Theory and its Application
ofessio	nal Elective – VI	(Offered in Semester VIII)
No.	Course Code	Course Title
	U23CCE820	Millimeter Wave Personal Communication Systems
	U23CCE821	Recent Communication Technologies
3		Mobile Application Engineering
4	U23CCE823	Green Computing

Annexure – II OPEN ELECTIVE COURSES

Course Code	Course Title	Offering Department	Permitted Departments
n Elective - I / I	I (Offered in Semester V/VI)		
U23CCOX01	Introduction to Communication Technologies	CCE	EEE, MECH, CSE, IT, CIVIL, ICE, Mechatronics, BME, AIDS
U23CCOX02	Introduction to Computer Networks	CCE	EEE, MECH, CIVIL, ICE, Mechatronics, BME, AIDS
Elective – III (C	Offered in Semester VII)		
U23CCO701	Web App Development	CCE	EEE, ECE, MECH, CSE, IT, CIVIL, ICE, Mechatronics, BME, AIDS
U23CCO702	Network Essentials and Security	CCE	EEE, MECH, CSE, IT, CIVIL, ICE, Mechatronics, BME, AIDS
	U23CCOX01 U23CCOX02 Elective – III (C	DELECTIVE — I / II (Offered in Semester V/VI) U23CCOX01 Introduction to Communication Technologies U23CCOX02 Introduction to Computer Networks Elective — III (Offered in Semester VII) U23CCO701 Web App Development U23CCO702 Network Essentials and Security	Course Code Course Title Department Telective – I / II (Offered in Semester V/VI) U23CCOX01 Introduction to Communication Technologies U23CCOX02 Introduction to Computer Networks Elective – III (Offered in Semester VII) U23CCO701 Web App Development CCE U23CCO702 Network Essentials and Security CCE



Annexure – III

ABILITY ENHANCEMENT COURSES – (A). CERTIFICATION COURSES

S. No	Course Code	Course Title	Certified By
1	U23CCCX01	Adobe Photoshop	Adobe
2	U23CCCX01	Adobe Animate	Adobe
3	U23CCCX03	Adobe Dreamweaver	Adobe
4	U23CCCX04	Adobe After Effects	Adobe
5	U23CCCX05	Adobe Illustrator	Adobe
6	U23CCCX06	Adobe InDesign	Adobe
7	U23CCCX07	Autodesk AutoCAD -ACU	Autodesk
8	U23CCCX08	Autodesk Inventor - ACU	Autodesk
9	U23CCCX09	Autodesk Revit - ACU	Autodesk
10	U23CCCX10	Autodesk Fusion 360 - ACU	Autodesk
11	U23CCCX10	Autodesk 3ds Max - ACU	Autodesk
100 000	U23CCX11	Autodesk Maya - ACU	Autodesk
12	U23CCX12	Cloud Security Foundations	AWS
13		Cloud Computing Architecture	AWS
14	U23CCCX14	Cloud Foundation	AWS
15	U23CCCX15	Cloud Practitioner	AWS
16	U23CCCX16	Cloud Solution Architect	AWS
17	U23CCCX17	Data Engineering	AWS
18	U23CCCX18	Machine Learning Foundation	AWS
19	U23CCCX19	Robotic Process Automation / Medical Robotics	Blue Prism
20	U23CCCX20	Advance Programming Using C	CISCO
21	U23CCCX21	Advance Programming Using C ++	CISCO
22	U23CCCX22		CISCO
23	U23CCCX23	C Programming	CISCO
24	U23CCCX24	C++ Programming	CISCO
25	U23CCCX25	CCNP Enterprise: Advanced Routing	CISCO
26	U23CCCX26	CCNP Enterprise: Core Networking	CISCO
27	U23CCCX27	Cisco Certified Network Associate - Level 2	CISCO
28	U23CCCX28	Cisco Certified Network Associate- Level 1	CISCO
29	U23CCCX29	Cisco Certified Network Associate- Level 3	CISCO
30	U23CCCX30	Fundamentals Of Internet Of Things	CISCO
31	U23CCCX31	Internet Of Things	CISCO
32	U23CCCX32	Java Script Programming	CISCO
33	U23CCCX33	NGD Linux Essentials	CISCO
34	U23CCCX34	NGD Linux I	CISCO
35	U23CCCX35	NGD Linux II	
36	U23CCCX36	Advance Java Programming	Ethnotech
37	U23CCCX37	Android Programming / Android Medical App Development	Ethnotech
38	U23CCCX38	Ansys	Ethnotech
39	U23CCCX39	Catia	Ethnotech



40	U23CCCX40	Communication Skills for Business	Ethnotech
41	U23CCCX41	Coral Draw	Ethnotech
42	U23CCCX42	Data Science Using R	Ethnotech
43	U23CCCX43	Digital Marketing	Ethnotech
44	U23CCCX44	Embedded System Using C	Ethnotech
45	U23CCCX45	Embedded System With IOT	Ethnotech
46	U23CCCX46	English For IT	Ethnotech
47	U23CCCX47	Entrepreneurship And Business Plan	Ethnotech
48	U23CCCX48	Estimation And Current Practices	Ethnotech
49	U23CCCX49	Financial Planning, Banking and Investment Management	Ethnotech
50	U23CCCX50	Foundation Of Stock Market Investing	Ethnotech
51	U23CCCX51	Machine Learning / Machine Learning for Medical Diagnosis	Ethnotech
52	U23CCCX52	IOT Using Python	Ethnotech
53	U23CCCX53	Plaxis	Ethnotech
54	U23CCCX54	Soft Skills, Verbal, Aptitude	Ethnotech
55	U23CCCX55	Software Testing	Ethnotech
56	U23CCCX56	Solar And Smart Energy System With IOT	Ethnotech
57	U23CCCX57	Solid Edge	Ethnotech
58	U23CCCX58	Solid works	Ethnotech
59	U23CCCX59	Staad Pro	Ethnotech
60	U23CCCX99	Total Station	Ethnotech
61	U23CCCX60	Hydraulic	Festo
62	U23CCCX61	PLC	Festo
63	U23CCCX62	Pneumatic	Festo
64	U23CCCX63	Agile Methodologies	IBM
65	U23CCCX64	Block Chain	IBM
66	U23CCCX65	Devops	IBM
67	U23CCCX66	Artificial Intelligence	ITS
68	U23CCCX67	Cloud Computing	ITS
69	U23CCCX68	Computational Thinking	ITS
70	U23CCCX69	Cyber Security	ITS
71	U23CCCX70	Data Analytics	ITS
72	U23CCCX71	Databases	ITS
73	U23CCCX72	Java Programming	ITS
74	U23CCCX73	Networking	ITS
75	U23CCCX74	Python Programming	ITS
76	U23CCCX75	Web Application Development (HTML, CSS, JS)	ITS
77	U23CCCX76	Network Security	ITS & Palo alto
78	U23CCCX77	MATLAB	MathWorks
79	U23CCCX77	Azure Fundamentals	Microsoft
80	U23CCCX79	Azure AI (AI-900)	Microsoft
81	U23CCCX/9	Azure Data (DP -900)	Microsoft
82	U23CCCX80	Microsoft 365 Fundamentals (SS-900)	Microsoft



Annexure - IV

ABILITY ENHANCEMENT COURSES - (B). SKILL ENHANCEMENT COURSES

SI. No	Course Code	Course Title	
-		Skill Development Course 1 *:	ч
1	U23CCS301	1)Computer on Office Automation	
	02000001	2)Animation Practices	
		3)PCB and Circuit Design	
-		Skill Development Course 2 *	
2	U23CCS402	1)Computer Hardware and Troubleshooting	
-	10000,02	2)Mobile Servicing	
		3)Android App Development	N I

Any one course to be selected from the list



83	U23CCCX82	Microsoft Security, Compliance and Identity (SC-900)	Microsoft
84	U23CCCX83	Microsoft Power Platform (PI-900)	Microsoft
85	U23CCCX84	Microsoft Dynamics Fundamentals 365 – CRM	Microsoft
86	U23CCCX85	Microsoft Excel	Microsoft
87	U23CCCX86	Microsoft Excel Expert	Microsoft
88	U23CCCX87	Securities Market Foundation	NISM
89	U23CCCX88	Derivatives Equinity	NISM
90	U23CCCX89	Research Analyst	NISM
91	U23CCCX90	Portfolio Management Services	NISM
92	U23CCCX91	Cyber Security	Palo alto
93	U23CCCX92	Cloud Security	Palo alto
94	U23CCCX93	PMI – Ready	PMI
95	U23CCCX94	Tally – GST & TDS	Tally
96	U23CCCX95	Advance Tally	Tally
97	U23CCCX96	Associate Artist	Unity
98	U23CCCX97	Certified Unity Programming	Unity
99	U23CCCX98	VR Development	Unity

Annexure – V

Honours Programme – Cyber Security

	A. P. B.		COURSE I	DETAILS							1	
	Semester		and the second s		Pe	rio	ds	O dita	Ma	ax. Mar	ks	
SI. No.	Jemester	Course Code	Course Title	Category	L	T	P	Credits	CAM	ESM	Total	
The	ory			J								
1	IV	U23CCH401	Cyber Laws and Vulnerabilities	PC	3	1	0	4	25	75	100	
2	V	U23CCH502	Digital Forensic	PC	3	1	0	4	25	75	100	
3	VI	U23CCH603	Malware Analysis and Reverse Engineering	PC	3	1	0	4	25	75	100	
4	VII	U23CCH704	Embedded, IoT and Cloud security	PC	3	1	0	4	25	75	100	
5	VIII	U23CCH805	Ethical Hacking	PC	3	1	0	4	25	75	100	
			Total					20	125	375	500	
			Equivalent NP	TEL course	es##							
1	IV-VII	U23CCHN01	Cyber Security and	Privacy				3	1			
'	10-011	020001	Introduction to Cybe	r Security				3				
			Digital Forensic					3		12 Wee	ke	
				Statistical learning for Reliability Analysis						Course		
			Cryptography and N	letwork Sec	urity	1		3]	••••		
			Ethical Hacking	-				3		1		

^{**} The student shall be given an option to earn 3 credits through one equivalent 12 weeks NPTEL course instead of any one course listed for honours degree programme that should be completed before the commencement of eighth semester. The equivalent courses are subject to change based on its availability as per NPTEL course list.

Annexure-II Semester I and II Syllabi

Department	Mathe	ematics		nme: B.						
Semester	I			Categor		TE		er Exam Ty		
	LIOOM	ATC01	Perio	ds/Wee	k	Credit	Max	imum Mark	S	
Course Code	023101	ATC01	L	T	P	С	CAM	ESE	TM	
Course Name	ENGIN	EERING MATHEMATICS – I	3	1	-	4	25	75	100	
(Com		All Branches Except CSBS)						<u> </u>	<u> </u>	
Prerequisite		Mathematics								
	On co	mpletion of the course, the stud	dents will b	e able t	0			BT Ma (Highest		
Course Outcomes	CO1	Understand the concept of Eige Matrix	n values an	d Eigen	vectors	Diagonaliz	zation of a	K		
	CO2	Solve higher order differential ed	quations					K3		
	CO3	Understand the different types o	of partial diff	erential o	equation	าร		K3		
	CO4	Know about the Applications of	double and	triple int	egrals		.1	K3		
	CO5	Gain the knowledge about Vecto	r Calculus a	nd its A	pplication	ns		K3		
UNIT – I	MATR		······································		14.	Periods	:12	1		
Rank of a M	atrix – S	Systems of Linear Equations – Ch	naracteristic	equatio	n – Cay	ley Hamilto	on Theore	m – Eigen		
values and E	igen ve	ctors of a real Matrix-Diagonalizat	tion of Matri	ces.					CO	
UNIT – II	IIT – II DIFFERENTIAL EQUATIONS (HIGHER ORDER) Periods:12 inear Differential equations of higher order with constant coefficients – Euler's linear equation of higher									
		uations of higher order with consta –Method of Variation of paramete		nts – Eu	ler's line	ear equation	n of higher	order with	CO	
UNIT – III										
		Total derivatives – Maxima of two	variables ar	d Minim	a of two	variables -	- Lagrange	e's Method		
of multipliers						Periods	.40		CO	
UNIT – IV		TIPLE INTEGRALS Change of order of integration (Cartagian fo	rm) An	plication			le internal	CO	
		olume as a triple integral (Cartesia		ли <i>у.</i> др	plication	is. Aleas	as a dod.	no integral		
UNIT – V		OR CALCULUS				Periods				
Gradient – D (Statement o	ivergen nly) – G	ce and Curl – Directional derivativation of the contraction of the contract of	ves – Irrota tokes Theor	tional an em appl	id Soler ications	noidal vecto without pr	or fields — oofs).	Properties	CO	
Lecture Perio				·····			Total Perio	ods:60	.1	
ext Books	u3.70	Tutorium Cinedo. 10	1 1 1 1 1 1 1 1 1							
	taramar	n, "Engineering Mathematics, The	National Pu	blishing	Compa	ny, Madras	, 2016.			
. N. P Bali an	d Manis	sh Goyal, "A Text Book of Enginee	ring Mather	natics", I	_akshm	i Publicatio	ns, New D	elhi, 9 th Ed	ition,	
2018.		7.16.14 D.16.15	·		Ita A	- Lications	" Viewone	than C Dr	ntore	
 S. Narayana Publishers I 		T.K. Manicavachagom Pillay," Diff	erentiai Eqt	iations a	ına ils P	pplications	, viswani	aman.s, Fi	IIICIS	
Reference Boo		2000.								
		and Calculus (Engineering Mather	matics – I)"	Balaji Pı	ublicatio	ns, 9 th Edit	ion, 2023			
		"Engineering Mathematics – I", Me								
		vanced Engineering Mathematics								
		er Engineering Mathematics", Tata					, 2018.			
. CW. Evans	, "Engin	eering Mathematics", A Programn	ned Approa	ch, 3 rd E	dition, 2	019.				
Veb Reference			1							
. http://www.y	orku.ca	/yaoguo/math1025/slides/chapter/	kuttler-linea	ralgebra	a –slides	s- systems	of equatio	n-handout. _l	odf	
. http://www.r	nath.cur	m.edu/~wn0g/2ch6a.pdf								
. https://nptel	.ac.in/co	ourses/122/104/122104017/								
. https://nptel	.ac.in/cc	ourses/111/106/111106051/								
. https://nptel	.ac.in/cc	ourses/111/108/111108081/						-		
		xam, LE – Lab Exam								

Whani

COs/POs/PSOs Mapping

COs			9	Program Specific Outcomes (PSOs)											
003	PO1 PO2 PO3 PO4 PO5 PO					PO6	P07	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
1	3	2	1	-	2	1	1	2 - 2	-	-	=,	1	3	-	-
2	3	2	. 1	1	1	1	1	-	-	-	-	1	3	-	-
3	3	2	1	1	_	1	1	. =	-	-	-	1	3	-	-
4	3	2	1	1	-	1	1	-	-	-	* -	1	3	- 12	-
5	2	2	1		-	-	1	- 7	-	-	2-2	1	3	-	

Correlation Level: 1 - Low, 2 - Medium, 3 - High

Evaluation Method

		Continuo	CAM)	End			
Assessment	CAT 1	CAT 2	Model Exam	Assignment*	Attendance	Semester Examination (ESE) Marks	Total Marks
Marks	10		5	5	5	75	100

^{*} Application oriented / Problem solving / Design / Analytical in content beyond the syllabus



Department	Comput	er Science and Engineering	Program			+F	Semester E	vam Type	TF			
Semester	1/11		Course (Mayi	mum Mark	. <u>-</u>			
	U23CST	201		ds / We	·	Credit	CAM	ESE	TM			
Course Code	0230510	JU I	L	T	P	C 3	25		100			
Course Name	PROGR/	AMMING IN C	3	-	-	3	25					
	(Commor	to All Branches)			<u> </u>				***************************************			
Prerequisite		pletion of the course, the stude		e able	to			BT Map (Highest K2	Leve			
Course	CO1 Co	K2										
Outcome	CO2 IIIu	CO2 Illustrate the basics constructs of C programming concepts of control structures and looping in C Program.										
	CO3 Im	K3										
	CO3 Implement programs using arrays and functions. CO4 Demonstrate programs using Structure and Pointers.											
	CO4 Demonstrate programs using Structure and Formers. CO5 Build programs Union and understand the concept of File management Operations.											
						Perious.	13					
UNIT- I Generation an		etion ation of Computers - Block Diag m – Binary – Decimal – Conversio	gram of a on – Algor	Comp ithm –	uter –Ca Pseudo	ategories of code – Flov	Software Chart.	Network	CO			
						Periods: ()9	122				
/ariables − Da	ita Types -	amming Basics mming – Basic structure of a 'C' - Expressions using operators in -ooping statements.	'C' – Ma	naging	Input a	•		Decision				
		1 🕶				Periods:	09	tiono	T			
OL A	Cimple n	and Functions Declaration – One dimensional a rograms- sorting- searching – Pass by value – Pass by referenc	Illatin U	Juliano	ns- Fun	ction – de		function -	со			
UNIT- IV	Structu	re and Pointers				Perious.	ture _Self	Referentia	CO			
Structure Intro	nters - De	re and Pointers Structure definition – Structure d finition – Initialization – Pointers	eclaration arithmeti	– Stri c – Po	ointers a	nd arrays -	Pointer to	Function -	4			
Pointer and St	ructure- on	mple programs.										
Pointer and St		mple programs.				Periods:	09					
Pointer and St UNIT- V Union Introduc	Unions	mple programs. and Files grams Using Structures and Unio om Access to Files - File System	ns – Intro Functions	duction - Com	n to File nmand L	Periods: - File Operine Argume	09 ations - File nts- Storag	e Input and e Classes	d cc			
Pointer and St UNIT- V Union Introduc Output Function Pre-Processor	Unions otion - Prog ons - Rand Directives	mple programs. and Files grams Using Structures and Unio om Access to Files - File System - Dynamic Memory Functions.	ns – Intro Functions	duction - Com	n to File	Periods: - File Operine Argume	09 ations - File	e Input and e Classes	d cc			
Pointer and St UNIT- V Union Introduct Output Function Pre-Processor Lecture Perion	Unions ction - Prog ons - Rand Directives ds: 45	mple programs. and Files grams Using Structures and Unio om Access to Files - File System - Dynamic Memory Functions. Tutorial Periods:	ns – Intro Functions	duction - Con	n to File nmand L riods: -	Periods: - File Operine Argume	09 ations - File nts- Storag	e Input and e Classes	d cc			
Pointer and St UNIT- V Union Introduct Output Functice Pre-Processor Lecture Periot Text Books 1. Balagurus	Unions tion - Programs - Rand Directives ds: 45	and Files grams Using Structures and Unio om Access to Files - File System - Dynamic Memory Functions. Tutorial Periods: Togramming in ANSI C", Tata McC	ns – Intro Functions Praction Graw Hill, Edition, 20	duction - Con cal Per 8 th Edit	n to File nmand L riods: - ion,2019	Periods: - File Operine Argume	09 ations - File nts- Storag	e Input and e Classes	d cc			
Pointer and St UNIT- V Union Introduct Output Function Pre-Processor Lecture Perion Text Books 1. Balagurus 2. Yashvantk 3. Herbert Sc	Unions ction - Programs - Rand Directives ds: 45 amy. E, "P Kanetkar, "I	and Files grams Using Structures and Unio om Access to Files - File System - Dynamic Memory Functions. Tutorial Periods:	ns – Intro Functions Praction Graw Hill, Edition, 20 W Hill, 4 th I	duction cal Per B th Edit 17 Edition	n to File nmand L riods: - ion,2019	Periods: - File Oper ine Argume	09 ations - File nts- Storag	e Input and e Classes	d cc			

- Web References
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- 2. https://www.geeksforgeeks.org/c-language-set-1-introduction/
- 3. https://www.tutorialspoint.com/cprogramming
- 4. https://www.assignment2do.wordpress.com/.../solution-programming-in-ansi-c
- 5. https://nptel.ac.in/courses/106/104/106104128/

* TE – Theory Exam, LE – Lab Exam

Vm-3

COs		G)		Program Specific Outcomes (PSOs)											
COS	P01	PO2	PO3	PO4	PO5	P06	P07	PO8	PO9	PO10	P011	PO12	PSO1	PSO2	PSO3
1	2	1	-		3	-			-	-		-	3	-	3
2	2	1	-	-	3	-	-	-	-	-	-	-	3	-	3
3	3	2	1	1	3	-	-	_	-	-	1=1	1-1	3	-	3
4	3	2	1	1	3	-	-		-	-			3		3
5	3	2	1	1	3	-	-	-	1-1	(<u></u>	1=0	3	-	3

Correlation Level: 1 - Low, 2 - Medium, 3 - High

Evaluation Method

		Continuo	End Semester	Total			
Assessment	CAT 1	CAT 2	Model Exam	Assignment*	Attendance	Examination (ESE) Marks	Marks
Marks	1	10		5	5	75	100

^{*} Application oriented / Problem solving / Design / Analytical in content beyond the syllabus



Department	Com	puter Science and Engineering	Progran	nme: E	3.Tech							
Semester	I		Course	Catego	ory: ES		*End Seme	ester Exam T	уре:			
Course Code	U23C	STC02	Perio	ods / W	eek	Credit	Maxim	um Marks				
			L	T	P	С	CAM	ESE	TM			
Course Name	PROB	BLEM SOLVING APPROACH	3	-	-	3	25	75	100			
<u> </u>	ommor	n to CSE,ICE and CCE)			<u> </u>							
Prerequisite							***************************************					
		completion of the course, the stud						BT Map _l (Highest L				
Course Outcome	CO1	Explain the basic concepts of comp	utational	thinkin	g and p	roblem s	olving.	K2				
Outcome	CO2	Explain basic concepts of algorithm	and data	a organ	ization.			K2				
	CO3	Illustrate algorithmic solution to prol	olem solv	/ing.				K3				
	CO4	Explain the concepts of array, merg	ing, sorti	ng & se	earching	g.	·	K2				
	CO5	Implement recursive algorithm to so	lve prob	lems.				K3				
UNIT-I	COMP PROBL	UTATIONAL THINKING AND LOGILLEMS	C-SOLV	ING		Periods:	9					
		g – Information and Data – Converting Solving Problems – Limits of Computa						ata Types	CO1			
UNIT-II	ALGC	PRITHMIC THINKING AND DATA O	RGANIZ	ATION	411	Periods:	9					
		lgorithms – Software and Programmir read Sheets – Text processing – Pat						Name list,	CO2			
UNIT-III		AMENTAL ALGORITHMS AND FAC							<u> </u>			
		ns: Exchanging – Counting – Summin se Conversion – Character to number							000			
Greatest Commo	git-bas on Divis	sor – Prime Number – Prime Factor –	Pseudo	on. Fac	nd Flow	Chart	rinaing Squ	are Root -	CO3			
UNIT-IV		AY, MERGING, SORTING AND SEA				Periods:	9		.L			
of a Set - Remo	val of D	duction – Array order reversal – Array Ouplicate – Partitioning – Longest mor arching: Linear, Binary – Pseudocode	notone. S	orting a	and sea	nming – N rching: S	laximum ar orting by Bu	nd Minimum ubble,	CO4			
UNIT-V	TEXT	PROCESSING, PATTERN SEARCH				Periods:	9		<u> </u>			
Key word Searc	hing –	Text Line Adjustment – Linear Patterr	Search	– Sub	Linear	Pattern S	earch. Recu	ırsion:	T_005			
Towers of Hanoi Chart.	– Sam	ple Generation – Combination Gener	ation – P	ermuta	tion Ge	neration -	- Pseudoco	de and Flow	CO5			
Lecture Period	s: 45	Tutorial Periods: -	Practica	al Perio	ds: -	1	Total Per	iods: 45				
Text Books							V-					
		nny Hunt, "Computational Thinking fo	r Modern	Proble	m Solv	er", Chap	man & Hall	CRC Textbo	oks in			
Computing, 2 2. R.G.Dromey		to solve it by Computer",PHI,2008.										
		to Think like a Programmer: Problem	Solving	for the	Bewilde	red", Cer	ngage Learr	ning EMEA,20	008.			
Reference Book	S					,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,						
		la Lentz, "A Problem-solving Approac										
V Anton Spra		er Winn, "A Problem-solving Approach ink Like a Programmer: An Introduction						earning EME	ĒΑ,			
	on & G	oblem-solving Approach", Delmar/Cen erald Jay Sussman, "Structure and Ir				er Progra	ms", McGra	aw-Hill Book				

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COs/POs/PSOs Mapping

COs				Program Specific Outcomes (PSOs)											
	P01	PO2	PO3	PO4	PO5	P06	P07	PO8	PO9	PO10	PO11	PO12	PS01	PSO2	PSO3
1	2	1		-	1	-	-		1	-	-	1	3	2	3
2	2	1	-		1	-	-	-	.			1	3	2	3
3	2	1	y = 0	- ,	1	-	-	-	-	. ,	-	1	3	2	3
4	2	1	1	_=	1	<u>.</u>	15.	-	-	-	-	1	3	2	3
5	3	2	1	1	1		-	1	¥			1	3	2	3

Correlation Level: 1-Low, 2-Medium, 3- High

Evaluation Method

	4 1	Continuo	End	150				
Assessment	CAT 1	CAT 2	Model Exam	Assignment*	Attendance	Semester Examination (ESE) Marks		
Marks	1	0	5	- 5	5	75	100	

^{*} Application oriented / Problem solving / Design / Analytical in content beyond the syllabus



Department	EEE/ECE				B.Tec				
Semester	1/11		Cours	e Cate	egory: E		End Semes TE	ter Exam	Type:
Course Code	U23EST	203	Per	iods/V	Veek	Credit	Maxir	num Mark	S
Course Code	0232310	,003	L	Т	P	С	CAM	ESE	∣TM
Course Name		OF ELECTRICAL AND ONICS ENGINEERING	3		-	3	25	75	100
(Common to	CSE, IT, M	ECH, CIVIL,CCE,AI&DS, FT, MC	TR, CSBS	Bran	ches)				
Prerequisite	Mathemat	ics and Physics							
		letion of the course, the stude						(Highes	
	CO1 App	bly the basic concepts and variou	s laws in D	C circ	uits.			K	3
	CO2 Ana	alyze the AC circuits and develop	resonance	cond	litions fo	r transmitt	er and	K	3
Course	rec	eiver circuits.							
Course Outcomes	CO3 Gai	n the knowledge of power system	n compone	nts, in	nportano	ce of electr	ical safety	K	2
Outcomes	me	asures and real time applications	of transfor	mer a	nd moto	r.			
Maria	CO4 Und	derstand the operator of semicon	ductor dioc	le and	l its appl	ications.		K	2
AND LOS	CO5 Exp	plain the characteristics and opera	ation of BJ	T and	FET.			K	2
	CO6 Rel	ate and Explain Different Commu	inication S	ystem	S.			K	2
		SECTION A - ELEC				3			
UNIT-I	DC CIRC	UITS				Periods:	10	••••••••••••••••••••••••••••••••••••••	
Concept of Pote	ential Differ	ence, Current, Resistance, Indu	ctance and	Capa	acitance	, Work, Po	ower, Energ	y, Currer	nt
and Nodal analy Power Transfer. UNIT-II AC waveform d	AC CIRC efinitions	allel combination of R, L, C compelta transformation, Network The UITS form factor, peak factor, R-L, d rectangular form, concept of	eorems - S R-C, RLC	uperp	osition,	Thevenin, Periods: t, R-L-C p	Norton and	Maximun	n CO2
complex power, palanced AC Cir	power fact cuits (Y-∆ a	or, Resonance in series and par and Y-Y) - Power Measurement -	allel circuit - Two Watt	s, bar meter	nd-width	and qualit	y factor, Th		
UNIT-III		CAL SAFETY AND ELECTRICA ck diagram of analog communica			A EM E			aveforms .	
Comparison of Electromagnetic	digital and Spectrum	d analog communication syster . Wired and wireless Channel - lobile Communication – Fibre Op	n- Block o - Block di otical Comn	diagra agram nunica	m of donor of contact	igital com nmunicatio stem.	munication	system -	CO3
		SECTION B - ELECT	RONICS E	ENGIN	IEERIN				
UNIT-IV		NDUCTOR DIODES AND APPLI				Periods:			1
characteristics -	diffusion a	materials – Doping - Intrinsic and and depletion capacitance - Re e as regulator – Light Emitting Did	ctifier, Half	wave	e and F	or – PN jur full wave i	ectifier - ze	, structure ener diode	e, CO4
UNIT-V	TRANSIS					Periods:1	10		
		r - construction - operation -		on Fie	eld Effec	t Transisto			
Configuration –c semiconductor F	ield Effect	ics – Biasing - numerical applicat Transistor, EMOSFET-DMOSFE CATION SYSTEMS		chara			ical applica		
Configuration —csemiconductor F JNIT-VI (Need for Modula Comparison of Electromagnetic	ield Effect COMMUNIO ation – Blood digital and Spectrum		T operation tion Syster n- Block d - Block di	n - Al\ diagra agram	M, FM, F m of d n of con	Periods:10 PM Definition igital come nmunication	rical applica) ons and Wa munication	tion. aveforms - system -	CO6
Configuration —c semiconductor F JNIT-VI (Need for Modula Comparison of Electromagnetic communication —	ield Effect COMMUNI ation – Bloo digital and Spectrum - Cellular M	Transistor, EMOSFET-DMOSFE CATION SYSTEMS ck diagram of analog communication system dianalog communication system Wired and wireless Channel -	T operation tion Syster n- Block di - Block di tical Comn	m - AN diagra agram nunica	M, FM, F m of d n of con	Periods:10 PM Definition igital communication stem.	rical applica) ons and Wa munication	tion. aveforms - system - – satellite	CO6
Configuration —csemiconductor F JNIT-VI Need for Modula Comparison of Electromagnetic communication — Lecture Period Text Books	Field Effect COMMUNIO ation – Bloodigital and Spectrum - Cellular M is:45	Transistor, EMOSFET-DMOSFE CATION SYSTEMS ck diagram of analog communication system de analog communication system Wired and wireless Channel - dobile Communication – Fiber Op Tutorial Periods:-15	T operation tion Syster n- Block di - Block di tical Comn	m - AN diagra agram nunica cal Pe	M, FM, F m of d n of con ation Sys eriods:-	Periods:10 PM Definition igital communication stem.	rical applica O ons and Wa munication n systems TotalPeriod	tion. aveforms - system - – satellite	CO6
Configuration —csemiconductor F JNIT-VI K Need for Modula Comparison of Electromagnetic communication — Lecture Period Fext Books R.K. Rajput,	ield Effect COMMUNIO ation – Bloodigital and Spectrum Cellular Mas:45 "Basic Elec	Transistor, EMOSFET-DMOSFE CATION SYSTEMS ck diagram of analog communicated analog communication system. Wired and wireless Channel - Mobile Communication – Fiber Op Tutorial Periods:-15 ctrical and Electronics Engineerin	T operation tion Syster n- Block di- Block di- tical Comn Practio g", Univers	m - All diagra agram nunica cal Pe	M, FM, F m of d n of con ation Sys eriods:-	Periods:10 PM Definition igital communication stem.	rical applica ons and Wa munication n systems TotalPeriod dition, 2012	tion. aveforms - system satellite ds:60	CO6
Configuration —csemiconductor F JNIT-VI K Need for Modula Comparison of Electromagnetic communication — Lecture Period Text Books R.K. Rajput, E. R. Saravana	rield Effect COMMUNICATION - Block digital and Spectrum - Cellular M ds:45 "Basic Elect kumar V. J	Transistor, EMOSFET-DMOSFE CATION SYSTEMS ck diagram of analog communication system de analog communication system Wired and wireless Channel - dobile Communication – Fiber Op Tutorial Periods:-15	T operation tion Syster n- Block di- block di- tical Comn Practio g", Univers sic Electric	m - All diagra agram nunica cal Pe sity Sc cal and	M, FM, F m of d n of con ation Sys eriods:- tience Po d Electro	Periods:10 PM Definition igital communication stem. ress,2 nd Econics Engir	rical applica ons and Wamunication n systems TotalPeriod dition, 2012 neering", Wi	tion. aveforms - system - satellite sis:60 elly, 2022	CO6

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Tata McGraw Hill, 2018

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- β. https://nptel.ac.in/courses/108/102/108102146/
- 4. https://onlinecourses.nptel.ac.in/noc21_ee55/

COs/POs/PSOs Mapping

COs			8	1 1	Prog	ram O	utcom	es (PC	s)				Prog	ram Sp	ecific
	PO1	PO2	PO3	P04	PO5	P06	P07	PO8	PO9	PO10	PO11	PO12		omes (F	
1	3	3	3	_	2	-375	12.11			. 0.10	1011	PUIZ	PS01	PSO2	PSO3
2	_						-	-	-		-	1	3	2	_
2	3	3	3	- 5	2	-	-	_	-	_		1	_		
3	3	3	3	=	2						-	1	3	2	-
4	3	0					-	-	-	-		1	3	2	_
*	3	3	3	-	2			_	_	_	_	1	2		
5	3	3	3	-	2	-						l	3	2	\
6	2	2				-				-	-	1	3	2	1 1 1 1 1
0	3	3	3	-	2	-	- 1	-	-	_	_	1	2	2	

Correlation Level: 1 - Low, 2 - Medium, 3 - High

ileni ulta		Continu	ous Asse	essment Marks	(CAM)	End Semester	-
Assessment	CAT 1	CAT 2	Model Exam	Assignment*	Attendance	Examination	Total Marks
Marks	1	0	5	-		(ESE) Marks	
			3	5	5	75	100

^{*} Application oriented / Problem solving / Design / Analytical in content beyond the syllabus

Department	Computer and Communication	Program						
Semester	Engineering I/II	Course (Categor	y: HS	End S TE	Semester E		
		Perio	ds / We	ek	Credit	Max	imum Ma	rks
Course Code	U23HSTC01	L	Т	Р	С	CAM	ESE 75	TM
Course Name	UNIVERSAL HUMAN VALUES - II	2			2	25	75	100
	(Common to all Branches)	<u> </u>						<u> </u>
Prerequisite	UHV-I: Universal Human Values-Introdu	ction					BT Ma	opina
	The course will enable the student to						(Highest	Level)
	Evaluate the significance of valu	e inputs in	formal	educati	on and sta	rt applying	, K	
Cauran	them in their life and profession Distinguish between values and facilities, the Self and the Body, Ir	skills, hap	oiness I Comp	and acc	cumulation of an individ	of physica lual, etc.	i K	2
Course Outcomes	Analyze the value of harmonious	relationsh	p base	d on tru	st and resp	ect in thei	r K	2
	life and profession	na in ensuri	ng harn	nony in s	society and	nature.	K	2
	Apply the understanding of ethical	l conduct t	o formu	late the	strategy fo	r ethical life	e K	2
	and profession.	al Conduct t	0 1011110		0,		<u> </u>	
UNIT-I	1 1 1 1 In Education				Periods: (06		
	Introduction to Value Education anding, Relationship and Physical Facil Value Education - Self-exploration as the nd Prosperity - Current Scenario- Method						spirations	s CO1
***************************************	the Human Boing				Periods:	06		
the Self and the Self with the E	Harmony in the Human Being Human being as the Co-existence of the Body-The Body as an Instrument of the Body-Programme to ensure self-regulation	and Healtl	1		Periods:	06		
as the Right F	Harmony in the Family and Society Family - Basic Unit of Human Interaction Fivaluation - Other Feelings, Justice in Husion for the Universal Human Order.	n- 'trust' - F uman-to-Hu	oundat man R	tional Va elationsl	,,		'Respect' larmony i	CO3
UNIT-IV	Harmony in the Nature/Existence				Periods:	06	- Abo Foi	T
	g Harmony in the Nature-Interconnectedr ature - Realizing Existence as Co-exist	ence at A	LOVO				armony i	n CO4
LINUT V	Implications of the Holistic Unde Professional Ethics							<u>. </u>
Education, H Technologies towards Valu	eptance of Human Values - Definitivene lumanistic Constitution and Universal F s, Production Systems and Managemer e - based Life and Profession	nt Models-	ГурісаІ	luman Capetence Case Sidods: -	conduct - I in Profes Studies-Stra	Basis for sional Ethategies for Total Per	Transitio	ic cos
Lecture Peri Text Book					Δethana G			rised
Edition, Ex	tion Course in Human Values and Profess xcel Books, New Delhi, 2019.	sional Ethic	s, KK(Jaul, R	Astriaria, O	, Dagano	7	
Reference Bo	ooks	a Drokasha	n Δmai	rkantak	1999			
2. Human Va	dya: EkParichaya, A Nagaraj, JeevanVidy alues, A.N. Tripathi, New Age Intl. Publish of Stuff (Book). of My Experiments with Truth - by Mohar	ieis, inew L	Cirii, 20	,0-1.				
4 The Story	of My Experiments with Truth - by Mohar Beautiful - E. F Schumacher	ndas Karam	cnand	Ganoni				

- 6. Slow is Beautiful Cecile Andrews
- Economy of Permanence J C Kumarappa
- 8. Bharat Mein Angreji Raj Pandit Sunderlal
- 9. Rediscovering India by Dharampal
- 10. Hind Swaraj or Indian Home Rule by Mohandas K. Gandhi
- 11. India Wins Freedom Maulana Abdul Kalam Azad
- 12. Vivekananda Romain Rolland (English)
- 13. Gandhi Romain Rolland (English)

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- 3. https://www.youtube.com/channel/UCQxWr5QB_eZUnwxSwxXEkQw
- 4. https://fdp-si.aicte-india.org/8dayUHV_download.php
- https://www.youtube.com/watch?v=8ovkLRYXIjE

COs/POs/PSOs Mapping

COs	77 05/1	Program Outcomes (POs)												Program Specific Outcomes (PSOs)		
CUS	P01	PO2	PO3	PO4	PO5	P06	P07	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	
1	-	-	- TR	-	_ 1	2	3	2	2	- -	- 7	3	-	-	-	
2	-	- >		1 _ //		2	3	2	2	-	- "	3	-	-	-	
3	-	-		-	-	3	3	2	2	-	-	3	-	-	-	
4		-		-	-	2	3	2	2			3		-	-	
5		-	-		-	2	3	2	2	-	1 2	3		-	T - 1	

Correlation Level: 1 – Low, 2 – Medium, 3 – High

Evaluation Method

		ious Ass	End Semester	Total		
1	CAT 2	Model Exam	Assignment*	Attendance	Examination (ESE) Marks	Marks
10)	5	5	5	75	100
Γ	T 1	T 1 CAT 2	T1 CAT2 Exam	T 1 CAT 2 Exam Assignment	T 1 CAT 2 Exam Assignment Attendance	T 1 CAT 2 Exam Assignment* Attendance (ESE) Marks

^{*} Application oriented / Problem solving / Design / Analytical in content beyond the syllabus

V. mm

	Course Code Course Name Prerequisite	U23ENBC01 Communicativ Basics of Englis			OGOM! LIL.	□ n d	Semester	Fxam Type	:TF
Course Name Communicative English - I Common to ALL Branches except CSBS) Prerequisite Basics of English Language On completion of the course, the students will be able to CO1 Understand the communication flow in organization and its objectives CO2 Write the technical contents with grammatically precise sentences CO3 Articulate with correct pronunciation and overcome vernacular impact in speaking CO4 Express opinions confidently in formal and informal communicative contexts CO5 Attend interview with assertiveness JNIT- I Communication, Definition, Process, Channels, Barriers, Strategies for Effective Communication, Verbal Nonverbal Communication - Listening, Types, Barriers, Enhancing Listening Skills - Bibliography: Book, Journal Internet References JNIT- II Common Errors In Writing And Comprehension Strategies Periods:10 Subject Verb Agreement, Misplaced Modifiers, Squinting Modifiers, Dangling Modifier, Fused Sentence, Consplice, Sentence Fragment - Reading Comprehension: Technical passage, Strategies: Skimming, Scans Intensive and Extensive Reading, Prediction, and Contextual Meaning JNIT- III Phonetics Pronunciation Guidelines to consonants and vowels, Sounds Mispronounced, Silent and Non-silent Let Intonation, Spelling Rules and Words often misspelled, Mother Tongue Influence (MTI), Various Techniques Neutralization of Mother Tongue UNIT- IV Communication Practice-I List of Exercises Listening: Self-Introduction videos Sneaking: Self-Introduction, Extempore, and Role Play	Course Name Prerequisite	Communicativ Basics of Englis		Perious/					
Course Name Communicative English - I 2 - 2 3 50 50 Common to ALL Branches except CSBS	Prerequisite	Basics of Englis							TM
Common to ALL Branches except CSBS Prerequisite Basics of English Language On completion of the course, the students will be able to BT (High	Prerequisite	Basics of Englis					50	50	100
Prerequisite Basics of English Language On completion of the course, the students will be able to CO1 Understand the communication flow in organization and its objectives CO2 Write the technical contents with grammatically precise sentences CO3 Articulate with correct pronunciation and overcome vernacular impact in speaking CO4 Express opinions confidently in formal and informal communicative contexts CO5 Attend interview with assertiveness INIT-I Workstead Communication Communication, Definition, Process, Channels, Barriers, Strategies for Effective Communication, Verbal donverbal Communication - Listening, Types, Barriers, Enhancing Listening Skills - Bibliography: Book, Journal internet References INIT-II Common Errors In Writing And Comprehension Strategies Periods:10 Subject Verb Agreement, Misplaced Modifiers, Squinting Modifiers, Dangling Modifier, Fused Sentence, Con Splice, Sentence Fragment - Reading Comprehension: Technical passage, Strategies: Skimming, Scannetensive and Extensive Reading, Prediction, and Contextual Meaning INIT-III Phonetics Periods:10 Pronunciation Guidelines to consonants and vowels, Sounds Mispronounced, Silent and Non-silent Let Pronunciation Guidelines to consonants and vowels, Sounds Mispronounced, Silent and Non-silent Let Pronunciation Guidelines to consonants and vowels, Sounds Mispronounced, MTI), Various Techniques Veutralization of Mother Tongue JNIT-IV Communication Practice-I Periods:15 List of Exercises List of E		Basics of Englis On completion	(Collilloll to Al	I Branches ex	cent CSBS)			
Course Outcomes CO2 Write the technical contents with grammatically precise sentences CO3 Articulate with correct pronunciation and overcome vernacular impact in speaking CO4 Express opinions confidently in formal and informal communicative contexts CO5 Attend interview with assertiveness INIT-I Workstead Communication Communication, Definition, Process, Channels, Barriers, Strategies for Effective Communication, Verbal donverbal Communication - Listening, Types, Barriers, Enhancing Listening Skills - Bibliography: Book, Journal internet References INIT-II Common Errors In Writing And Comprehension Strategies Periods:10 Subject Verb Agreement, Misplaced Modifiers, Squinting Modifiers, Dangling Modifier, Fused Sentence, Consplice, Sentence Fragment - Reading Comprehension: Technical passage, Strategies: Skimming, Scannetensive and Extensive Reading, Prediction, and Contextual Meaning INIT-III Phonetics Pronunciation Guidelines to consonants and vowels, Sounds Mispronounced, Silent and Non-silent Letenonation, Spelling Rules and Words often misspelled, Mother Tongue Influence (MTI), Various Techniques Neutralization of Mother Tongue INIT-IV Communication Practice-I List of Exercises Listening: Self-Introduction videos Speaking: Self-Introduction, Extempore, and Role Play		On completion	sh Language	_L Dianones ox	оорг 00-0	/			
Course Outcomes CO2 Write the technical contents with grammatically precise sentences CO3 Articulate with correct pronunciation and overcome vernacular impact in speaking CO4 Express opinions confidently in formal and informal communicative contexts CO5 Attend interview with assertiveness INIT-I Workstead Communication Communication, Definition, Process, Channels, Barriers, Strategies for Effective Communication, Verbal donverbal Communication - Listening, Types, Barriers, Enhancing Listening Skills - Bibliography: Book, Journal internet References INIT-II Common Errors In Writing And Comprehension Strategies Periods:10 Subject Verb Agreement, Misplaced Modifiers, Squinting Modifiers, Dangling Modifier, Fused Sentence, Consplice, Sentence Fragment - Reading Comprehension: Technical passage, Strategies: Skimming, Scannetensive and Extensive Reading, Prediction, and Contextual Meaning JNIT-III Phonetics Pronunciation Guidelines to consonants and vowels, Sounds Mispronounced, Silent and Non-silent Letentonation, Spelling Rules and Words often misspelled, Mother Tongue Influence (MTI), Various Techniques Neutralization of Mother Tongue JNIT-IV Communication Practice-I List of Exercises Listening: Self Introduction videos Sneaking: Self-Introduction, Extempore, and Role Play	`ourse	On completion	of the course the sti	udents will be a	ble to			BT Map	ping
Course Outcomes CO2 Write the technical contents with grammatically precise sentences CO3 Articulate with correct pronunciation and overcome vernacular impact in speaking CO4 Express opinions confidently in formal and informal communicative contexts CO5 Attend interview with assertiveness Workstead Communication Communication, Definition, Process, Channels, Barriers, Strategies for Effective Communication, Verbal donverbal Communication - Listening, Types, Barriers, Enhancing Listening Skills - Bibliography: Book, Journal internet References JNIT-II Common Errors In Writing And Comprehension Strategies Subject Verb Agreement, Misplaced Modifiers, Squinting Modifiers, Dangling Modifier, Fused Sentence, Consolice, Sentence Fragment - Reading Comprehension: Technical passage, Strategies: Skimming, Scansolice, Sentence Fragment - Reading Comprehension: Technical passage, Strategies: Skimming, Scansolintensive and Extensive Reading, Prediction, and Contextual Meaning JNIT-III Phonetics Pronunciation Guidelines to consonants and vowels, Sounds Mispronounced, Silent and Non-silent Letentonation, Spelling Rules and Words often misspelled, Mother Tongue Influence (MTI), Various Techniques Neutralization of Mother Tongue JNIT-IV Communication Practice-I List of Exercises Listening: Self-Introduction videos Speaking: Self-Introduction, Extempore, and Role Play	`ourse		i of the course, the st	additio will be a.				(Highest	Leve
Course Outcomes CO2 Write the technical contents with grammatically precise sentences CO3 Articulate with correct pronunciation and overcome vernacular impact in speaking CO4 Express opinions confidently in formal and informal communicative contexts CO5 Attend interview with assertiveness Workstead Communication Communication, Definition, Process, Channels, Barriers, Strategies for Effective Communication, Verbal Nonverbal Communication - Listening, Types, Barriers, Enhancing Listening Skills - Bibliography: Book, Journal Internet References JNIT-II Common Errors In Writing And Comprehension Strategies JNIT-II Common Errors In Writing And Comprehension Strategies Subject Verb Agreement, Misplaced Modifiers, Squinting Modifiers, Dangling Modifier, Fused Sentence, Consolice, Sentence Fragment - Reading Comprehension: Technical passage, Strategies: Skimming, Scanrence and Extensive Reading, Prediction, and Contextual Meaning JNIT-III Phonetics Pronunciation Guidelines to consonants and vowels, Sounds Mispronounced, Silent and Non-silent Let notonation, Spelling Rules and Words often misspelled, Mother Tongue Influence (MTI), Various Techniques Neutralization of Mother Tongue JNIT-IV Communication Practice-I List of Exercises Listening: Self-Introduction videos Speaking: Self-Introduction, Extempore, and Role Play	Ource	CO1 Understa	nd the communication f	flow in organizati	on and its o	bjectives		K2	
CO3 Articulate with correct pronunciation and overcome vernacular impact in speaking CO4 Express opinions confidently in formal and informal communicative contexts CO5 Attend interview with assertiveness JNIT- I Workstead Communication Communication, Definition, Process, Channels, Barriers, Strategies for Effective Communication, Verbal Nonverbal Communication - Listening, Types, Barriers, Enhancing Listening Skills - Bibliography: Book, Journal Internet References JNIT- II Common Errors In Writing And Comprehension Strategies Periods:10 Subject Verb Agreement, Misplaced Modifiers, Squinting Modifiers, Dangling Modifier, Fused Sentence, Consplice, Sentence Fragment - Reading Comprehension: Technical passage, Strategies: Skimming, Scannetsvive and Extensive Reading, Prediction, and Contextual Meaning JNIT- III Phonetics Pronunciation Guidelines to consonants and vowels, Sounds Mispronounced, Silent and Non-silent Let Intonation, Spelling Rules and Words often misspelled, Mother Tongue Influence (MTI), Various Techniques Neutralization of Mother Tongue UNIT- IV Communication Practice-I List of Exercises Listening: Self-Introduction videos Speaking: Self-Introduction, Extempore, and Role Play		1 1						K2	
CO4 Express opinions confidently in formal and informal communicative contexts CO5 Attend interview with assertiveness JNIT- I Workstead Communication Communication, Definition, Process, Channels, Barriers, Strategies for Effective Communication, Verbal Nonverbal Communication - Listening, Types, Barriers, Enhancing Listening Skills - Bibliography: Book, Journal Internet References JNIT- II Common Errors In Writing And Comprehension Strategies Periods:10 Subject Verb Agreement, Misplaced Modifiers, Squinting Modifiers, Dangling Modifier, Fused Sentence, Consplice, Sentence Fragment - Reading Comprehension: Technical passage, Strategies: Skimming, Scant Intensive and Extensive Reading, Prediction, and Contextual Meaning UNIT- III Phonetics Pronunciation Guidelines to consonants and vowels, Sounds Mispronounced, Silent and Non-silent Let Intonation, Spelling Rules and Words often misspelled, Mother Tongue Influence (MTI), Various Techniques Neutralization of Mother Tongue UNIT- IV Communication Practice-I List of Exercises Listening: Self Introduction videos Speaking: Self-Introduction, Extempore, and Role Play	Julcomes	CO3 Articulate	with correct pronuncia	tion and overcon	ne vernacul	ar impact in	speaking	КЗ	
CO5 Attend interview with assertiveness Workstead Communication Periods:10		CO4 Everess	oninions confidently in f	formal and inform	al commur	icative cont	exts	K2	1
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UNIT- IV Communication Practice-I List of Exercises Listening: Self Introduction videos Speaking: Self-Introduction, Extempore, and Role Play	eutralization	of Mother Tonque)	,					
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Reading: Non-Technical Comprehension Passage	istening: Sel	If Introduction vide	tempore, and Role Play						
Writing: Common Errors in Writing	eading: Non	-Technical Compr	enension Passage						
UNIT-V Interpersonal Communication-I Periods:15		Interpersonal	Communication-I	AMERICAN AND AND AND AND AND AND AND AND AND A	1-1	Periods:1	15		·····
List of Exercises	ist of Exerci								СО
Listening: Speech Sounds, Interview Videos		ses							
Speaking: Debate, Structured Group Discussion, and Conversation	istening: Sp	eech Sounds, Inte	erview Videos						
Reading: Commonly Confused Words	istening: Sp	eech Sounds, Inte	Group Discussion, and C	Conversation					
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https://www.hitbullseye.com/Reading-Comprehension-Tricks.php

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COs/POs/PSOs Mapping

COs			napp	<u> </u>	Prog	ram O	utcom	es (PO	s)					ram Spe omes (P	
COS	P01	PO2	PO3	PO4	PO5	P06	P07	PO8	PO9	PO10	P011	PO12	PSO1	PSO2	PSO3
1	1	-	-	-	-	-	-	-	-	3		1	-	-	
2	1		-	-	-	-	-	-	-	3	-	1	-	-	
3	1	-	-	-	-	-	-	-	-	3	-	1	ı	-	-
4	1	-	-	-	-	-	-	-	-	3	1 -	- 1	•	-	-
5	1	-	-	-	-	-	-	-	1	3	-	1	-	-	•

Correlation Level: 1 - Low, 2 - Medium, 3 - High

Evaluation Methods

			Th	eory	1 5 - 1 1	11
n	Conti	nuous Asse	ssment Mai	ks (CAM)	End Semester	
Assessment	CAT 1	CAT 2	Model Exam	Attendance	Examination (ESE) Marks	Total Marks
4 1 1 1 1	5	5	5	5	75	60
Marks	20)(to be weig	hted for 10 r	narks)	(to be weighted for 50 marks)	60

		Practical		
Continuous Assessment Evaluation	Internal	End Semester Int	ternal Evaluation	Total Marks
30(to be weighted for 10 marks)		30 m	arks	war in well her.
Listening (L)*	10	Listening (L)*	10	7 90 %
Speaking(S)	5	Speaking(S)	5	40
Reading(R)*	10	Reading(R)*	10	etin cumitic
Writing(W)*	5	Writing(W)*	5	1 1963

LRW components of Practical can be evaluated through Language Lab Software

V. m

Department	Com	puter Science and Engineering	Progran			T	F.	T.	I E		
Semester	1/11		Course	Catego	ry : ES	*End S	emester Ex				
Semester	<u> </u>		Perio	ds / We	eek	Credit	Maxi	mum Ma	arks		
Course Code	U23C5	SPC01	L	Т	Р	С	CAM	ESE	TM		
Course Name	PROG	RAMMING IN C LABORATORY	0	0	2	1	50	50	100		
	(Comn	non to All Branches)							<u> </u>		
Prerequisite	NIL							I RT M	apping		
	On co	ompletion of the course, the stude	nts will b	e able i	to				st Leve		
		CO1 Implement logical formulations to solve simple problems leading to specific									
Course		amplications		K3							
Outcomes	CO2	Execute C programs for simple app	lications r	naking ι	use of ba	asic constru	icts, arrays		N3		
		and strings. Experiment C programs involving fu	inctions r	ecursion	n pointe	rs. and stru	ctures.		K3		
	CO3	Experiment C programs involving to				es filo proc	esina	-	K3		
	CO4	Demonstrate applications using sec	quential ar	na rando	om acce	ss me proce					
	CO5	Build solutions for online coding cha	allenges.						K3		
		ist of Exercises Periods: 09									

Create a C program to find the Area of the triangle.

2. Develop a C program to read a three-digit number and produce output like

1 hundreds

7 tens

2 units

For an input of 172.

3. Write a C program to check whether a given character is vowel or not using Switch – Case statement.

4. Print the numbers from 1 to 10 along with their squares using C program.

5. Demonstrate do—While loop in C to find the sum of 'n' numbers.

6. Find the factorial of a given number using Functions in C.

7. Check whether a given string is palindrome or not?

8. Check whether a value is prime or not?

- 9. Develop a C program to swap two numbers using call by value and call by reference.
- 10. Construct a C program to find the smallest and largest element in an array.

11. Implement matrix multiplication using C program.

12. Create a C program to perform various string handling functions like strlen, strcpy, strcat, strcmp.

13. Develop a C program to remove all characters in a string except alphabets.

14. Create a C program to find the sum of an integer array using pointers.

15. Find the Maximum element in an integer array using pointers.

16. Construct a C program to display Employee details using Structures

17. Display the contents of a file on the monitor screen.

- 18. Create a File by getting the input from the keyboard and retrieve the contents of the file using file operation commands.
- 19. Write a C program to create two files with a set of values. Merge the two file contents to form a single file

20. Create a C program to pass the parameter using command line arguments.

			Total Periods: 30
Lecture Periods:	Tutorial Periods:	Practical Periods: 30	Total Periods. 30

Reference Books

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- 2. Anita Goel and Ajay Mittal, "Computer Fundamentals and programming in C", Pearson Education, First edition, 2011.
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- http://cad-lab.github.io/cadlab_data/files/1993_prog_in_c.pdf
- https://www.tenouk.com/clabworksheet/clabworksheet.html
- https://fresh2refresh.com/c-programming/
 - * TE Theory Exam, LE Lab Exam

COs/POs/PSOs Mapping

COs		Program Outcomes (POs)											Program Specific Outcomes (PSOs)		
	P01	PO2	PO3	PO4	PO5	PO6	P07	PO8	PO9	PO10	P011	PO12		PSO2	
1	2	1	- 1	-	3	-	-	-	_				2		. 000
2	2	1	_	-	3	_	_						3		3
3	3	2	1	1	3					-	-	-	3	-	3
			-		3			-	_	-	-	-	3	-	3
4	3	2	1	1	3	-	-	-	-	-	_		2		2
5	3	2	1	1	3	-	_	-		_			. 3		3

Correlation Level: 1 - Low, 2 - Medium, 3 - High

Evaluation Method

	Co	ntinuous A	Assess	ment Marks (CA	AM)			
Assessment	Performan cla	ce in pract asses	ical	Model		End Semester	Total	
	Conduction of practical			Practical Examination	Attendance	Examination (ESE) Marks	Marks	
Marks	15	5	5	15	10	50	100	

V. mari

Department	EEE	and ECE	Progran			1 1		T.	I E
Semester	1/11		Course	Catego	ry: ES	*End	Semester E		
Ocilicator	-		Perio	ds / We	eek	Credit	Maxii	num Ma	rks
Course Code	U23E	SPC01	L	Т	Р	С	CAM	ESE	TM
Course Name	ELEC	CS OF ELECTRICAL AND TRONICS ENGINEERING PRATORY	0	0	2	1	50	50	100
(Common to CSE	E, IT, ME	CH, CIVIL,CCE, AI&DS, FT, MCT	R, CSBS E	Branche	s)				
Prerequisite	Mather	natics and Physics						DTM	
	On co	empletion of the course, the stud	ents will b	e able	to			(Highes	apping st Leve
Course	CO1	Build the different wirings for dome	estic and co	mmerc	ial appli	cations.			(3
Outcomes	CO2	Design and analyze the domestic	power distr	ibution.				K	(3
		Estimate the performance of trans				ducting load	test.	P	(3
	CO4	Describe characteristics of sen applications	niconducto	r diode	e and	utilize it fo	or differen	t - r	< 5
		Relate the characteristics of variou	ıs transisto	r				r	<2
		Understand Rectifiers and Regular						ľ	<2

List of Experiments

PART - A **ELECTRICAL EXPERIMENTS**

Demonstration on Power Sources, Ammeters, Voltmeters, Wattmeter and Energy meter are Pre-requisite for conducting this Electrical Engineering Lab.

Electrical safety precautions and study of tools, accessories, electrical joints and electrical symbols.

- 2. Domestic Wiring Practice
 - Staircase wiring
 - Doctor's room wiring
 - Godown wiring
 - Wiring of Ceiling fan, LED lamps and Iron Box.
- 3. Design of Domestic power distribution.
- Measurement of 3-phase power using two wattmeter method.
- Load test on DC shunt motor.
- Load test on single phase transformer.
- 7. Load test on single phase Induction Motor.

PART - B **ELECTRONICS EXPERIMENTS**

- 1. Study of Electronic components and equipment: Resistor, Capacitor
- 2. Measurement of AC signal parameter (Peak-Peak, rms period, frequency) using CRO.
- 3. VI Characteristics of PN junction diode, Zener diode
- 4. Input and output characteristics of Common Emitter configuration of BJT
- 5. Characteristics of JFET
- 6. Measurement of Ripple factor of HWR, FWR
- 7. Voltage Regulator using Zener Diode.

1			
	Tutorial Dariada	Practical Periods: 30	Total Periods: 30
Lecture Periods:	Tutorial Periods:	riactical relieue. ee	

Reference Books

- 1. T.Jeyapoovan Nadar, "Engineering Practices Lab Manual", Vikas Publishing House Private Limited, New Delhi, 5th edition 2014.
- 2. A.Sudhakar and Shyam Mohan.S.P, "Circuits and Networks Analysis and Synthesis", Tata McGraw Hill Publishing Compan Ltd., New Delhi, 4th edition, 2017.
- 3. D.P.Kothari and I.J. Nagrath, "Electric Machines", Tata McGraw Hill, New Delhi, 5th Edition, 2017.
- 4. Edward Hughes, John Hiley, Keith Brown, Ian McKenzie Smith, Electrical and Electronics Technology, Pearson Educatio Limited, New Delhi, 10th edition 2010.
- 5. S.K. Sahdev, "Fundamentals of Electrical Engineering and Electronics", DhanpatRai and Co, 2017.

Web References

- 1. http://eie.sliet.ac.in/laboratories/basic-electrical-engineering-lab/
- 2. https://www.electronics-tutorials.ws/accircuits/series-circuit.html
- 3. https://www.allaboutcircuits.com/textbook/experiments/
- 4. https://www.electronicshub.org/measurements-of-ac-current/
- 5. http://www.electronics-tutorials.ws

COs/POs/PSOs Mapping

COs						ram O	utcom	es (PC	s)				Prog	ram Sp	ecific
	PO1	PO2	PO3	PO4	PO5	P06	P07	DOS	DOO	2010			Outc	omes (F	'SOs)
1	3	2	3			. 00	101	PU8	P09	PO10	PO11	PO12	PSO1	PSO ₂	
2	3	2	3		-		-	-	3	-	-	1	3	2	-
3	3	2			-	1		_	3	i profitic v. I	- 1 - 2	1	3	2	
	1.20	2	3	-	-	1	-	-	3	-	_	1	2		
4	3	2	3	-	_	1		_	2				3	2	-
5	3	2	3	-	_	1			3	-	-	1	3	2	an I
6	3	2	3			-		-	3	-	-	1	3	2	-
		_			-	7	-	No. 102	3	-	-	1	3	2	

Correlation Level: 1 - Low, 2 - Medium, 3 - High

	Co	ntinuous	Assess	ment Marks (C	AM)			
Assessment	Performan			Model		End Semester	Total	
-	Conduction of practical	Record work	viva	Practical Examination	Attendance	Examination (ESE) Marks	Marks	
Marks	15	F						
	10	<u> </u>	5	15	10	50	100	

^{*} TE – Theory Exam, LE – Lab Exam

Department	Mech	nanical Engineering	Progran	nme: B.	Tech.				
		Idillodi = I-g. I = I	Course	Catego	ry : ES	*End S	emester E		
Semester	1/11			ds / We	γ	Credit	Max	imum Ma	arks
Course Code	U23E	SPC03	L	T	Р	С	CAM	ESE	TM
Course Name		NEERING GRAPHICS USING CAD	0	0	2	1	50	50	100
		mon to All Branches)							
Prerequisite	-	4	Janta will b	o ablo	fo			BTM	lapping
	On co	ompletion of the course, the stu	dents will t	e abic	10				st Leve
	CO1	Familiarize with the fundamentals	and standa	rds of e	ngineer	ing graphics	3.		K2
Course Outcomes	CO2		rical constru	ictions a	and mult	iple views c	of objects.		K2
Outcomes	CO3	the seal page	ective section	ons of s	imple so	lids.			K3
	200 100 100	Connect side view associate on f		n - L					K4
	C04	Connect side view associate on i					-lida		V A

List of Experiments

1. Study of capabilities of software for Drafting and Modeling - Coordinate systems (absolute, relative, polar, etc.) - Creation of simple figures like polygon and general multi-line figures.

CO5 Correlate sectional views and lateral surface developments of various solids.

K4

- 2. Drawing a Title Block with necessary text and projection symbol.
- 3. Drawing 2D sketch by applying modify tools like fillet, mirror, array, etc.,
- 4. Drawing front view and top view of simple solids like prism, pyramid, cylinder, cone, etc., and Dimensioning.
- 5. Drawing front view, top view and side view of objects from the given pictorial views (eg. Simple stool, V-block, Mixie Base).
- 6. Drawing a plan of residential building (Two bed rooms, kitchen, hall, etc.)
- 7. Drawing sectional views of prism, pyramid, cylinder, cone, etc,
- 8. Drawing lateral surface development of prism, pyramid, cylinder, cone, etc,
- 9. Drawing isometric projection of simple objects.
- 10. Creating 3D model of simple object and obtaining 2D multi-view drawings.
- 11. Note: Plotting of drawings must be made for each exercise and attached to the records written by Students.

Lecture Periode: -	Tutorial Periods: -	Practical Periods: 30	Total Periods: 30
Lecture Periods: -			

Reference Books

- 1. James D. Bethune, Engineering Graphics with AutoCAD A Spectrum book 1st Edition, Macromedia Press, Pearson,
- 2. NS Parthasarathy and Vela Murali, Engineering Drawing, Oxford university press, 2015.
- 3. M.B Shah, Engineering Graphics, ITL Education Solutions Limited, Pearson Education Publication, 2011.
- 4. Bhatt N.D and Panchal V.M, Engineering Drawing: Plane and Solid Geometry, Charotar Publishing House, 2017.
- 5. Jeyapoovan T, Engineering Drawing and Graphics Using AutoCAD, Vikas Publishing House Pvt Ltd., 7th Edition, New Delhi, 2016.
- 6. C M Agrawal, Basant Agrawal, Engineering Graphics, McGraw Hill, 2012.
- 7. Dhananjay A. Jolhe, Engineering Drawing: With An Introduction To CAD McGraw Hill, 2016.
- 8. James Leach, AutoCAD 2017 Instructor, SDC Publications, 2016.

Web References

- http://vlabs.iitb.ac.in/vlabs-dev/labs/mit_bootcamp/egraphics_lab/labs/index.php
- 2. http://www.nptelvideos.in/2012/12/computer-aided-design.html
- 3. https://mech.iitm.ac.in/meiitm/course/cad-in-manufacturing/
- 4. https://autocadtutorials.com
- https://dwgmodels.com

^{*} TE – Theory Exam, LE – Lab Exam

COs/POs/PSOs Mapping

					Program Outcomes (POs)									Program Specific Outcomes (PSOs)		
COs	P01	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	
1	3	1	-	-	3	-	-	=	3	-	-	2	3	3	3	
2	3	1		_	3	_	_	-	3	-	-	3	3	3	3	
		1			3	_	_		3	-	-	3	3	3	3	
3	3	1	-						3			2	3	3	3	
4	3	1		-	3	-				1 1 5			2	3	3	
5	3	1	-	-	3	-	-	-	3	-	1 - 0.0	3	3	3		

Correlation Level: 1 - Low, 2 - Medium, 3 - High

Evaluation Method

	Cor	ntinuous A	ssessı	nent Marks (CA	M)		(m)	
Assessment	Performano cla	ce in pract isses	ical	Model	1 -e-1 v	End Semester Examination	Total Marks	
Assessment	Conduction of practical	Record work	viva	Practical Examination	Attendance	(ESE) Marks	- rwsi5 - rae 5 - rae 5	
Marks	15	- 5	5	15	10	50	100	

V. m.

Department		outer and Communication neering	Program	ille. D.	i ecii.	25.			
Semester	Liigii	ICCITIIY	Course 0	Catego	ry: MC	End		r Exam T	
Semester			Perio	ds / We	eek	Credit	Ma	ximum Ma	ırks
Course Code	U23C	CM101	L	Т	Р	С	CAM	ES E	TM
Course Name	INDU	CTION PROGRAMME	-	-	-	Non-Credit	-	-	-
Prerequisite	-								
•	The c	ourse will enable the student to						BT Ma (Highes	t Leve
Course	CO1	Develop holistic attitude and ha						K	
Outcomes	CO2	Acquire grammar skills and cap					ently		2
	CO3	Understand the basic concepts	in Mathema	atics ar	nd Prog	ramming		K	2
	CO4	Know about the art and culture,	language a	nd lite	rature o	of this vast sec	cular	K	2
		nation					7-11-55	l V	3
2	CO5	Identify the inherent talent and dersal Human Values	develop it p	rofessi	onally	Periods: 12	•	<u> </u>	3
Career, Expec	tations	tions - Getting to know each other of Family, Peers, Society, Na sure, Time Management, Ange	ation, Fixin r Stress P	g one	ality De	evelopment. S	Self-impro	vement,	co
towards Parent	ts, Teac	Healthy diet, Healthy lifestyle, hers and others Ragging and int in Society, Natural Environment spective, Self-evaluation and Closes	eraction, C - Participat	ion in	Nature,	, Sum Up - R	1, 1 001 1	1000010	
UNIT-II	Drofi	ciency in English				Periods: 1	2		1
Communication	hrases	 Prognostic test on Grammar One-word Substitution, Homoph Paragraph writing, Letter writing, 	iones, Hon	ionymi	s, Use	or Liebosition	tence Co ns, Subje	ect-verb	со
UNIT-III	Bride	ge course in Mathematics and (C Programi	ning		Periods: 1	2		т
Mathematics: Fundamentals	of differ	ential and integral calculus: Theo	ory and Pra	otico I			ndament	al regults	
Differentiation functions - Lo Differentiation Method of inte Simple definite curve - surface C Programmi	ogarithm of impli- gration e integra e area o ng:	ques - Derivatives of elementary ic differentiation - Method of so- cit functions - Higher order derivation (Decomposition method, method als - Properties of Definite integral f a solid.	rentiation - y functions substitution atives. Integ of substitut rals - Redu	from from Diff rals of on, int	ept or of first pri or	nciple - Derivition of paranons containing n by parts) - e - Area and vertors - Data to	vatives of netric funding linear fun	f inverse nctions - inctions - integrals. Length of	CO
Differentiation functions - Lo Differentiation Method of inte Simple definite curve - surface C Programmi Features of C input and outp programs.	ogarithm of impli gration e integra e area of ng: and its out state	ques - Derivatives of elementary ic differentiation - Method of society cit functions - Higher order derivation (Decomposition method, method als - Properties of Definite integral f a solid. basic Structure - Keywords - con ments - Control and Looping sta	rentiation - y functions substitution atives. Integ of substitut rals - Redu	from from Diff rals of on, int	ept or of first pri or	nciple - Derivition of paranons containing n by parts) - e - Area and vertors - Data to	vatives of netric full linear full Definite volume - I suppose - Full writing	f inverse nctions - inctions - integrals. Length of	CO
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Differentiation functions - Lo Differentiation Method of inte Simple definite curve - surface C Programmi Features of C input and outp programs. UNIT-IV Team building	ogarithm of impli gration e integra e area o ng: and its out state Liter activitie	ques - Derivatives of elementary ic differentiation - Method of society functions - Higher order derivation (Decomposition method, method als - Properties of Definite integrals for a solid. basic Structure - Keywords - confirments - Control and Looping states for a solid - Quiz - Oral Exercises - Group	rentiation - y functions substitution atives. Integ of substitut rals - Redu stants - vai attement - A	from formal from f	ept of confirst price of the confirst price	nciple - Derivation of paramons containing by parts) - e - Area and vertices - Data tons - Strings - Periods: 1 tempore, Role	vatives onetric full linear full Definite folume - I vypes - Fywriting	f inverse nctions - integrals. Length of ormatted simple C	CO
Differentiation functions - Lo Differentiation Method of inte Simple definite curve - surface C Programmi Features of C input and outpprograms. UNIT-IV Team building	ogarithm of impli gration e integra e area or ng: and its out state Liter activitie	ques - Derivatives of elementary ic differentiation - Method of society functions - Higher order derivation (Decomposition method, method als - Properties of Definite integral f a solid. basic Structure - Keywords - confirments - Control and Looping state for a ctivities for a cuiz - Oral Exercises - Group	rentiation - y functions substitution atives. Integ of substitut rals - Redu stants - val atement - A	from from from from from from from from	ept of clark first price first	nciple - Derivition of paramons containing by parts) - e - Area and vertices - Data trons - Strings - Periods: 1 tempore, Role Periods: 1	vatives of netric fur plinear fur plinear fur polume - I vypes - Fir writing	f inverse nctions - inctions - integrals. Length of simple C	CO
Differentiation functions - Lo Differentiation Method of inte Simple definite curve - surface C Programmi Features of C input and outporgrams. UNIT-IV Team building UNIT-V Introduction to	ogarithm of impli gration e integra e area of ng: and its but state Liter activitie Crea	ques - Derivatives of elementary ic differentiation - Method of society functions - Higher order derivation (Decomposition method, method als - Properties of Definite integrals for a solid. basic Structure - Keywords - confirments - Control and Looping states for a solid - Quiz - Oral Exercises - Group	rentiation - y functions substitution atives. Integ of substitut rals - Redu stants - val atement - A	from from from from from from from from	ept of clark first price first	nciple - Derivition of paramons containing by parts) - e - Area and vertices - Data trons - Strings - Periods: 1 tempore, Role Periods: 1	vatives of netric fur plinear fur plinear fur polume - I vypes - Fir writing	f inverse nctions - inctions - integrals. Length of simple C	CO

Department	Computer and Communication Engineering	Progran	nme: B.	Tech.				
Semester		Course	Categor	y : AEC	*End	d Semeste	er Exam T	уре:
Course Code	U23CCC1XX	Perio	ds/Wee	k	Credit	Maximum Marks		
Course Name	CERTIFICATION COURSE- I	L	<u> </u>	P	С	CAM	ESE	TM
		n to all Brar	- nches)	-	=		-	1-

Students shall choose an International certification course offered by the reputed organizations like Google, Microsoft, IBM, Texas Instruments, Bentley, Autodesk, Eplan and CISCO, etc. The duration of the course is 40-50 hours specified in the curriculum, which will be offered through Centre of Excellence.

Pass /Fail will be determined on the basis of participation, attendance, performance and completion of the course. If a candidate Fails, he/she has to repeat the course in the subsequent years. Pass in this course is mandatory for the award of degree.

Evaluation Method

Assessment	Continuous Marks	Assessment (CAM)	Total Marks
	Attendance	MCQ Test	
Marks	10	90	100

V. m.

Department	Math	ematics	Programs	~ . D T	' I				
Semester	II		Programr Course C						***************************************
					:85	*End S	Semester	Exam Typ	e:
Course Code	U23N	MATC02		s/Week		Credit	Ma	ximum Ma	rks
Course Name	ENGI	NEERING MATHEMATICS - II	<u>L</u> 3	T 1	P -	C 4	25	ESE	7
(Commor	ı to <u>AL</u>	Branches Except CSBS,FT)		1		T	25	75	10
Prerequisite	Basic	Mathematics	<u></u>	<u> </u>	<u>l</u>				<u> </u>
		ompletion of the course, the stud		e able to	0			BT Ma	ppir
Course Outcomes	CO1	Convert a periodic function into s	series form.					(Highes	
Outcomes	CO2	Compute Fourier transforms of v	arious funct	ions					
ľ	CO3	Solve Differential Equations using	a Lanlace tr	onoform				K	
	CO4	Apply inverse Laplace transform	of simple fu	notiona	15.			K	3
ľ	CO5	Solve difference equations using 2	or simple tu	nctions.				K	3
UNIT – I	FOUR	IER SFRIFS						K	3
Dirichlet's co	ndition	s - General Fourier series - Odd	and Even for	t:		Periods:12			
	tervals	- Parseval's Identity.	and Even lu	inctions	– Half-	Range sine	and cosir	ne series -	CC
UNIT – II	FOUR	ER TRANSFORMS			1	Periods:12			<u> </u>
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Tronsf		and to involve - Lipherries of Lo	uner franst		mour n	MODEL - FOLIE	lor cine c		00
	***************************************	and its inverse – Properties of For properties (excluding proof).	uner Transf	OIII (WII	inout p	1001) – Four	ier sine a	and cosine	CO
JNIT – III	LAPLA	CE TRANSFORMS			<u> </u>				
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JNIT – III Laplace transtransforms of JNIT – IV Definition of irsecond order volume and in the second se	forms of derivate the derivate	ACE TRANSFORMS of elementary functions and Perioditives and integrals – Initial and final SE LAPLACE TRANSFORMS Laplace Transforms – Convolution instant coefficients. ANSFORMS as – Elementary Properties – Inveder difference equations. Tutorial Periods:15 Feering Mathematics." Teta Macana	ic functions value theorem (earlier zero) rse Z-transi	- Basic rems. excluding forms (u	proper Fg proof Pasing pa	Periods:12 ties (excluding Periods:12) - Solutions Periods:12 artial fraction	ng proof) s of Linea n and Re	- Laplace ar ODE of sidues) -	CO
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	FillyS	ics and Chemistry	Prograr	nme: B .	Tech.				
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	CO2	Identify the wave nature of the part	ticles, ph	ysical si	gnifican	ce of wave t	functions	K	3
Course	CO3	Understand the basic principles of	laser and	d fiber o	ptics cor	nmunication	1	K	2
Course Outcome	CO4	Understand and familiar with the w	ater trea	tment.				K	2 .
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4. https://swayam.gov.in/nd1_noc20_ma17/preview

5. https://nptel.ac.in/courses/111/103/111103021/

*TE – Theory Exam, LE – Lab Exam

COs/POs/PSOs Mapping

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Correlation Level: 1 - Low, 2 - Medium, 3 - High

		Continuo	ous Asses	ssment Marks (C	CAM)	End Semester	Total
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^{*} Application oriented / Problem solving / Design / Analytical in content beyond the syllabus



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Course	CO2	Demor	nstrate stack, queue and its ope	ration.		<u>-</u>			K	3
Outcomes	CO3	Illustra	ate the various operations of link	ced list.		•			K	
			e concepts of tree for various a		ns.				K	
			the various Tables, Graphs an			ues			K	
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Shell Sort. Perfo	rmance	e and C	rch Techniques. Sorting: Bubb omparison among the sorting n	nethods	- Seled	ction Sc	π – Insertio	n Sort – H	ieap Sort -	
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UNIT-III	Linke	d List	Operations			<u> </u>	Periods: 0	9		<u> </u>
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UNIT-V	Graph	ns, Tab	les and Sets	***************************************	***************************************		Periods: 0	9		L
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Publishing Co	ompany	y, 1995		***************************************	<u> </u>					,

Computer Science and Engineering Programme: B.Tech.

Department

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BookZZ.org%29.pdf

COs/POs/PSOs Mapping

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orrelation Level: 1 - Low, 2 - Medium, 3 – High

ak vertical		Continuo	ous Asse	ssment Marks (CAM)	End Semester	Total
Assessment	CAT 1	CAT 2	Model Exam	Assignment*	Attendance	Examination (ESE) Marks	Marks
Marks		10	5	5	5	75	100

^{*} Application oriented / Problem solving / Design / Analytical in content beyond the syllabus

Department	Artificial Intelligence and Data Science	Progra	mme: I	B.Tech.				
Semester		Course	Categ	gory: ES	1	End Sem	ester Exam	Type:
		Peri	ods / V	Veek	Cred	it	Maximum M	arks
Course Code	U23ADTC01	Like	Τ	, P	C	CAM		TM
Course Name	PROGRAMMING IN PYTHON	3	-		3	25	75	100
(Common to al	l branches)							
Prerequisite	Nil						I DE A	1
	On completion of the course, the stud	lents will be	able	to			(Highe	Mapping est Level)
	CO1 Interpret the basic concepts of Pyt	hon progran	ns					K2
Course	CO2 Articulate the concepts of Sets, Did	ctionaries ar	nd Obj	ect-Orie	nted con	cepts		K2
Outcomes	CO3 Experiment with Numpy package					LC: L	" regard	K3
	CO4 Apply and analyze Data Manipulat	ion with Par	ndas.	:				K3
	CO5 Illustrate programming concept for			Matplot	lib			K3
	Introduction to Python	Visualizatio	711 441411	Macpio	Periods	s: 09		
UNIT-I	Python Program – Underlying mechanism	of Module E	xecut	ion – Bı			ing - Probl	em CO1
Structure of P Solving Using Lists and Func	Branches and Loops – Functions – Lambd tions.	a Functions	– List	s and ivi	utability -	- Flobieiii	Solving Us	ing
UNIT-II	Sequence Datatypes and Object Orier	nted Progra	mmin	g	Periods			
Sequences – N – Introduction	Mapping and Sets – Dictionaries. Classes: to Regular Expressions using "re" module.	Classes and	d Insta	nces –	Inheritan	ce – Exce	eption Hand	ing CO2
UNIT-III	Using Numpy	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,			Period			
Decise of Num	nPy – Computation on NumPy – Aggregations – Fancy Indexing – Sorting Arrays – Structure	ons – Comp ctured Data:	utatior NumP	n on Arr 'y's Stru	ays – Co ctured Ar	mparison ray.	s – Masks a	cO3
LINIT IV	Data Manipulation with Pandas				Period	s: 09		
Introduction to	Pandas Objects – Data indexing and Sel chical Indexing – Combining Data Sets. Ag Norking with Time Series – High Performan	agregation a	ina Gr	ouping -	- PIVOL I	ndas – Ha ables –Ve	andling Miss ectorized St	ring CO4
LIMIT V	Vigualization with Matplotlib				Period			
Pacie function	s of Matplotlib – Simple Line Plot – Scatter Customizing Plot Legends – Colour Bars –	r Plot – Den Three-Dime	sity an	d Conto al Plottin	our Plots ig in Matr	– Histogra olotlib.	ams – Binni	ngs CO5
Lecture Perio				riods:			eriods: 45	
Toyt Books								
1 Joke Vanc	derPlas, "Python Data Science Handbook -	Essential To	ols for	r Workin	g with Da	ata", O'Re	ily Media In	c, 2016.
2 Zhang Y '	"An Introduction to Python and Computer P	rogramming	", Spri	nger Pu	blications	, 2016.		
3. Wesley J	Chun, "Core Python Programming", Pearso	n Education	, 2nd I	Edition, :	2006.			
Poforonco Bo	oke							
1. John Paul	Mueller, Luca Massaron, "Python for Data	Science for	Dumm	ies", 2"	^a Edition,	John Wile	ey& Sons, 2	019.
	LO La de Monte Colones and Analytics Will	th Distinct (.R(. P	ress la	vior and r	rancis Gi	UUD, 2017.	
3. Brian Drap	per, "Python Programming A Complete G	iulde for Be Dublishing F	ginner	s to Ma n 2016	aster and	Decome	arr Export	
Programm	ing Language", CreateSpace Independent Laura Lewin, Frank Willison, "Programmin	a Python". C)'Reilly	Media.	3 rd Editio	n, 2006.		
4. Wark Luiz.	nkar S, Veena A, "Introduction to Python Pro	ogramming"	, CRC	Press, 2	2018			
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- https://www.geeksforgeeks.org/data-structures/
 https://www.javatpoint.com/data-structure-tutorial/
 https://www.studytonight.com/data-structures/
 https://www.tutorialspoint.com/data_structures_algorithms/
 https://www.w3schools.in/data-structures-tutorial/intro/

COs/POs/PSOs Mapping

COs	24		- 5 g *			ram O							Outco	ram Spo omes (F	SOs)
H* e	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
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2	3	2	1	1	-	-	-	-	-	-	-	_	3	2	3
3	3	2	1	1	-	>		- ,	-	-	-	-	3	2	3
4	3	2	1	1	•	-	-	-	-	•	-		3	2	3
5	3	2	1	1	-	-	-	-	-	-	-	-	3	2	3

Correlation Level: 1-Low, 2-Medium, 3- High

		Continu	ous Asse	ssment Marks (0	CAM)	End Semester	Tatal
Assessment	CAT 1	CAT 2	Model Exam	Assignment*	Attendance	Examination (ESE) Marks	Total Marks
Marks	1	0	5	5	5	75	100

^{*} Application oriented / Problem solving / Design / Analytical in content beyond the syllabus



Department	Computer and Communication Engineering	Progra	mme: I	B. I ecn.					
Semester	II .	Cours	e Categ	gory: PC	•	*End \$		er Exam	
		Per	iods / V	Veek	Cred	dit	Max	imum M	arks
Course Code	U23CCT201	L	Т	Р	С		CAM	ESE	TM
Course Name	DIGITAL ELECTRONICS	3	-		3	<u> </u>	25	75	100
Prerequisite	Nil							DEM	I
	On completion of the course, the stude							(Highe	lapping st Level
2	CO1 Interpret fundamental concepts of di	gital elect	ronics	like num	bering s	system	and		K3
	numbering system conversion				l'C' 1	·	la sia al		K3
Course Outcomes	CO2 Use Boolean theorems, k-maps and	tabulatio	n metho	od for si	mpiiricat	ion of	logical		7.3
Julcomes	expression CO3 Implement various combinational cir	cuits usin	g logic	gates					K3
	CO4 Illustrate design procedures for sync		***************************************		uits				K3
	CO5 Design combinational circuits using							i zalewi	K3
	<u> </u>	programm	Table IC	gic dev	Period	ls: 09			
UNIT-I	Introduction Digital Electronics- Number Systems – De	cimal Bir	ary O	ctal He			mbering	Systems	s- CO'
Conversion of Magnitude,1's a B, Gray, Alphan	nd 2's complements, 1's and 2's Compleme umeric codes	ent Arithm	etic-Int	roductic	n Codes	- Bin	ary, BC	D, Exces	s
Simplification of	Boolean Algebra and Simplification Tecic gates- universal gates-Introduction to Boolean expression- , Sum of products a	oolean Al nd produ	lgebra-l ct of su	ıms, ivii	nterms a	ns-De	morgan' axterms	s theore , Karnau	m, CO:
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Web References

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- https://www.electronics-tutorials.ws/logic/logic_1.html
- https://nptel.ac.in/courses/117/103/117103064/
- http://www.asic-world.com/digital/tutorial.html
- https://www.geeksforgeeks.org/digital-electronics-logic-design-tutorials/

COs/POs/PSOs Mapping

COs							utcon						0.4-	ram Sp omes (F	
	P01	PO2	PO3	PO4	PO5	P06	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
1	3	2	3	1	-	1	1	-	1	1	1	1	1	7	. 555
2	3	2	3	2	٠_	1	1	_	1	1	1	1		-	-
3	3	2	3	2	_	1	1		1	4			1	0.7	-
4	3	2	3	2		1	-		-		7	1	1	-	
					-	1	1	-	1	1	1	1	1	-	_
5	3	2	3	3	2	1	1	-	1	1	1	1	1		

Correlation Level: 1-Low, 2-Medium, 3- High

general former in		Continu	ous Asse	ssment Marks (C	CAM)	End Semester	03.4200.14
Assessment	CAT 1	CAT 2	Model Exam	Assignment*	Attendance	Examination (ESE) Marks	Total Marks
Marks	1	0	5	E		(LSE) Warks	2177 (713)
				5	5	75	100

^{*} Application oriented / Problem solving / Design / Analytical in content beyond the syllabus



Department	English	Progran	nme: B	.Tech.			1	777-1	
Semester	II .	Course	Catego	ory : HS		End Sem	ester	Exam Ty	pe: TE
Course Code	U23ENBC02	Perio	ds/We	ek	Cred	dit	Maxi	mum Ma	rks
Course Couc	OZOLINBOOZ	L	Т	Р	С	CAI	M	ESE	TM
Course Name	Communicative English - II	2	-	2	3	50		50	100
(Common to A	LL Branches except CSBS)		-A					····	k
Prerequisite	Basics of English Language			······································					
	On completion of the course, the stude	ents will be	able t	to		(CALLOCAL CONTROL OF C		BT Ma (Highes	
0	CO1 Draft effective written communication	n in profes	sional	environ	nent			K	
Course Outcomes	CO2 Apply the mechanics of creative wri					***************************************		K	
Outcomes	CO3 Acquire language skills professio sensitizing various etiquettes in real	nally to g	room t			onality th	rough	1	
	CO4 Develop language fluency and gain							К	3
	CO5 Express thoughts and ideas with cla							K	
UNIT-I	Business Correspondence				Period	s:10		<u> </u>	
and Demi Officia In plant Training	g: Circular, Agenda, Memoranda, Notice, I al Letters : Applying for Educational / Car / I g, Letter to the Editor, Calling for a quota	Home Loar	ns / Joi	ning Re	port, Lea	ve Letter,	Indu	strial Visit	t, CO1
	sume', Job Application Letter, Bio-data, CV								
UNIT-II	Functional Writing Skills				Periods		9	A STATE OF	
	Vriting, Sentence Structure, Art of condense ntence, Principles of paragraph writing, Tec			_		_		phrase	CO2
UNIT-III	Etiquettes				Periods	s·10		-	
	ng, Kinds: Corporate Etiquette, Meeting Etic	ruette Tele	enhone	Ftiquet			Soc	ial Media	CO3
	Etiquette, Communication Etiquette	quotto, ron	эртопо	Luquoi	. Linai	Luquotto	, 000	iai Modia	
UNIT-IV	Communication Practice-II				Periods	s:15			
List of Exercise	S	***************************************				_			CO4
Reading: Variet	er writing tips a Minute, Impromptu Speech, Contemporar by of examples for Modes of Writing on types of letters	y Issues							
JNIT-V	Interpersonal Communication-II				Periods	s:15			
List of Exercise		***************************************							005
Speaking: Team Reading: Phras	os on different types of Etiquettes n Presentation, Negotiation Skills ses and Clauses iting on any given topic, Paraphrasing Prac	tice							COS
_ecturePeriods		Practica	l Perio	ds:30	······································	Total Pe	eriod	s:60	
Text Books	A								
2. Kumar, Sanja	tter Writing including Official and Business I ay, Pushpalatha," Communication Skills". C enakshi&Sangeetha Sharma," Communicati	xford Univ	ersity P	ress, 20	018.	, 2020.			

Reference Books

- Sahukar, Nimeran, Bhalla, Prem,, "The book of Etiquettes and Manners". Pustak Mahal Publisher, New Delhi; 1st Edition 2009.
- 2. Gerson Sharon J, Steven M. Gerson, "Technical Writing Process and Product", Pearson Education Pvt. Ltd. 3rd Edition, 2009.
- 3. Grussendorf, Marion, "English for Presentations". Oxford University Press, Oxford, 2007.
- Seely John, "The Oxford Guide to Writing and Speaking", Oxford University Press, 2006.
 R.C. Sharma, Krishna Mohan, "Business Correspondence and Report Writing", Tata Mo
- R.C. Sharma, Krishna Mohan, "Business Correspondence and Report Writing", Tata McGraw Hill &Co.Ltd., New Delhi,

2001.

Web References

- 1. https://www.indeed.com/career-advice/finding-a-job/how-to-write-an-application-letter
- 2. https://owlcation.com/humanities/Four-Types-of-Writing
- 3. https://targetstudy.com/languages/english/paragraph-writing.html
- 4. https://www.businessnewsdaily.com/8262-email-etiquette-tips.html
- 5. https://www.youtube.com/watch?v=UOceysteljo

Os/POs/PSOs Mapping

COs		Program Outcomes (POs) 01 PO2 PO3 PO4 PO5 PO6 PO7 PO8 PO9 PO10 PO11 PO												Program Specific Outcomes (PSOs)			
	PO1	P02	PO3	P04	PO5	P06	P07	PO8	PO9	PO10	PO11	PO12	PSO1				
1	1	-	-	-	-	-	-	-		3	V=0	1	7.5	-			
2	1	-	=	-	-	-	-	-	-	3		1	_				
3	1	-	-	-	-	-	-	-	-	3	-	1	_	_			
4	1		-	-	-	-	-	-		3	- 1	1	1 151				
5	1	-	-	-	-	-	= 1	_	- 1 1	3	_	1	_		V PESON		

Correlation Level: 1 - Low, 2 - Medium, 3 - High

Evaluation Methods

30750		English Con-		eory	- Car - A	the state of
	Conti	nuous Asse	essment Mai	rks (CAM)		
Assessment	CAT 1	CAT 2	Model Exam	Attendance	End Semester Examination (ESE) Marks	Total Marks
Marks –	5	5	5	5	75	
IVICINO	20	(to be weig	hted for 10 m	narks)	(to be weighted for 50 marks)	60

		Practical	January of Manager	1 1
Continuous Assessme Evaluation	ent Internal	End Semester Ir	ternal Evaluation	Total Marks
30(to be weighte	ed for 10 marks)	30 n	narks	T
Listening (L)*	10	Listening (L)*	10	
Speaking(S)	5	Speaking(S)	5	40
Reading(R)*	10	Reading(R)*	10	-
Writing(W)*	5	Writing(W)*	5	

LRW components of Practical can be evaluated through Language Lab Software

V.hm

Department	E 000	cial Intelligence and Data	Progran	nme: B.	Tech.			Ť	
	Scien	1CE	Course	Catego	rv. FS	*End S	emester E	xam Type	: LE
Semester	11/111			ods / We		Credit		imum Ma	
			Penc	T T	P	C	CAM	ESE	TM
Course Code		DPC01	L	<u> </u>	 		50	50	100
Course Name	PROG	RAMMING IN PYTHON RATORY	0	0	2	1	30	30	
(Common to A									
Prerequisite	Mil	The state of the s		Ll-	4			BTM	apping
	On co	ompletion of the course, the stu	idents will b	e abie	ιο				st Level
		Describe common Python function	nality and fe	atures	used for	data scienc	ce.	r	<2
Course	CO1	Describe common Fymon function	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	d proce	ccina			,	⟨2
Outcomes				u proce					₹3
	CO3	Configure your programming env	/ironment.						
		Experiment the concept using da		ion.					K3
	1	Analyze real time datasets.							K3
	CO5	Analyze real time datasets.							

List of Experiments:

Build a python program to implement Fibonacci series.

- Build a python program to get a range of numbers from user and to separate even numbers and odd numbers
- 3. Build a function in Python to check duplicate letters. It must accept a string, i.e., a sentence. The function should return True if the sentence has any word with duplicate letters, else return False.

4. Build a program to perform arithmetic operations using lambda function.

5. Build a Python program that takes a list of numbers as input and returns a new list containing only the even numbers from the input list.

6. Build a python program to create a class called Car with attributes Company, model, and year. Implement a

- method that returns the age of the car in years. 7. Build a python program to create a base class called Shape that has a method called area which returns the area of the shape (set it to 0 for now). Then, create two derived classes Rectangle and Circle that inherit from the Shape class to calculate the area of derived classes.
- 8. Build a python program to implement aggregation using Numpy
- 9. Build a python program to perform Indexing and Sorting.
- 10. Build a python program to perform Handling of missing data.
- 11. Build a python program to perform usage of Pivot table using Titanic datasets
- 12. Build a python program to perform use of eval() and query()
- 13. Build a python program to perform Scatter Plot
- 14. Build a python program to perform 3D plotting

15. 15. Implement an application to process a real time data. Total Periods: 30 Practical Periods: 30 Tutorial Periods: -Lecture Periods: -

Reference Books

- 1. Chirag Shah, "A Hands-On Introduction to Data Science", Cambridge University Press, 2020.
- 2. Siddhartha Chatterjee, Michal Krystyanczuk, "Python Social Media Analytics", Packt Publishing, 2017.
- 3. Jake VanderPlas, "Python Data Science Handbook Essential Tools for Working with Data", O'Reily Media Inc, 2016.
- 4. Zhang.Y, "An Introduction to Python and Computer Programming", Springer Publications, 2016.
- 5. Wesley J Chun, "Core Python Programming", Pearson Education, 2nd Edition, 2006.

Web References

- 1. https://nptel.ac.in/courses/106/106/106106212/
- 2. https://www.geeksforgeeks.org/data-analysis-visualization-python/
- 3. https://www.coursera.org/learn/python-data-analysis
- 4. https://www.python.org/
- 5. https://www.programiz.com/python-programming

V. m

COs/POs/PSOs Mapping

COs		Program Outcomes (POs) PO2 PO3 PO4 PO5 PO6 PO7 PO8 PO9 PO10 PO11 PO12 PO14 PO15 PO15										a a	Program Specific Outcomes (PSOs)				
-	P01	PO2	PO3	PO4	PO5	P06	P07	PO8	PO9	PO10	PO11	PO12	PS01	PSO2	PSO3		
1	2	2	2	1	3	11 2	1. - 161	-	-	-	-	-	2	2	2		
2	2	3	2	2	3	-	-	-	_	-	-	-	2	3	2		
3	3	3	3	2	3	-	-	-	-	-	-	-	3	3	3		
4	3	3	3	3	3	-	-		=	-		-	3	3	3		
5	3	3	3	3	3	-	-	-	-	-	_	-	3	3	3		

Correlation Level: 1 - Low, 2 - Medium, 3 - High

	Co	ntinuous A	Assess	ment Marks (CA	AM)	S18 1 11	
Assessment	Performan cla	ce in pract asses	ical	Model		End Semester	Total
	Conduction of practical	Record work	viva	Practical Examination	Attendance	Examination (ESE) Marks	Marks
Marks	15	5	5	15	10	50	100



Department	Com	puter Science and Engineering	Progran	nme: B.	Tech	13-13			
Semester	11/111		Course	Catego	ry: ES	*End S	Semester I	Exam Type	e: LE
			Perio	ds / We	eek	Credit	Maxi	mum Mark	(S
Course Code	U23C	SPC02	L	Т	Р	С	CAM	ESE	TM
Course Name	DATA	STRUCTURES LABORATORY	0	0	2	1	50	50	100
(Common to all	Branc	hes)	1						
Prerequisite	Basic	Programming Knowledge							
	On c	ompletion of the course, the stude	nts will b	e able t	to				apping st Level)
Course Outcomes	CO1	Analyze the algorithm's / program's complexity.	efficiency	in term	ns of tim	e and spac	е		(3
	CO2	Solve the given problem by identifying	ng the app	oropriate	e Data S	Structure.		P	(3
	CO3	Solve the problems of searching and	sorting t	echniqu	ies.			h., 46, 8	(3
	CO4	Solve problems in linear Data Struct	ures.					P	(4
	CO5	Solve problems in non-linear Data S	tructures.					ľ	(4
List of Experi					17 . 7 . 7				

1. Write a C program to implement recursive and non-recursive i) Linear search ii) Binary Search.

2. Write a C program to implement i) Bubble sort ii) Selection sort iii) Insertion sort iv) Shell sort v) Heap sort.

3. Write a C program to implement the following using an array. a) Stack ADT b) Queue ADT

4. Write a C program to implement list ADT to perform following operations a) Insert an element into a list. a) Delete an element from list b) Search for a key element in list c) count number of nodes in list.

5. Write a C program to implement the following using a singly linked list. a) Stack ADT b) Queue ADT.

6. Write a C program to implement the dequeue (double ended queue) ADT using a doubly linked list and an array.

7. Write a C program to perform the following operations:

- a) Insert an element into a binary search tree.
- b) Delete an element from a binary search tree.

c) Search for a key element in a binary search tree.

8. Write a C program that use recursive functions to traverse the given binary tree in

a) Preorder b) Inorder c) Postorder.

- 9. Write a C program to perform the AVL tree operations.
- 10. Write a C program to implement Graph Traversal Techniques.
- 11. Write a C program to implement the Set operations.

a) Union b) Intersection c) Difference.

Total Periods: 30 Practical Periods: 30 Tutorial Periods: -Lecture Periods: -

Reference Books

- Yashavant Kanetkar, "Data Structures through C", BPB Publications, 3rd Edition, 2019.
 Tenebaum Aaron M, "Data Structures using C', Pearson Publisher, 1st Edition, 2019.
- 3. Manjunath Aradhya M and Srinivas Subramiam, "C Programming and Data Structures", Cengage India 1st Edition, 2017.
- 4. Reema Thareja, "Data structures using C", Oxford University, 2nd Edition, 2014.
- 5. Gav.pai, "Data Structures and Algorithms", McGraw-Hill India, 1st Edition, 2013.

Web References

- 1. https://www.tutorialspoint.com/data_structures_algorithms/
- 2. https://www.w3schools.in/data-structures-tutorial/intro/
- 3. https://nptel.ac.in/courses/106103069/
- 4. https://swayam.gov.in/nd1_noc20_cs70/preview
- 5. https://nptel.ac.in/courses/106103069/

* TE - Theory Exam, LE - Lab Exam

COs/POs/PSOs Mapping

			парри		Prog	ram O	utcom	es (PO	s)					ram Spe omes (P	
COs	PO1	PO2	PO3	PO4	PO5	P06	P07	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
4		2	1	1			-	_	_	-	-		3	2	3
1	3	2	ı		_								3	2	3
2	3	2	1	1	-	-			-	-			-		
3	3	2	1	1	-	-	-	-	-	-	-		3	2	3
-		-	<u> </u>	1	Anna A	v 25.27	_	_	_	_	-	-	3	2	3
4	3	2	1	1	-	-							2	2	3
5	3	2	1	1	4	- I	-	-	-	-	-	-	3		<u> </u>

Correlation Level: 1 - Low, 2 - Medium, 3 – High

	Coi	ntinuous A	ssessi	ment Marks (CA	M)		
Assessment	Performand cla	ce in pract isses	ical	Model	-	End Semester Examination	Total Marks
Assessment	Conduction of practical	Record work	viva	Practical Examination	Attendance	(ESE) Marks	i - califi La eta La espe
Marks	15	5	5	15	10	50	100



Department	and the same of	puter and Communication	Program	nme: B.	Tech.					
		neering	xam Type	e: LE						
Semester	11	Course Category: PC *End Semester Exa Periods / Week Credit Maxim							mum Marks	
Course Code	U23C	CP201	T	Р	С	CAM	ESE	TM		
Course Name	DIGIT	AL ELECTRONICS LABORATORY	0	0	2	1	50	50	100	
Prerequisite	Nil	4L Audon	to will be	able to				BT Mappin		
*.	On co	ompletion of the course, the studen	its will be	apic to				(Highest Lev		
Course	CO1	Verify Boolean laws using logic gate.			*** **********************************					
Outcomes	CO2	Design and verify various combinatio	n circuits	using lo	gic gate	S.			K4	
	CO3	Design and implement combinational	circuits u	ising MS	SI device	es.		2	K4	
	100000000000000000000000000000000000000	Design and verify sequential circuits							K4	
			ircuite						K4	
	CO5	Write VHDL code for combinational of	il Cuito.							

List of Experiments:

- Verification of Boolean Theorems using basic gates.
- Design and verify Half adder and Full adder using basic gates
- Design and verify 4-bit Adder / Subtractor Circuits using IC 7483.
- Design and test Code Converters for BCD to Gray conversion and Excess-3-code to BCD and vice versa
- Design and test 2-bit Magnitude Comparator and 4x16 decoder using 3 to 8 decoder
- Design and test 4 to 1 multiplexer and de-multiplexer using IC74153.
- 7. Design and test Shift Registers using D-flip-flops
- Design and test magnitude comparator using IC7404, IC7408, and IC7486.
- 9. Design and test Asynchronous Counters using IC 7476
- 10. Design and verify Synchronous Counter using IC 7476
- 11. Design and verify Moore and Mealy Circuits
- 12. VHDL code for Half adder, Full adder and decoder

Lecture Poriode:	Tutorial Periods: -	Practical Periods: 30	Total Periods: 30
Lecture Periods: -			

Reference Books

- M. Morris Mano and Michael D. Ciletti, "Digital Design", 5th Edition, Pearson, 2014.
- 2. Charles H.Roth. "Fundamentals of Logic Design", 6th Edition, Thomson Learning, 2013.
- 3. Thomas L. Floyd, "Digital Fundamentals", 10th Edition, Pearson Education Inc, 2011
- 4. S.Salivahanan and S.Arivazhagan, "Digital Electronics", Ist Edition, Vikas Publishing House pvt Ltd, 2012.
- 5. Anil K.Maini, "Digital Electronics", Wiley, 2014.
- 6. A.Anand Kumar, "Fundamentals of Digital Circuits", 4th Edition, PHI Learning Private Limited, 2016.
- 7. Soumitra Kumar Mandal, "Digital Electronics", McGraw Hill Education Private Limited, 2016.
- S. Salivahanan and S. Arivazhagan, "Digital Circuits and Design.", Vikas Publisher, 2009

Web References

- https://www.electronics-tutorials.ws/boolean/bool_1.html
- 2. https://www.electronics-tutorials.ws/logic/logic_1.html
- 3. https://nptel.ac.in/courses/117/103/117103064/
- 4. http://www.asic-world.com/digital/tutorial.html
- https://www.geeksforgeeks.org/digital-electronics-logic-design-tutorials/

V. home

COs/POs/PSOs Mapping

			2 -1		Progr	am Oı	utcom	es (Po	Os)				Program Specific Outcomes (PSOs)		
COs	PO1	PO2	PO3	PO4	PO5	PO6	P07	PO8	PO9	PO10	PO11	PO12	PSO 1	PSO 2	PSO 3
1	3	1	-	-	3	-	-	-	3	-	-	2	3	3	3
2	3	1	-	-	3	=	-	-	3	-	-	3	3	3	3
3	3	1	-	-	3	-	-	-	3	-	-	3	3	3	3
4	3	- 1	-	-	3	L :-		-	3	-	-	2	3	3	3
5	3	1	-	-	3	-	-		3	-		3	3	3	3

Correlation Level: 1 - Low, 2 - Medium, 3 - High

Evaluation Method

	Со	ntinuous A	Assessn	nent Marks (CAI	VI)	End	
Assessment		nce in pra	ctical	Model	Attenda	Semester Examinati	Total Marks
Assessment	Conducti on of practical	Record work	viva	Practical Examination	nce	on (ESE) Marks	Design of
Marks	15	5	5	15	10	50	100

V. m

Department	Mech	anical	Progran	nme: B.	Tech.				
Semester	11/1		Course	Categor	y : ES	*End S	emester Ex	kam Type	LE
Course Code	U23F	SPC02	Perio	ds/Wee	k	Credit		imum Ma	
			L	Т	Р	С	CAM	ESE	ТМ
Course Name	DESIG	IN THINKING AND IDEA LAB		-	2	1	50	50	100
(Common to a	ıll Branc	hes)	J	l					
Prerequisite	Basic k	nowledge of Science						4 .4	
	On co	mpletion of the course, the stud						BT Ma (Highest	
	CO1	Demonstrate a comprehensive associated with the IDEA Lab.	understa	nding o	f the	tools and	inventory	K	
	CO2	Develop proficiency in ideation to solutions for various design challenges				eative and	innovative	K	3
Course Outcomes	СОЗ	Acquire practical knowledge of mincluding hands-on experience with manufacturing and assembly of p	ith machine	ery, tools	, and te	abrication p chniques u	rocesses, sed in the	K	3
	CO4	Cultivate the skills necessary for including the ability to integrate advancements into the design pro	developing user need	j innova	tive and	d desirable s, and tecl	products, nnological	K	4
	CO5	Apply iterative design methodolo feedback, user testing, and evaluaspects	gies to refi	ne and function	improvenal, aes	solutions thetic, and	based on usability	K	1

Design process: Traditional design, Design thinking, Existing sample design projects, Study on designs around us, Compositions/structure of a design, Innovative design: Breaking of patterns, Reframe existing design problems, Principles of creativity Empathy: Customer Needs, Insight-leaving from the lives of others/standing on the shoes of others, Observation

Design team -Team formation, Conceptualization: Visual thinking, Drawing/sketching, New concept thinking, Patents and Intellectual Property, Concept Generation Methodologies, Concept Selection, Concept Testing, Opportunity identification Prototyping: Principles of prototyping, Prototyping technologies, Prototype using simple things, Wooden model, Clay model, 3D printing; Experimenting/testing.

Sustainable product design, Ergonomics, Semantics, Entrepreneurship/business ideas, Product Data Specification, Establishing target specifications, Setting the final specifications. Design projects for teams.

List of Lab Activities and Experiments

- Schematic and PCB layout design of a suitable circuit, fabrication and testing of the circuit.
- 2 Machining of 3D geometry on soft material such as softwood or modelling wax.
- 3 3D scanning of computer mouse geometry surface. 3D printing of scanned geometry using FDM or SLA printer.
- 4 2D profile cutting of press fit box/casing in acrylic (3 or 6 mm thickness)/cardboard, MDF (2 mm) board using laser cutter & engraver.
- 5 2D profile cutting on plywood /MDF (6-12 mm) for press fit designs.
- 6 Familiarity and use of welding equipment.
- 7 Familiarity and use of normal and wood lathe.
- 8 Embedded programming using Arduino and/or Raspberry Pi.
- 9 Design and implementation of a capstone project involving embedded hardware, software and machined or 3D printed enclosure.
- 10 Discussion and implementation of a mini project.
- 11 Documentation of the mini project (Report and video).

Text Books

- Tim Brown, Change by Design: How Design Thinking Transforms Organizations and Inspires Innovation, HarperCollins Publishers Ltd
- 2. Workshop / Manufacturing Practices (with Lab Manual), Khanna Book Publishing.

Reference Books

- 1. Ulrich and Eppinger, Product Design and Development, 3rd Edition, McGraw Hill, 2004
- 2. Chris Hackett., "The Big Book of Maker Skills: Tools & Techniques for Building Great Tech Projects"; Weldon Owen,
- 3. Sean Michael Ragan, "The Total Inventors Manual (Popular Science): Transform Your Idea into a Top-Selling Product",. Weldon Owen; 2017.
- 4. Paul Horowitz and Winfield Hill, "The Art of Electronics", 3rd edition.. Cambridge University Press.
- 5. Paul Sherz and Simon Monk, "Practical Electronics for Inventors", 4th edition.. McGraw Hill.
- 6. Simon Monk and Duncan Amos, "Make Your Own PCBs with EAGLE: From Schematic Designs to Finished Boards".. McGraw Hill Education.
- 7. Simon Monk, "Programming Arduino: Getting Started with Sketches", 2nd edition. McGraw Hill.
- 8. Venuvinod, PK., MA. W., "Rapid Prototyping Laser Based and Other Technologies", Kluwer Academic Publisher,
- 9. Chapman W.A.J, "Workshop Technology", Volume I, II, III, CBS Publishers and Distributors, 5th Edition, 2002. Web References

https://onlinecourses.nptel.ac.in/noc23_mg72

COs/POs/PSOs Mapping

COs		- Labor			Prog	ram O	utcom	es (PC	s)				Prog	ram Sp	ecific
	P01	PO2	PO3	P04	PO5	P06	P07	DOG	DOO	50.0			Outco	omes (P	SOs)
1	3	2	2	2	. 00	1 00	101	PU8	PO9	PO10	PO11	PO12	PSO1	PSO ₂	PSO3
	-				2	2		-	2		3	2			
2	3	3	3	2	2	2			2						
3	3	3	2	0	_			a 1 75 d		an Tribe	3	2	het Fight II	and a state of	d Julian
9		3	3	2	3	2	-	<u>-</u> , , ,	2	11.	3	2	N gara	7-2-1	
4	3	3	3	2	3	2	-	_					-		
-	3	2	•			2	-		2	- = 11	3	2	-	_	_
5	3	3	3	2	3	2	-	-	2		3	2			i v ha v

Correlation Level: 1 - Low, 2 - Medium, 3 – High

ragnot arpf to i	Continu	uous Asse	essmer	nt Marks (CAM)	n Kuri	vand, hijimi	. Adenes
Assessment	Performance clas	in praction	cal	Model	* -	End Semester	Total
	Conduction of practical	Record work	viva	Practical Examination	Attend ance	Examinati on (ESE) Marks	Marks
Marks	15	5	5	45	4.0	navirga.	2 20
POSOL ALL		<u> </u>	3	15	10	50	100

Department	Eng	nputer and Communication lineering	Prograr	nme: B	.Tech.				
Semester	II	,	Course	Catego	ry: MC	End	Semeste	er Exam	Туре: -
Course Code	U230	CCM202	Perio	ds / We	eek	Credit	Ma	ximum M	arke
Course Name	Snor	ts Yoga and NSS	L	Т	Р	С	CAM	ESE	TM
Prerequisite	- Opti	ts roga and NSS	0	0	2	Non-Credit	100		10
	On c	ompletion of the course, the stud	ents will b	e able	to				Mappin
Course	C01	Practice Physical activities and Ha and relaxation.	tha Yoga	focusing	g on yo	ga for streng	th, flexibi	(Higi ility	hest Lev
Outcomes		Understand basic skills associated and flexibility, balance and coordina	ation						K2
	CO3	Develop understanding of psycholo	gical probl	lems as	sociate	d with age an	d lifestyle		
	CO4	Recognize the importance of nation	al service	in comr	munity	development	u mestyle	e.	K2
	CO5	Convert existing skills into socially r	elevant life	skille		aevelopment.			K2
UNIT-I	NIKO	DUCTION TO PHYSICAL EDUCAT bjectives of Physical Education - Chellness and Lifestyles Imports	ION			Periods: 06		TE I E	K2
Physical fitness through Lifestyle UNIT-II	-Com Chan	ellness and Lifestyle: Importance ponents of Health related fitness - ge - Concept of Positive Lifestyle. AND LIFESTYLE Elements of Yoga - Introduction - As related Asanas (Sukhasana Tada	Compone	ical Fitrents of	ness ar wellnes	nd Wellness ss - Preventir	ng Health	Threats	3
Techniques for i Back Pain-Diabe JNIT-III	mprovetes - A	ing concentration - Yog-nidra. Asan Asthema.	as as prev	ventive	measu	res – Hyperte	ana) - Ro nsion – 0	elaxation Obesity -	CO2
Psychology and Growth and De Controlling of en Anxiety and Fea Stress and Copin	d Sport velopn notions r and it ng strat	and limbering down-Skill, Technique and Robin and Combination. rts - Important of Psychology in Pinent - Adolescent problems and concepts and Types of Aggress its effects on Sports Performance - Legies UCTION TO NATIONAL SERVICE	nysical Ed their Mar sions in S Motivatio	ucation nageme ports - n, its ty	jectives and S nt - E	of Planning ports - Differe motion: Cond	entiate B cept, Typ	etween oe and	CO3
Prientation of NS	S volu	nteers: History matter and Laborate	SCHEME		P	eriods: 06			L
lantation and vo kills and youth o BA, SBA, etc.,	luntary develo	nteers: History, motto, symbol, awa tance - Sensitizing about the thrust blood donation - The role of SHGs pment-extension activities in HEIs	areas and and NG0 various	d aware Os in co clubs a	eness a	ictivities - Imp	ortance	of tree	CO4
ommon Problem		NITY ISSUES AND THE USE OF 1				eriods: 06			
earby communiti dopted villages.	es - vil	ural India - Technology developmen ervice learning and youth voluntee lage survey - Initiatives to clean and	t and its si ring – Shr d green en	uitability amdaar vironme	/ – Sus n - Can ent - pre	tainability - Va npus cleaning eservation of v	alue addi ı - Field v water boo	tion to visit to dies in	CO5
cture Periods:	-	Tutorial Periods: - P	ractical P	eriods:	30	Total	Periods	: 30	
erence Books Brar Aimer Sin	ab 0:					······································			
Kalyani Publish B.K.S. Iyengar,	ers , 6 ^t "Light	ll Jagtar Singh, Bains Jagdish, "M ^h Edition, 2014 on Yoga: The Definitive Guide to Y	odern Tex 'oga Pract	tbook o	of Physorsons	ical Educatio	n Health	and Sp	orts- I",

Joseph, Siby K, Mahodaya, "Bharat Essays on Conflict Resolution", Institute of Gandhian Studies Publishers, 2007 Barman Prateeti, Goswami, "Document on Peace Education" Trivesi Alexandra Gandhian Studies Publishers, 2007

Department	Computer and Communication Engineering	Program	me: B.T	ech.				······································
Semester II		Course	Category	: AEC	*Enc	Semeste		
		Perio	ds/Week	(Credit	Maximum Marks		
Course Code	U23CCC2XX	L	Т	Р	С	CAM	ESE	TM
Course Name	CERTIFICATION COURSE - II	-	-	-	-	-	-	-

Students shall choose an International certification course offered by the reputed organizations like Google, Microsoft, IBM, Texas Instruments, Bentley, Autodesk, Eplan and CISCO, etc. The duration of the course is 40-50 hours specified in the curriculum, which will be offered through Centre of Excellence.

Pass /Fail will be determined on the basis of participation, attendance, performance and completion of the course. If a candidate Fails, he/she has to repeat the course in the subsequent years. Pass in this course is mandatory for the award of degree.

Assessment	Continuous Marks	Total Marks	
	Attendance	MCQ Test	
Marks	10	90	100



- Prof R.B.S. Verma, "Field Work Practicum in Social Work-Emerging Concerns", Rapid Publisher, Lucknow, 2020 Sibereisen, K, Richard M, "Lerner Approaches to Positive Youth Development", Sage Publications, New Delhi, 2007
- Hoshiar Singh, "Administration of Rural Development in India", Sterling Publisher, the University of Michigan, 2009

Web References

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- http://en.wikipedia.org/wiki/national-service-scheme 19=http://nss.nic.in/adminstruct
- 3. http://nss.nic. in
- http://socialworknss.org/about.html
- Young Journal on Youth published by SAGE: http://you.sagepub.com

Assessment	Co	ntinuous Asse	essment Marks (CAM)	Total Marks
	Attendance	MCQ Test	Presentation / Activity / Assignment	Warks
Marks	10	30	60	100

