SRI MANAKULA VINAYAGAR ENGINEERING COLLEGE

(An Autonomous Institution)

(Approved by AICTE, New Delhi and Affiliated to Pondicherry University)

(Accredited by NAAC with 'A' Grade and Accredited by NBA-AICTE, New Delhi)

Madagadipet, Puducherry

Sixth Meeting of the Board of Studies

Department of Computational Studies

for the Programme

Bachelor of Computer Science

Venue

First Floor, SAS Block

Sri ManakulaVinayagar Engineering College

Madagadipet, Puducherry – 605 107

Date & Time

09-06-2023 & 11.30 am to 1.30 pm

SRI MANAKULA VINAYAGAR ENGINEERING COLLEGE

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Minutes of Board of Studies

The Sixth Meeting of the Board of Studies of B.Sc.& M. Sc Computer Science was held on Friday, the **09th July 2023 at 11.30 am** in the First Floor, SAS Block, Sri ManakulaVinayagar Engineering College with the Head of the Department in the chair.

The following members were present for the BoS meeting

Sl.No	Name of the Member with Designation and official Address	Responsibility in the BoS
1	**Dr. N. MOGANARANGAN, M.E, Ph.D.** Professor & Head, Department of Computational Studies, School of Arts & Science, Sri Manakula Vinayagar Engineering College (Autonomous) Madagadipet, Puducherry 605 107 **E-mail: moganarangan.cse@smvec.ac.in** **Mobile: 98945 33661**	Chairman
External Members		
2	**Dr. R. RAMKUMAR, MCA, M.Phil., M.Tech., Ph.D.,** Associate Prof. and Head, School of Computer Science, VET Institute of Arts and Science , Thindal , Erode. email:ramkumar2006@gmail.com Mobile: 9600966086	Pondicherry University Nominee
3	**Dr. V. J. CHAKRAVARTHY, MCA,M.Sc., M.Phil.,Ph.D.** Principal , Arulmigu Kapaleeswarar Arts and Science College, Kolathur , Chennai – 99. Email:chakkucksm1808@gmail.com Mobile: 9884161687	Subject Expert (Academic Council Nominee)
4	**Dr. S. MANJU PRIYA, M.Sc.,M.Phil.,Ph.D., SET,** Professor, Department of Computer Science, Karpaga Academy of Higher Education, Coimbatore.	Subject Expert (Academic Council

	Email:smanjupr@gmail.com Mobile: 9600553725	Nominee)
5	**Mr. C. VIMAL RAJ** Systems Architect, TCS, Chennai. Email:vimal06vishwa@gmail.com Mobile: 9952578333	Member (Industry representative)
Internal Members		
6	**Mr. K.SANTHOSHKUMAR, M.C.A.,M.Phil.,B.Ed.** Assistant Professor Department of Computational Studies School of Arts and Science Sri Manakula Vinayagar Engineering College **Phone :** 8508068040 **Email :** santhosh.phd16@gmail.com	Programme Academic Coordinator
7	**Mrs. P. SANGEETHA, M.C.A.,M.Phil.,B.Ed.,** Assistant Professor, Department of Computational Studies, School of Arts and Science Sri Manakula Vinayagar Engineering College **Mail id:** shamsathbegum.sas@smvec.ac.in **Ph:** 9080606160.	Member
8	**Ms.V. ASWINI , M.C.A.,** Assistant Professor, Department of Computational Studies, School of Arts and Science Sri Manakula Vinayagar Engineering College **Mail id:aswini**.sas@smvec.ac.in **Ph:** +919500296557	Member
Co-opted Members		
1	**Dr. M.A. ISHRATH JAHAN M.A., M.Phil., Ph.D.,** Associate Professor Head, Dept. of English, SMVEC	Member
2	**Dr. J. MANIMEGALAI M.COM., Ph.D.,** Assistant Professor , Dept. of Commerce and Management, SMVEC	Member

AGENDA OF THE MEETING

Item No.: BOS/2022/SAS/UG/ CP/6.1	❖ Welcome Address ❖ To confirmation of minutes of the fifth meeting of the Board of Studies.
6.2	❖ To discuss and approve the B.Sc Computer Science Curriculum (I to VI Semester) under Regulation 2023 and Syllabi of 1st Semester for the Programme Bachelor of Computer Science under Regulation 2023
6.3	Discussion of the following as in the Regulation - 2023 of School of Arts and Science ❖ Admission eligibility criteria / norms to enroll as student in the specific programme as prescribed by UGC ❖ Conduct of Internal assessment test, model practical exams, award of internal assessment /Re Earn / Improvement / Evaluation Procedures. ❖ Value added Courses ❖ Department research activities Professional Bodies activities and its outcome
6.4	Any other item with the permission of the Chair

The Chairman proceeded with the presentation to deliberate on agenda items.

Minutes of the Meeting

Item No.: BOS/2022/SAS/UG/CP/6.1

- Dr. Moganarangan. .N, Chairman, welcomed all the external and internal members. The meeting thereafter deliberated on agenda items that had been approved by the Chairman.

- The Board of studies members appreciated regarding the Minutes of the fifth Meeting of BoS and recommended the same to the Academic council.

Item No.: BOS/2022/SAS/UG/CP/6.2

- To discuss and approve the B.Sc Computer Science Curriculum (I to VI Semester) under Regulation 2023 and Syllabi of 1st Semester for the Programme Bachelor of Computer Science under Regulation 2023

The above corrections have been made in the curriculum and the details are given in Annexure- I

Item No.: BOS/2022/SAS/UG/CP/6.3:

Discussion of the following as in the Regulation - 2023 of School of Arts and Science

- Admission eligibility criteria / norms to enroll as student in the specific programme as prescribed by UGC
- Conduct of Internal assessment test, model practical exams, award of internal assessment /Re Earn / Improvement / Evaluation Procedures.
- Value added Courses
- Department research activities

Professional Bodies activities and its outcome

The Board members appreciated the revised R-2023.

AGENDA OF THE MEETING

Item No.: BOS/2022/SAS/PG/ CP/1.1	❖ Welcome Address
1.2	❖ To discuss and approve the Curriculum Framework and the Syllabi of 1st Semester for the Programme Master of Computer Science under Regulation 2023
1.3	Discussion of the following as in the Regulation - 2023 of School of Arts and Science ❖ Admission eligibility criteria / norms to enroll as student in the specific programme as prescribed by UGC ❖ Conduct of Internal assessment test, model practical exams, award of internal assessment /Re Earn / Improvement / Evaluation Procedures. ❖ Value added Courses ❖ Department research activities Professional Bodies activities and its outcome
1.4	Any other item with the permission of the Chair

The Chairman proceeded with the presentation to deliberate on agenda items.

Minutes of the Meeting

Item No.: BOS/2022/SAS/PG/CP/1.1

- Dr. Moganarangan. .N, Chairman, welcomed all the external and internal members. The meeting thereafter deliberated on agenda items that had been approved by the Chairman.

Item No.: BOS/2022/SAS/ PG /CP/1.2

- To discuss and approve the M.Sc. Computer Science Curriculum (I to IV Semester) under Regulation 2023 and Syllabi of 1st Semester for the Programme Master of Computer Science under Regulation 2023

The above framed curriculum and the relevant details are given in Annexure- II

Item No.: BOS/2022/SAS/ PG /CP/1.3:

Discussion of the following as in the Regulation - 2023 of School of Arts and Science

- Admission eligibility criteria / norms to enroll as student in the specific programme as prescribed by UGC
- Conduct of Internal assessment test, model practical exams, award of internal assessment /Re Earn / Improvement / Evaluation Procedures.
- Value added Courses
- Department research activities

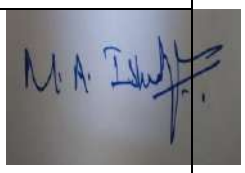
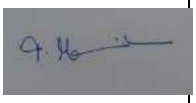
Professional Bodies activities and its outcome

The Board members appreciated the revised R-2023.

The Board of Studies approved the above suggestions for M.Sc Computer Science. The meeting was concluded at 11:30 am with vote of thanks by Dr. N. MOGANARANGAN, Professor Department of Computer Science.

Minutes of the sixth Meeting of the Board of studies held on 09.06.2023 is signed by the members who attended the meeting.

S. No.	Name of the Member with Designation and official Address	Responsibility in the BoS	Signature
1	**Dr. N MOGANARANGAN M.E, Ph.D.,** Professor & Head, Department of Computational Studies, School of Arts & Science, Sri Manakula Vinayagar Engineering College (Autonomous) Madagadipet, Puducherry 605 107 E-mail: moganarangan.cse@smvec.ac.in Mobile: 98945 33661	Chairman	
2	**Dr. R. RAMKUMAR, MCA, M.Phil., M.Tech., Ph.D.,** Associate Prof. and Head, School of Computer Science, VET Institute of Arts and Science , Thindal , Erode. email:ramkumar2006@gmail.com Mobile: 9600966086	University Nominee	
3	**Dr. V. J. CHAKRAVARTHY, MCA., M.Sc., M.Phil., Ph.D.** Principal , Arulmigu Kapaleeswarar Arts and Science College, Kolathur , Chennai – 99. Email:chakkucksm1808@gmail.com Mobile: 9884161687	Subject Board (Academic Council Nominee)	
4	**Dr. S. MANJU PRIYA, M.Sc., M.Phil., Ph.D., SET,** Professor, Department of Computer Science, Karpaga Academy of Higher Education, Coimbatore. Email:smanjupr@gmail.com Mobile: 9600553725	Subject Board (Academic Council Nominee)	
5	**Mr. C. VIMAL RAJ, B.Tech.,** Systems Architect, TCS, Chennai. Email:vimal06vishwa@gmail.com Mobile: 9952578333	Industry Board	
8	**Mr. K.SANTHOSHKUMAR, M.C.A., M.Phil., B.Ed.** Assistant Professor Department of Computational Studies School of Arts and Science Sri Manakula Vinayagar Engineering College **Phone :** 8508068040 **Email :** santhosh.phd16@gmail.com	Programme Academic Coordinator	

9	**Mrs. P. SANGEETHA, M.C.A.,M.Phil.,B.Ed.,** Assistant Professor, Department of Computational Studies, School of Arts and Science Sri Manakula Vinayagar Engineering College **Mail id:** shamsathbegum.sas@smvec.ac.in **Ph:** 9080606160.	Internal member	
10	**Ms.V. ASWINI , M.C.A.,** Assistant Professor, Department of Computational Studies, School of Arts and Science Sri Manakula Vinayagar Engineering College **Mail id:aswini**.sas@smvec.ac.in **Ph:** +919500296557	Internal member	
Co-opted Members			
10	**Dr. M.A. ISHRATH JAHAN M.A., M.Phil., Ph.D.,** Associate Professor & Head, Dept. of English, SMVEC	Internal member	
11	**Dr. J. MANIMEGALAI M.COM., Ph.D.,** Assistant Professor , Dept. of Commerce., School of Arts and Science Sri Manakula Vinayagar Engineering College **Ph: 97514242375**	Internal member	

The meeting was concluded with vote of thanks by **Dr. N. MOGANARANGAN,**, Head of the Department, Department of Computational Studies.

Dr. N. MOGANARANGAN,
HOD / Dept. of Computational Studies,
Chairman-BoS (B.Sc CS)

Dean SAS
[Dr. S. Muthulakshmi]

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SCHOOL OF ARTS AND SCIENCE

BACHELOR OF COMPUTER SCIENCE

ACADEMIC REGULATIONS2023(R-2023)

CURRICULUM AND SYLLABI

ANNEXURE - I

PROGRAMME SPECIFIC OUTCOMES (PO'S)

DEPARTMENT OF COMPUTATIONAL STUDIES

PO'S	STATEMENTS
PO1	It provides an ability to apply knowledge of Mathematics, Computer software and hardware in practice. It enhances not only comprehensive understanding of the theory but practical also.
PO2	The program prepares the young professionals in wide range of areas such as Digital logics and computer architecture, Algorithms, Programming, Networking, Software Engineering, Information Security, Web Designing, Micro-processors and micro-controllers
PO3	The program equips to demonstrate the capabilities required to apply cross-functional business knowledge and technologies in solving real-world problems and to demonstrate use of appropriate techniques to effectively manage business challenges
PO4	curriculum is divided based on various streams specialization that is needed in the IT Domain. Hence a student can specialize himself/herself in a particular stream.
PO5	It provides an opportunity to prepare for the competitive examination and also getting admission to Higher Education and Government organizations.
PO6	Become employable in various IT companies as programmer, system engineer, software tester, junior programmer, web developer, system administrator, software developer etc.

PROGRAMMING SPECIFIC OUTCOMES(PSOs)

B.Sc(COMPUTER SCIENCE)

PSO	STATEMENTS
PSO1	Think in a critical manner
POS2	Developing algorithm and practical approach in a logical manner
POS3	Understand, formulate and use live projects like computerization of projects arising in various stages of life.

STRUCTUREFORUNDERGRADUATEPROGRAMME

S.No	CourseCategory	Break down Of Credits
1	Language Modern Indian Language (MIL)	6
2	English (ENG)	6
3	Discipline Specific Core Courses(DSC)	79
4	DisciplineSpecificElectiveCourses (DSE)	12
5	Inter-DisciplinaryCourses(IDC)	16
6	SkillEnhancementCourses(SEC)	12
7	EmployabilityEnhancementCourses(EEC*)	-
8	AbilityEnhancementCompulsoryCourses(AECC)	4
9	OpenElective(OE)	4
10	ExtensionActivity(EA)	0
11	In-Plant Training (IT)	3
12	Online Certification Course (OCC)	-
	Total	142

SCHEMEOFCREDITDISTRIBUTION –SUMMARY

S. No	CourseCategory	CreditsperSemester						TotalCredits
		I	II	III	IV	V	VI	
1	Language Modern Indian Language (MIL)	3	3	-	-	-	-	6
2	English (ENG)	3	3	-	-	-	-	6
3	Discipline Specific Core Courses(DSC)	12	12	12	12	16	15	79
4	DisciplineSpecificElectiveCourses (DSE)	-	-	3	3	3	3	12
5	Inter-DisciplinaryCourses(IDC)	4	4	4	4	-	-	16
6	SkillEnhancementCourses(SEC)	2	2	2	2	2	2	12
7	EmployabilityEnhancementCourses(EEC*)	-	-	-	-	-	-	-
8	AbilityEnhancement Courses(AEC)	1	1	1	1	-	-	4
9	OpenElective(OE)	-	-	2	2	-	-	4
10	ExtensionActivity(EA)	-	-	-	-	-	-	0
11	In-Plant Training	-	-	3	-	-	-	3
12	Online Certification Course (OCC)	-	-	-	-	-	-	-
	Total	25	25	24	27	21	20	142

**** EECwillnotbeincludedforthecomputationof"TotalofCredits"aswellas"CGPA"***

SEMESTER–I										
S.No	CourseCode	CourseTitle	Category	Periods			Credits	Max.Marks		
				L	T	P		CPM	ESM	Total
Theory										
1	A23TAT101C / A23FRT101C	Tamil-I / French I	MIL	3	0	0	3	25	75	100
2	A23GET101C	General English I	ENG	3	0	0	3	25	75	100
3	A23CPT101C	Problem Solving Using C	DSC	4	0	0	4	25	75	100
4	A23CPT102C	Digital Logic And Computer Organization	DSC	4	0	0	4	25	75	100
5	A23MAD102C	Computational Mathematics	IDC	3	1	0	4	25	75	100
Practical										
6	A23CPL101C	Programming in C Lab	DSC	0	0	4	2	50	50	100
7	A23CPL102C	Digital Lab	DSC	0	0	4	2	50	50	100
SkillEnhancement Course										
8	A23ENSA02C	Soft Skill	SEC	0	0	4	2	100	0	100
AbilityEnhancement Course										
9	A23AETA01C	Public Administration	AEC	2	0	0	1	100	0	100
EmploymentEnhancementCourse										
10	A23CPC101D	WebProgramming - I	EEC	0	0	4	0	100	0	100
							25	**525**	**475**	**1000**

SEMESTER–II										
S.No	CourseCode	CourseTitle	Category	Periods			Credits	Max.Marks		
				L	T	P		CPM	ESM	Total
Theory										
1	A23TAT202C / A23FRT202C	TAMIL-II / FRENCH II	MIL	3	0	0	3	25	75	100
2	A23GET202C	GENERAL ENGLISH- II	ENG	3	0	0	3	25	75	100
3	A23CPT203C	FUNDAMENTALS OF IT	DSC	4	0	0	4	25	75	100
4	A23CPT204C	DATA STRUCTURES AND ALGORITHMS	DSC	4	0	0	4	25	75	100
5	A23MAD205C	DISCRETE MATHEMATICS	IDC	3	1	0	4	25	75	100
Practical										
6	A23CPL203C	FUNDAMENTALS OF IT	DSC	0	0	4	2	50	50	100
7	A23CPL204C	DATA STRUCTURES LAB	DSC	0	0	4	2	50	50	100
Skill Enhancement Course										
8	A23ENSA01C	COMMUNICATION SKILL LAB	SEC	0	0	4	2	100	0	100
Ability Enhancement Course										
9	A23AETA02C	ENVIRONMENTAL STUDIES	AECC	2	0	0	1	100	0	100
Extension Activities										
10	A23AETA02C	NATIONAL SERVICE SCHEME	EA	0	0	4	0	100	0	100
EmploymentEnhancementCourse										
11	A23CPC202D	WebProgramming - II	EEC	0	0	4	0	100	0	100
							25	**625**	**475**	**1100**

SEMESTER–III										
S.No	CourseCode	CourseTitle	Category	Periods			Credits	Max.Marks		
				L	T	P		CPM	ESM	Total
Theory										
1	A23CPT305C	PROGRAMMING IN C++	DSC	4	0	0	4	25	75	100
2	A23CPT301D	MICROCONTROLLER	DSC	4	0	0	4	25	75	100
3	A23CPEXXXX	DISCIPLINE SPECIFIC ELECTIVE- I	DSE	3	0	0	3	25	75	100
4	A23MAD308C	NUMARICAL METHODS	IDC	3	1	0	4	25	75	100
5	A23XXO30XX	OPEN ELECTIVE-I	OE	2	0	0	2	25	75	100
Practical										
6	A23CPL305C	PROGRAMMING IN C++	DSC	0	0	4	2	50	50	100
7	A23CPL301D	MICROCONTROLLER LAB	DSC	0	0	4	2	50	50	100
SkillEnhancement Course										
8	A23MAS01C	QUANTITATIVE APTITUDE AND LOGICAL REASONNING	SEC	0	0	4	2	100	0	100
Ability Enhancement Course										
9	A23AETA03C	INDIAN CONSTUTION	AECC	2	0	0	1	100	0	100
Employment Enhancement Course										
10	A23CPC303D	JAVA	EEC	0	0	4	0	100	0	100
							24	**525**	**475**	**1000**

SEMESTER–IV										
S.No	CourseCode	CourseTitle	Category	Periods			Credits	Max.Marks		
				L	T	P		CPM	ESM	Total
Theory										
1	A23CPT406C	PROBLEM SOLVING USING JAVA	DSC	4	0	0	4	25	75	100
2	A23CPT407C	DATABASE MANAGEMENT SYSTEMS	DSC	4	0	0	4	25	75	100
3	A23MAD410C	STATISTICS AND PROBABILITY	IDC	3	1	0	4	25	75	100
4	A23CPEXXXX	DISCIPLINE SPECIFIC ELECTIVE –II	DSE	3	0	0	3	25	75	100
5	A23XXO40XX	OPEN ELECTIVE-II	OE	2	0	0	2	25	75	100
Practical										
6	A23CPL406C	PROGRAMMING IN JAVA LAB	DSC	0	0	4	2	50	50	100
7	A23CPL407C	DBMS LAB	DSC	0	0	4	2	50	50	100
SkillEnhancement Course										
8	A23CAS401C	ANDROID APPDEVELOPMENT	SEC	0	0	4	2	100	0	100
Ability Enhancement Course										
9	A23AETA04C	VALUE EDUCATION	AECC	2	0	0	1	100	0	100
Employment Enhancement Course										
10	A23CPC404D	EXPLORING JAVA	EEC	0	0	4	0	100	0	100
In-Plant Training										
11	A23CPN401D	INTERNSHIP	DSC	0	0	2	3	100	0	100
							27	**625**	**475**	**1100**

SEMESTER–V										
S.No	CourseCode	CourseTitle	Category	Periods			Credits	Max.Marks		
				L	T	P		CPM	ESM	Total
Theory										
1	A23CPT508C	PYTHON PROGRAMMING	DSC	4	1	0	4	25	75	100
2	A23CPT503D	OPERATING SYSTEM	DSC	4	1	0	4	25	75	100
3	A23CPT509C	SOFTWARE ENGINEERING	DSC	4	0	0	4	25	75	100
4	A23CPEXXXX	DISCIPLINE SPECIFIC ELECTIVE –III	DSE	3	0	0	3	25	75	100
Practical										
5	A23CPL508C	PYTHON AND NETWROK LAB	DSC	0	0	4	2	50	50	100
6	A23CPL503D	MINI PROJECT (C # /JAVA / PYTHON)	DSC	0	0	4	2	50	50	100
Skill Enhancement Course										
7	A23CPS502D	RESEARCH METHODOLOGY	SEC	0	0	4	2	100	0	100
Online CertificationCourse										
8	A23CPM501D	NPTEL\ SWAYAM	OCC	0	0	4	0	100	0	100
							21	**400**	**400**	**800**

SEMESTER–VI										
S.No	CourseCode	CourseTitle	Category	Periods			Credits	Max.Marks		
				L	T	P		CPM	ESM	Total
Theory										
1	A23CPT605D	.NET TECHNOLOGY	DSC	4	0	0	4	25	75	100
2	A23CPT609D	ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING	DSC	4	0	0	4	25	75	100
3	A23CPEXXXX	DISCIPLINE SPECIFIC ELECTIVE –IV	DSE	3	0	0	3	25	75	100
Practical										
4	A23CPL604D	.NET TECHNOLOGY LAB	DSC	0	0	4	2	50	50	100
5	A23CPP601D	PROJECT WORK & VIVA-VOCE	DSC	0	0	4	5	40	60	100
Skill Enhancement Course										
6	A23CPS603D	ENTREPRENEURIAL SKILLS	SEC	0	0	4	2	100	0	100
							20	**265**	**335**	**600**

Department	**Tamil**	Programme:**B..Sc COMPUTER SCIENCE**						
Semester	**First**	Course Category Code: **MIL**			*End Semester Exam Type: **TE**			
CourseCode	**A23TAT101C**	Periods/Week			Credit	Maximum Marks		
		L	T	P	C	CAM	ESE	TM
Course Name	**TAMIL – I**	**3**	**-**	**-**	**3**	**25**	**75**	**100**
(Common to	**B.Sc., BBA., B.COM., BCA., B.COM CS.,**)							

Prerequisite	+2 வகுப்பில் தமிழை ஒரு பாடமாக கொண்டிருக்க வேண்டும்.
Course Objectives	• செவ்விலக்கிய தன்மை கொண்ட தமிழ்மொழியின் சிறப்பினை எடுத்துரைப்பதாக இப்பாடத்திட்டம் அமைக்கப்பட்டுள்ளது.
	• இரண்டாயிரம் ஆண்டுகாலத் தமிழின் தொன்மையையும் வரலாற்றையும் அதன் விழுமியங்களையும் பண்பாட்டையும் எடுத்துரைப்பதாக இப்பாடத்திட்டம் அமைக்கப்பட்டுள்ளது.
	• தமிழ் இலக்கியம் உள்ளடக்கத்திலும், வடிவத்திலும் பெற்றமாற்றங்கள், அதன் சிந்தனைகள், அடையாளங்கள் ஆகியவற்றைக் காலந்தோறும் எழுதப்பட்ட இக்கியங்களின் வழியாகக் கூறுவதற்கு இப்பாடத்திட்டம் அமைக்கப்பட்டுள்ளது.
	• வாழ்வியல் சிந்தனைகள், ஒழுக்கவியல் கோட்பாடுகள், சமத்துவம், சூழலியல் எனப் பல கூறுகளை மாணவர்களுக்கு எடுத்துரைக்கும் விதத்தில் இப்பாடத்திட்டம் உருவாக்கப்பட்டுள்ளது.
	• சிந்தனை ஆற்றலைப் பெருக்குவதற்குத் தாய்மொழியின் பங்களிப்பினை உணர்த்த இப்பாடத்திட்டம் அமைக்கப்பட்டுள்ளது.

Course Outcome	**On completion of the course, the students will be able to**	BT Mapping (Highest Level)
	CO1 • இலக்கியங்கள் உணர்த்தும் வாழ்வியல் நெறிமுறைகளைப் பேணிநடத்தல்.	**K3**
	CO2 • நமது எண்ணத்தை வெளிப்படுத்தும் கருவியாகத் தாய்மொழியைப் பயன்படுத்துதல்.	**K3**
	CO3 • தகவல் தெடர்புக்குத் தாய்மொழியின் முக்கியத்துவத்தை உணர்தல்.	**K3**
	CO4 • தாய்மொழியின் சிறப்பை அறிதல்.	**K3**
	CO5 • இலக்கிய இன்பங்களை நுகரும் திறன்களை வளர்த்தல்.	**K3**

UNIT-I	**இக்கால இலக்கியம்- மரபுக்கவிதைகள்- புதுக்கவிதைகள்- சிறுகதை**	**Periods: 09**
• மரபுக்கவிதைகள் - பாரதியார்-வெள்ளிப் பனிமலையின் மீதுலாவுவோம்... (13 பாடல்கள்)- பாரதிதாசன்-புரட்சிக்கவி (பேரன்புக் கொண்டவரே...முதல் - கவிஞனுக்கும் காதலிக்கும் மீட்சிதந்தார் வரை) தங்கப்பா - பனிப்பாறை நுனிகள் - வாழ்க்கை ஓவியம். புதுக்கவிதைகள்-அப்துல் ரகுமான் - வடலூரும் வார்தாவும் - யுகி - உயிர்ப்பு (இயற்கையின் எலும்பு முறிப்பு) – சிறுகதை -ஆர்.சூடாமணி - சாம்பலுக்குள்.		**CO1**
UNIT-II	**நாடகம் -உரைநடை- நாவல்**	**Periods: 09**
• நாடகம் - பிரபஞ்சன் - முட்டை - உரைநடை - இரா.வேங்கடாசலபதி - அந்தக் காலத்தில் காப்பி இல்லை –நாவல் - இரா.முருகவேள் - மிளிர்கல்		**CO2**
UNIT-III	**பக்தி இலக்கியம்-சைவம்-வைணவம்-கிறித்துவம்-இஸ்லாம்**	**Periods: 09**
• பக்தி இலக்கியம் -சைவம்-திருஞானசம்பந்தா - முதல் திருமுறை - தோடுடையசெவியன்...பாடல் மட்டும் - திருநாவுக்கரசர் - நான்காம் திருமுறை - கூற்றாயினவாறு...பாடல் மட்டும்- சுந்தரர் - ஏழாம் திருமுறை - பித்தாபிறைசூடீ...பாடல் மட்டும் - மாணிக்கவாசகர் - திருவாசகம் - புல்லாய் புழுவாய்...பாடல் மட்டும் - திருமூலர் - திருமந்திரம் - ஆர்க்கும் இடுமின்...பாடல் மட்டும் - காரைக்காலம்மையார்-திருவிரட்டை மணிமாலை - அன்பால் அடைவதெவ்வாறு...பாடல் மட்டும். வைணவம் - பொய்கையாழ்வார் - வையம் தகளியாய்...பாடல் மட்டும் -பூதத்தாழ்வார் - அன்பே தகளியாய்...பாடல் மட்டும் - பேயாழ்வார் - திருக்கண்டேன் பொன்மேனி...பாடல் மட்டும் - நம்மாழ்வார் - திருவாய்மொழி - உளன் எனின்...பாடல் மட்டும் - பெரியாழ்வார் - பெரியாழ்வார் திருமொழி - வாக்குத் தூய்மை...பாடல் மட்டும் -ஆண்டாள - நாச்சியார் திருமொழி– என்பு உருகி இனவேல்...பாடல் மட்டும் - கிறித்துவம் - இரட்சண்ய மனோகரம் - ஆவிக்குறுவெந்துயர்...முதல் உனையல்லது பற்றுதோ வரை - இஸ்லாம் - குணங்குடி மஸ்தான் சாகிபு– ரகுமான் கண்ணி -அடைத்த மனக்கோட்டை...முதல் என்கண் வரை		**CO3**
UNIT-IV	**சிற்றிலக்கியம் - முத்தொள்ளாயிரம் - உலா- கலம்பகம்- பள்ளு- இடைக்காலப் புலவர்கள்**	**Periods: 09**
• சிற்றிலக்கியம் - முத்தொள்ளாயிரம் - 1.வேரறுகைபம்பிச் சுரையாய்...2.மாலை விலைபகர்வார்... 3.என்னை உரையல் ...எனத் தொடங்கும் பாடல்கள் மட்டும் - உலா - குலோத்துங்கசோழன் உலா - தாளை அரவிந்தச் சாதp...முதல் நிலவென்றாள் வரை - கலம்பகம் -திருவரங்கக்கலம்பகம் - உருமாறிப் பலபிறப்பும்...முதல் ஆடீர் வாசல் வரை - பள்ளு - முக்கூடற்பள்ளு - நாட்டுவளம் - கறைபட்டுள்ளது...எனத்தொடங்கும் பாடல் மட்டும் -தூது-அழகர் கிள்ளைவிடு தூது - இன்சொல்லை.....முதல் உபதேசமாக உரைப்பாய் வரை • இடைக்காலப் புலவர்கள் - இராமலிங்க அடிகள் - மஹாதேவமாலை–படித்தேன்...முதல் பொய் உலகியல் வரை – வீரமாமுனிவர் திருக்காவலூர்க் கலம்பகம் - தழை–போதவிழ்ப;...எனத்தொடங்கும் பாடல் மட்டும் - மு.முஹம்மதுதஹா - ∴கௌதுமுஹிய்யித்தீன் பிள்ளைத் தமிழ் - வயிறுபுடைக்க உண்கின்றீர்...பாடல் மட்டும்.		**CO4**

R.D. Mohamed Nagar

UNIT-V	மொழிப்பயிற்சி-இலக்கிய வரலாறு	Periods: 09

- மொழிப்பயிற்சி - 1.வலிமிகும் இடங்கள் ,வலிமிகா இடங்கள்.- 2.அகரவரிசைப்படுத்துதல்.-3.நேர்காணல் - இலக்கிய வரலாறு - இக்கால இலக்கியம், பக்தி இலக்கியம், சிற்றிலக்கியம் குறித்த பாடப்பகுதியை ஒட்டியது. **CO5**

Lecture Periods: 45	Tutorial Periods:-	PracticalPeriods:-	TotalPeriods:45

Text Books

- பாரதியார் – பாரதியார் கவிதைகள், முனைடந நுனவைழைெ, ீரடிடளாநன துரநெ 2இ 2020.
- சிவகுமார். எஸ்., - கொங்குதேர் வாழ்க்கை, பாடல் தொகுப்பு நூல் - தொகுதி -1 யுனைடெட் ரைட்டர்ஸ், சென்னை -86. முதற்பதிப்பு 2003.
- சூடாமணி.ஆர். - தனிமைத் தளிர், தேர்ந்தெடுத்த சிறுகதைகள், காலச்சுவடு பதிப்பகம், முதல் பதிப்பு: செப்டம்பர் 2013.
- பிரபஞ்சன் - ஜீவநதி (நாடகங்கள்) – கவிதா பப்ளிகே'ன், 8, மாசிலாமணி தெரு, பாண்டிபஜார், தி.நகர், சென்னை -600 017
- முருகவேள். இரா., - மிளிர்கல், ஐம்பொழில் பதிப்பகம், திருப்பூர், இரண்டாம் பதிப்பு, 2014.

Reference Books

- வல்லிக்கண்ணன், புதுக்கவிதையின் தோற்றமும் வளர்ச்சியும், ஸ்ரீசெண்பகா பதிப்பகம், ஜனவரி,1, 2020.
- சிற்பிபாலசுப்பிரமணியம் மற்றும் நீலபத்மநாபன் (ப.ஆசி.) – புதிய தமிழ் இலக்கிய வரலாறு, தொகுதி-1,2,3, சாகித்திய அகாதெமி, புதுடெல்லி, 2013.
- பாக்கியமேரி, வகைமை நோக்கில் தமிழ் இலக்கிய வரலாறு (செம்மை மற்றும் விரிவுப் பதிப்பு), பாரிநிலையம். சென்னை,
- ஆனந்தன், முனைவர்.சு., - தமிழ் இலக்கிய வரலாறு, கண்மணி பதிப்பகம், திருச்சி-2. இருபத்தி மூன்றாம் பதிப்பு– 2015.
- பரந்தாமனார், அ.கி., - நல்ல தமிழ் எழுத வேண்டுமா, பாரி நிலையம், சென்னை, 1998.

Web References

1. http://www.tamilvu.org – 2.http://www.tamilweb.com – 3.http://www.tamilkodal.com – 4. www.store.tamillexican.com
5.www.kala.tamilforu.blogspot.com 6.www.noolagam.com

* TE – Theory Exam, LE – Lab Exam

COs/POs/PSOs Mapping

COs	Program Outcomes (POs)					Program Specific Outcomes (PSOs)		
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO 3
1	3	3	3	3	3	3	3	3
2	3	3	3	3	3	3	3	3
3	3	2	3	3	2	3	3	3
4	2	3	1	3	2	2	2	3
5	3	3	3	3	3	3	3	3

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

Evaluation Method

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

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

Department	**French**		Programme: **B..Sc COMPUTER SCIENCE**					
Semester	**FIRST**		Course Category Code: **MIL**			*End Semester Exam Type : **TE**		
Course Code	**A23FRT101C**		Periods/Week			Credit	Maximum Marks	
			L	T	P	C	CAM	ESE	TM
Course Name	**FRENCH I**		**3**	**0**	**0**	**3**	**25**	**75**	**100**
(Common to B.A.., B.SC., and BCA Branches)									
Prerequisite	Basic knowledge of French language								
Course Objective	To introduce the basics of French language to the students								
	To enable the students to read, understand and write simple sentences								
	To help them to grasp the fundamentals of French grammar								
	To make the students to formulate correct phrases								
	To introduce them French and Francophone countries and their cultures								
Course Outcomes	***On completion of the course, the students will be able to***						BT Mapping (Highest Level)		
	CO 1	have a general understanding of the language					**K3**		
	CO 2	analyze and interpret simple phrases written in French					**K3**		
	CO 3	have the basics of French grammar					**K3**		
	CO 4	communicate and ask basic questions in French language					**K3**		
	CO 5	appreciate the diversity and multiplicity of French and Francophone world					**K3**		
UNIT-I	**S'introduire**					**Periods:09**			
1. Le francais, les Francais, la France 2. Je m'appelle Elise, et vous ? 3. Saluer, se presenter, remercier 4. Vous dansez ? D'accord 5. Interroger quelqu'un et donner des informations							**CO1**		
UNIT-II	**Demander des questions sur quelqu'un**					**Periods:09**			
1. Monica, Yokiko et compagnie 2. Dire ce qu'on l'aime 3. Les voisins de Sophie 4. Demander des informations sur quelqu'un							**CO2**		
UNIT-III	**Expliquer quelque chose**					**Periods:09**			
1. Tu vas au Luxembourg ? 2. Dire où on va, dire d'où on vient 3. Nous venons pour l'inscription 4. A vélo, en train, en avion… 5. Expliquer un itinéraire, proposer quelque chose							**CO3**		
UNIT-IV	**Poser des questions et commander**					**Periods:09**			
1. Pardon monsieur, le BHV s'il vous plait 2. Au marché 3. Acheter quelque chose, demander le prix 4. On déjeune ici ? 5. Aller au restaurant, comprendre un menu							**CO4**		
UNIT-V	**Inviter et proposer quelque chose**					**Periods:09**			

1. On va chez ma copine ? 2. Proposer quelque chose 3. Demander et donner des informations sur quelqu'un 4. Chez Susana 5. Etre invité chez quelqu'un	**CO5**

Lecture Periods: 45	**Tutorial Periods:**	**Practical Periods:-**	**Total Periods:45**

Text Books

1. Sylvie Poisson Quinton and Michèle Maheo, *Festival 1 Méthode de Français*, CLE editions, 2009
2. Nathalie Hirschsprung and Tony Tricot, *Cosmopolite 1*, Hachette editions, 2017
3. Caroline Veltcheff and Stanley Hilton, *Preparation du Delf A1*, Hachette editions, 2011

Reference Books

1. Régine Mérieux and Yves Loiseau, *Latitudes 1*, Didier editions, 2017
2. Annie Berthet and Emmanuelle Daili, *Alter Ego + A1*, Hachette editions, 2012
3. Bruno Giradeau, *Réussir le Delf A1*, Didier editions, 2019
4. Richard Lescure, *Delf A1 150 Activités,* Langers and CLE, 2005
5. Manisha Verma, *La grammaire élémentaire française*, Notion Press, 2010

Web References

1. https://www.tv5monde.com
2. https://www.rfi.fr
3. https://www.lemonde.fr
4. https://www.frenchpodcasts.com
5. https://www.coursera.org

* TE – Theory Exam, LE – Lab Exam

COs/POs/PSOs Mapping

COs	**Program Outcomes (PO)**					**Program Specific Outcomes (PSOs)**		
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PSO1**	**PSO2**	**PSO3**
1	3	3	3	3	3	3	3	3
2	3	3	3	3	2	3	3	3
3	3	3	3	3	3	3	2	3
4	2	3	2	2	3	3	3	3
5	3	3	3	3	3	3	3	3

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

Evaluation Method

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

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

Department	**ENGLISH**	Programme: **B..Sc COMPUTER SCIENCE**						
Semester	**FIRST**	Course Category Code: **ENG**			End Semester Exam Type: **TE**			
Course Code	**A23GET101C**	Periods / Week			Credit	Maximum Marks		
		L	T	P	C	CAM	ESE	TM
Course Name	**GENERAL ENGLISH - I**	**3**	**0**	**0**	**3**	**25**	**75**	**100**
(Common to B.A.., B.SC., AND BCA Branches)								
Prerequisite	Basic part-two language and knowledge gained from Grammar and Vocabulary							

Course Objectives	To recognize the rhythms, metrics and other aspects of Literature	
	To read a variety of texts critically and proficiently	
	To enable the students to enjoy the flair of literature through the work of great writer	
	To make the students to know the functions of basic grammar	
	To enable them understanding the intrinsic nuances of writing in English language	

Course Outcomes	***On completion of the course, the students will be able to***		BT Mapping (Highest Level)
	CO1	comprehend and discuss the various facets of selected poems	**K3**
	CO2	analyze and interpret texts written in English	**K3**
	CO3	read drama with graduate-level interpretive and analytical proficiency	**K3**
	CO4	improve the fluency and formation of grammatically correct sentence	**K3**
	CO5	enhance the writing skills for specific purposes	**K3**

UNIT-I	**POETRY**	**Periods: 09**	
6. Rudyard Kipling – *IF* 7. William Wordsworth – *Daffodils* 8. Percy Bysshe Shelley – *Ozymandias* 9. William Ernest Henley – *Invictus* 10. Rabindranath Tagore – *On the Nature of Love*			**CO1**
UNIT-II	**PROSE**	**Periods: 09**	
5. Bertrand Russell – *The Road to Happiness* 6. Charles Lamb – *A Dissertation upon Roast Pig*			**CO2**
UNIT-III	**SHORT STORIES**	**Periods: 09**	
6. Oscar Wilde – *The Devoted Friend* 7. R. K. Narayan – *God and the Cobbler*			**CO3**
UNIT-IV	**DRAMA**	**Periods: 09**	
6. H H Munro – *The Death Trap* 7. J.M. Synge – *Riders to the Sea*			**CO4**
UNIT-V	**GRAMMAR AND COMPOSITION**	**Periods: 09**	
6. Parts of Speech 7. Subject-Verb Agreement 8. Letter Writing 9. Essay Writing			**CO5**

Lecture Periods: 45	**Tutorial Periods: 0**	**Practical Periods: -**	**Total Periods: 45**

Text Books

4. Narayan, R.K, *Malgudi days*, Indian Thought Publication, 2019
5. Synge John Millington, *Riders to the Sea*, Sahitya Sarowar Publisher, 2022
6. P. C. Wren, H. Martin, *High School Wren and Martin English Grammar and Composition*, S. Chand & Company Pvt. Ltd, 2022.

Reference Books

1. Lamb, Charles, *Selected Prose*, Penguin Classics Publication, 2nd Edition, 2013.
2. S.C. Gupta, *English Grammar & Composition Very Useful for All Competitive Examinations*, Arihant Publications, 2014.
3. Saki, H. H. Munro, F. Carruthers Gould, *The Complete Works of Saki: Illustrated Edition: Novels, Short Stories, Plays, Sketches & Historical Works, including Reginald, The Chronicles of Clovis, ... The Death-Trap*, The Westminster Alice Kindle Edition, e-artnow, 2018.
4. J.M. Synge, S.C. Narula. *Riders to the Sea*. Surjeet Publication. 2018.
5. S.C.Gupta. *A Handbook for Letter Writing*. Arihant Publication. 2016.

Web References

6. https://www.englishcharity.com/of-love-by-francis-bacon-explanation/
7. https://www.gradesaver.com/charles-lamb-essays/study-guide/summary-a-dissertation-upon-roast-pig
8. https://allpoetry.com/On-The-Nature-Of-Love
9. http://sittingbee.com/god-and-the-cobbler-r-k-narayan/
10. https://www.toppr.com/guides/essays/

* TE – Theory Exam, LE – Lab Exam

COs/POs/PSOs Mapping

COs	Program Outcomes (POs)					Program Specific Outcomes (PSOs)		
	PO 1	PO 2	PO 3	PO 4	PO 5	PSO 1	PSO 2	PSO 3
1	3	3	3	3	3	3	3	3
2	3	3	3	3	3	3	3	3
3	3	2	3	3	2	3	3	3
4	2	3	2	1	2	2	3	2
5	3	3	3	3	3	3	3	3

Correlation Level:

High	Moderate	Low
3	2	1

Evaluation Method

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

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

Department	**Computational Studies**			Programme: **B.Sc COMPUTER SCIENCE**				
Semester	**First**			Course Category Code: **DSC**		*End Semester Exam Type: **TE**		
Course Code	**A23CPT101C**			Periods / Week		Credit	Maximum Marks	
				L	T	P	C	CAM	ESE	TM
Course Name	**PROBLEM SOLVING USING C**			**4**	**0**	**0**	**4**	**25**	**75**	**100**
(common to B.Sc (CS) & BCA)										
Prerequisite	Basic knowledge in C Programming									
Course Outcome	*After the completion of this course, the students will be able to:*							BT Mapping (Highest Level)		
	CO1	Describing the basic introduction about C programming.						**K2**		
	CO2	Incorporating the use of sequential, selection and repetition control structures into a program.						**K3**		
	CO3	Develop the concepts of looping and arrays.						**K3**		
	CO4	Design and develop programs using Functions and Pointers.						**K4**		
	CO5	Understand the File management Operations and Pre-processor Directives.						**K4**		

UNIT-I	**INTRODUCTION TO C**	**Periods: 12**
Fundamentals of Computer: Computer Definition - Block Diagram of Computer - Types of Computer - Characteristics of Computer - Applications of Computer. C programming: Overview of C - Constants - Compiling a C Program - Variables and Data Types - Technical Difference between Keywords and Identifiers -Types of C Qualifiers and format specifies - Operators and Expressions - Operators Precedence -Type conversion - Input-Output Statements.		**CO1**
UNIT-II	**DECISION MAKING**	**Periods: 12**
Decision making and branching - Relational operators – Logical operators - if – if else - if else if – nested if, Switch-case.		**CO2**
UNIT-III	**LOOPING AND ARRAYS**	**Periods: 12**
Looping: while - do while – for – break – continue - nested loop. Arrays: One Dimensional Arrays-Two-Dimensional Arrays-Multi-Dimensional Array-Dynamic arrays-Character Arrays and String-Sorting – Searching.		**CO3**
UNIT-IV	**FUNCTIONS, POINTERS**	**Periods: 12**
Functions: Introduction - Definition – Declaration – Categories of Functions - Nesting of Functions, Recursive functions - Passing Arrays to Functions - Strings – String library function. Pointers: Introduction - Declaring Pointer Variables - Initialization of Pointer Variables - Accessing the address of a variable - Accessing a variable thorough Pointer - Chain of Pointers - Pointer Expressions - Pointers and arrays – Pointers and functions – Call by Reference - Pointers and character strings - Array of Pointers - Pointers and Structures.		**CO4**
UNIT-V	**STRUCTURES AND UNIONS, FILE MANAGEMENT**	**Periods: 12**
User defined data types: Introduction - Structure: definition - declaration - Arrays of Structures - Nested structures- Passing structures to functions - Union - Enumeration and Typedef. Introduction to File Handling in C, Input and Output operations on a file - Error Handling - Random access to files - Command Line Arguments. Introduction to Pre-Processor - Macro substitution directives - File inclusion directives - Conditional Compilation Directives - Miscellaneous directives.		**CO5**

Lecture Periods: 60	**Tutorial Periods: -**	**Practical Periods: -**	**Total Periods: 60**

Text Books

1. Balagurusamy. E, "Programming in ANSI C", Tata McGraw Hill, 8th Edition, 2019.

2. Byron S Gottfried and Jitendar Kumar Chhabra, “Programming with C”, Tata McGraw Hill Publishing Company, 4th Edition, New Delhi, 2015.
3. Herbert Schildt,” C: The Complete Reference”, McGraw Hill, 4th Edition, 2014.
4. Yashwant Kanetkar, “Let us C”, BPB Publications, 16th Edition, 2017.
5. Archana Kumar, “Computer Basics with Office Automation”, Dream tech Press – Wiley Publisher, 2019.
6. ReemaThareja, “Fundamentals of Computing & C Programming” Oxford University Press, 2012.

Reference Books

1. Ashok N Kamthane, “Computer Programming”, Pearson education, 2rd Impression, 2012.
2. VikasVerma, “A Workbook on C “, Cengage Learning, 2rd Edition, 2012.
3. Dr. P. Rizwan Ahmed, “Office Automation”, Margham Publications, 2016.
4. P.Visu, R.Srinivasan and S.Koteeswaran, “Fundamentals of Computing and Programming”, 4th Edition, SriKrishna Publications, 2012.
5. PradipDev, ManasGhoush, “Programming in C”, 2rd Edition, Oxford University Press, 2011.

Web References

1. https://www.programiz.com/c-programming
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/
6. https://www.coursera.org/courses?query=c%20programming
7. https://www.udemy.com/course/c-programming-for-beginners-/

* TE – Theory Exam, LE – Lab Exam

COs/POs/PSOs Mapping

COs	Program Outcomes (POs)						Program Specific Outcomes (PSOs)		
	PO1	PO2	PO3	PO4	PO5	PO6	PSO1	PSO2	PSO3
1	3	2	3	3	2	2	2	2	3
2	3	2	2	3	3	3	2	2	2
3	2	2	2	2	3	3	3	2	2
4	3	3	2	2	2	2	2	2	3
5	2	3	2	2	3	3	3	3	3

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

Evaluation Method

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

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

Department	**Computational Studies**	Programme: **B.Sc COMPUTER SCIENCE**						
Semester	**First**	Course Category Code: **DSC**			*End Semester Exam Type: **TE**			
Course Code	**A23CPT102C**	Periods / Week			Credit	Maximum Marks		
		L	T	P	C	CAM	ESE	TM
Course Name	**DIGITAL LOGIC AND COMPUTER ORGANIZATION**	**4**	**0**	**0**	**4**	**25**	**75**	**100**
(common to B.Sc (CS) & BCA)								

Prerequisite	Basic Knowledge in logic gates and memory	
Course Outcome	*After the completion of this course, the students will be able to:*	BT Mapping (Highest Level)
	CO1 Explain the concepts of Digital design and number systems.	**K2**
	CO2 Design the digital system using combinational system design.	**K2**
	CO3 Design the digital system using Sequential system design.	**K3**
	CO4 Explain fundamentals of Computer systems.	**K3**
	CO5 Explain memory organization and CPU in computer systems.	**K4**

UNIT-I	**INTRODUCTION TO DIGITAL DESIGN**	**Periods: 12**
Data Representation - Data Types - Number Systems - Complements - Arithmetic Operations - Representations - Fixed Point, Floating Point - Error detection codes - Binary Codes- Logic Gates - Boolean Algebra - Map Simplification - Karnaugh maps: SOP and POS forms - QuineMcClusky method		**CO1**
UNIT-II	**COMBINATIONAL CIRCUIT DESIGN**	**Periods: 12**
Combinational Circuits, Half adder - full adder - code converters - combinational circuit design - Multiplexers and Demultiplexers – encoders – decoders - Combinational design using Mux and Demux.		**CO2**
UNIT-III	**SEQUENTIAL CIRCUIT DESIGN**	**Periods: 12**
Sequential Circuit Design, Flip flops (RS, Clocked RS, D, JK, JK Master Slave, T) - Counters - Shift registers and their types - Counters: Synchronous and Asynchronous counters.		**CO3**
UNIT-IV	**COMPUTER ORGANIZATION**	**Periods: 12**
Instruction Codes - Computer Registers - Computer Instructions - Timing And Control - Instruction Cycle - Memory Reference Instructions - I/O And Interrupt - Machine Language - Assembly Language - Assembler -. Peripheral Devices - Input-Output Interface - Asynchronous Data Transfer - Modes Of Transfer - Priority Interrupt - DMA - IOP - Serial Communication		**CO4**
UNIT-V	**MEMORY ORGANIZATION AND CPU**	**Periods: 12**
Memory Hierarchy - Main Memory - Auxiliary Memory - Associative Memory - Cache Memory - Virtual Memory - Memory Management Hardware - CPU: General Register Organization - Control Word - Stack Organization - Instruction Format - Addressing Modes - Data Transfer And Manipulation - Program Control.		**CO5**

Lecture Periods: 60	**Tutorial Periods: -**	**Practical Periods: -**	**Total Periods: 60**

Text Books

1. Morris Mano M, "Digital Logic and Computer Design", Pearson Education, 4th Edition, 2014
2. Carl Hamacher, ZvonkoVranesic, SafwatZaky, "Computer Organization", 5 th Edition, McGraw Hill, 2002.
3. V.Rajaraman, T. Radhakrishnan, "Digital Logic and Computer Design", PHI Learning, 2006.

Reference Books

1. B Ram, Computer Fundamentals: Architecture and Organization (TWO COLOUR EDITION), New AgeInternational (P) Ltd Publishers, 6th Edition 2020.
2. FLOYD, Digital Fundamentals, PEARSON INDIA, 11th Edition.
3. Alan B.Marcovitz, "Introduction to Logic design", Tata McgrawHill, 2rd Edition, 2005.

Web References

1. https://www.sanfoundry.com/best-reference-books-computer-organization-architecture/
2. http://www.cuc.ucc.ie/CS1101/David%20Tarnoff.pdf
3. https://www.tutorialspoint.com/computer_logical_organization/index.htm

* TE – Theory Exam, LE – Lab Exam

COs/POs/PSOs Mapping

COs	Program Outcomes (POs)						Program Specific Outcomes (PSOs)		
	PO1	PO2	PO3	PO4	PO5	PO6	PSO1	PSO2	PSO3
1	2	3	3	2	2	2	3	2	3
2	3	2	2	3	3	3	2	3	2
3	3	2	2	2	3	3	3	2	2
4	3	3	2	2	2	2	2	3	3
5	2	3	2	2	3	3	3	3	3

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

Evaluation Method

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

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

Department	**MATHEMATICS**	Programme: **B.Sc COMPUTER SCIENCE**						
Semester	**First**	Course Category Code: **IDC**			*End Semester Exam Type: **TE**			
Course Code	**A23MAD102C**	Periods / Week			Credit	Maximum Marks		
		L	T	P	C	CAM	ESE	TM
Course Name	**COMPUTATIONAL MATHEMATICS**	**2**	**1**	**-**	**3**	**25**	**75**	**100**
(Common to B.Sc. (CS) and BCA Branches)								
Prerequisite	Basic mathematics knowledge							

Course Outcome	**On completion of the course, the students will be able to**	BT Mapping (Highest Level)
CO1	Acquire the knowledge about matrices and able to compute Eigen values and Eigen.	**K3**
CO2	Analyze and solve the non-homogenous system of linear equations.	**K4**
CO3	Find expansion of trigonometric values and solution of trigonometric solution.	**K2**
CO4	Analyze and solve Differential Equations.	**K4**
CO5	Understand the use of Integrals and also able to apply it	**K2**

UNIT-I	**MATRICES**	**Periods: 12**
Rank of a Matrix - Characteristic equation - Eigen values and Eigen vectors of a real matrix -Properties of Eigen values and Eigenvectors - Diagonalization of matrices - Reduction of a quadratic form to canonical form by orthogonal transformation.		**CO1**
UNIT-II	**APPLICATIONS OF MATRICES**	**Periods: 12**
Matrix Representation of Data - Methods of Solving non-homogenous system of linear equations: Matrix Inverse method - Determinants method - Elimination method - Gauss Jordon.		**CO2**
UNIT-III	**TRIGNOMETRY**	**Periods: 12**
Expansions of cos nθ, sin nθ, tan nθ in terms of θ - Powers of sines and cosines of θ in terms of functions of multiples of θ – Expansions of sin θ and cos θ in a series of ascending powers of θ.		**CO3**
UNIT-IV	**DIFFERENTIAL EQUATIONS**	**Periods: 12**
Linear differential equations of higher order with constant coefficients - simultaneous linear differential equations, solution by variation of parameters method.		**CO4**
UNIT-V	**INTEGRALS AND APPLICATIONS**	**Periods: 12**
Double integrals and Triple Integrals. Applications: Areas by double integration and volumes by triple integration.		**CO5**

Lecture Periods: 45	**Tutorial Periods: 15**	**Practical Periods: -**	**Total Periods: 60**

Text Books ((Minimum 2 and maximum 3 – Latest editions to be given)

1. M.K. Venkataraman, Engineering Mathematics (First Year), 2rd Edition, The National PublishingCompany, Madras, 2001.
2. M.K. Venkataraman, Engineering Mathematics (Third Year-Part A), The National Publishing Company, Madras, 2001.
3. S. Durai Pandian and Laxmi Durai Pandian (1984) Trigonometry. Emerald Publishers, Chennai.

Reference Books (Minimum 5– Latest editions to be given)

1. N.P. Bali and Manish Goyal, A Text Book of Engineering Mathematics, Lakshmi Publications, New Delhi, 2007.
2. Grewal B.S., Higher Engineering Mathematics, Khanna Publishers, New Delhi, 41st Edition, 2011.
3. A. Singaravelu "Algebra and Trigonometry", Vol.-I Meenakshi Agency, Chennai (2003).
4. P. Kandasamy, K. Thilagavathy, "Mathematics of B.SC", Vol I & II, S. Chand Company Ltd, NewDelhi — 2004.
5. Shanti Narayan, "Integral Calculus", S Chand & Co. New Delhi, 2001.

Web References (Minimum 5)

https://www.youtube.com/watch?v=xyAuNHPsq-g

2. https://link.springer.com/chapter/10.1007/978-1-4757-2024-2_1
3. https://ncert.nic.in/ncerts/l/lemh203.pdf
4. https://www.khanacademy.org/math/precalculus/x9e81a4f98389efdf:trig/x9e81a4f98389efdf:inverse-
5. trig/v/inverse-trig-functions-arcsin

* TE – Theory Exam, LE – Lab Exam

COs/POs/PSOs Mapping

Cos	Program Outcomes (POs)					Program Specific Outcomes (PSOs)		
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3
1	2	3	3	-	2	3	2	1
2	3	-	3	2	1	3	2	1
3	3	2	3	3	2	2	3	1
4	2	-	3	-	3	3	3	2
5	3	-	2	3	2	3	2	1

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

Evaluation Method

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

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

Department	**Computational Studies**			Programme: **B.Sc COMPUTER SCIENCE**				
Semester	**First**			Course Category Code: **DSC**		*End Semester Exam Type: **LE**		
Course Code	**A23CPL101C**	Periods / Week			Credit	Maximum Marks		
		L	T	P	C	I M	ESE	TM
Course Name	**PROGRAMMING IN C LAB**	**0**	**0**	**4**	**2**	**50**	**50**	**100**
(common to B.Sc (CS) & BCA)								
Prerequisite	Basic Knowledge in C programming							

Course Outcome	*After completion of the course, the students will be able to*	BT Mapping (Highest Level)
	CO1 Apply and practice logical formulations to solve simple problems leading to specific applications.	**K3**
	CO2 Develop C programs for simple applications making use of basic constructs, arrays and strings	**K3**
	CO3 Develop C programs involving functions, recursion, pointers, and structures	**K3**
	CO4 Design applications using sequential and random access file processing	**K4**
	CO5 Build solutions for online coding challenges	**K4**

List of Experiment

1. Simple programming exercises to familiarize the basic C language constructs.
2. Develop programs using identifiers and operators.
3. Develop programs using decision-making and looping constructs.
4. Develop programs using functions as mathematical functions.
5. Develop programs with user defined functions – includes parameter passing.
6. Develop program for one dimensional and two dimensional arrays.
7. Develop program to illustrate pointers.
8. Develop program with arrays and pointers.
9. Develop program for dynamic memory allocation.
10. Develop programs for file operations.

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

Text Books

1. Zed A Shaw," Learn C the Hard Way: Practical Exercises on the Computational Subjects You Keep Avoiding (Like C)", Addison Wesley, 2016.
2. Anita Goel and Ajay Mittal, "Computer Fundamentals and programming in C", 1st Edition, PearsonEducation , 2011.
3. Yashwanth Kanethkar, "Let us C", 13th Edition, BPB Publications, 2008.
4. Maureen Sprankle, Jim Hubbard," Problem Solving and Programming Concepts," 9thEdition, Pearson, 2011.

Reference Books

1. https://alison.com/course/introduction-to-c-programming
2. https://www.geeksforgeeks.org/c-programming-language/
3. http://cad-lab.github.io/cadlab_data/files/1993_prog_in_c.pdf
4. https://www.tenouk.com/clabworksheet/clabworksheet.html
5. https://fresh2refresh.com/c-programming/
6. http://www.skiet.org/downloads/cprogrammingquestion.pdf

*LE – Lab Exam

COs/POs/PSOs Mapping

COs	Program Outcomes (POs)					Program Specific Outcomes (PSOs)		
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3
1	3	2	3	3	2	2	2	2
2	2	2	2	3	2	3	2	2
3	2	2	2	2	2	3	3	2
4	3	3	2	2	2	2	2	2
5	3	2	2	2	3	3	3	3

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

Evaluation Method

Assessment	Internal Marks			End Semester Examination (ESE) Marks	Total Marks
	Model Exam	Record	Attendance	50	100
Marks	30	10	10		

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

Department	**Computational Studies**	Programme: **B.Sc COMPUTER SCIENCE**						
Semester	**First**	Course Category Code: **DSC**			*End Semester Exam Type: **LE**			
Course Code	**A23CPL102C**	Periods / Week			Credit	Maximum Marks		
		L	T	P	C	I M	ESE	TM
Course Name	**Digital Lab**	**0**	**0**	**4**	**2**	**50**	**50**	**100**
(common to B.Sc (CS) & BCA)								

Prerequisite	Basic Knowledge in Logic gates		
Course Outcome	*After completion of the course, the students will be able to*		BT Mapping (Highest Level)
	CO1	Acquire knowledge about basic logic gates.	**K2**
	CO2	Develop the skills in writing assembly programs.	**K3**
	CO3	Develop the skill for error corrections in the micro level	**K3**
	CO4	Design Combinational Logic Circuits	**K4**
	CO5	Design Sequential Logic Circuits	**K4**

List of Exercises

1. Study of Integrated Circuits and their working Logics.
2. Verification of Boolean Theorems using Digital Logic Gates.
3. Design and Implementation of Combinational Circuits using Basic Gates Code Converters.
4. Design and Implementation of 4-Bit Binary Adder / Subtractor using Basic Gates and MSI Devices
5. Design and Implementation of Parity Generator / Checker using Basic Gates and MSI Devices.
6. Design and Implementation of Magnitude Comparator.
7. Design and Implementation of Application using Multiplexers /Demultiplexers.
8. Design and Implementation of Shift Registers.
9. Design and Implementation of Synchronous and Asynchronous Counters.
10. Design and Implementation of Johnson and Ring Counters.

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

Text Books

1. Albert Paul Malvino, Donald P Leach, Digital principles and applications, TMH, 2007.
2. Hayes J. P., “Computer Architecture & Organisation”, McGraw Hill,
3. Hamacher, “Computer Organisation and System Software”, EXCEL BOOKS.
4. Ghosh & Pal, Computer Organization & Architecture (TMH WBUT Series), TMH.

Web References

1. www.geeksforgeeks.org › computer-organization-and-architecture
2. www.javatpoint.com › computer-organization-and-architecture-tutorial
3. www.geeksforgeeks.org › digital-electronics-logic-design-tutorials

* TE – Theory Exam, LE – Lab Exam

COs/POs/PSOs Mapping

COs	Program Outcomes (POs)					Program Specific Outcomes (PSOs)		
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3
1	2	2	3	3	2	2	3	2
2	3	2	2	3	2	2	2	2
3	2	2	2	2	2	3	2	2
4	2	3	2	2	2	2	2	2
5	3	2	2	2	3	2	3	3

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

Evaluation Method

Assessment	Internal Marks			End Semester Examination (ESE) Marks	Total Marks
	Model Exam	Record	Attendance	50	100
Marks	30	10	10		

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

Department	**Computational Studies**	Programme: **B.Sc COMPUTER SCIENCE**						
Semester	**I**	Course Category Code: **SEC**			*End Semester Exam Type: **TE**			
Course Code	**A23ENSA02C**	Periods / Week			Credit	Maximum Marks		
		L	T	P	C	CAM	ESE	TM
Course Name	**Soft Skills**	**0**	**0**	**4**	**2**	**100**	**-**	**100**
	(Common to Science Branches)							

Prerequisite	Basic grammar knowledge	
Course Objectives	**The main objectives of the course are,**	
	To train students in Soft skills in order to enable them to be professionally competent	
	To facilitate the students for Goal setting and Goal Achieving skills	
	To enrich the sense of social responsibility and accountability of the students	
	To help the students to train them for Stress Management and Time Management	
	To train the students to work with team environment and Creative thinking	
Course Outcome	**On completion of the course, the students will be able to**	BT Mapping (Highest Level)
	CO1 enhance the Soft skills and compete professionally	**K3**
	CO2 achieve Goal setting and Goal Achieving skills	**K3**
	CO3 improve their social responsibility and accountability skills	**K6**
	CO4 enrich Stress Management and Time Management	**K6**
	CO5 Demonstrate the quality of a Team ship and Creative thinking	**K2**

UNIT-I	**POSITIVE ATTITUDE**	**Periods: 06**
Skills-Personal Skills: Knowing Oneself/Self-Discovery-Confidence Building- Defining Strengths of Attitude -formation of attitudes - psychological factors - the power of positive attitude -the benefits of positive attitude – developing positive attitude - negative attitude – the causes of negative attitude -the consequences of negative attitude -how to change negative attitude		**CO1**
UNIT-II	**GOAL SETTING**	**Periods: 06**
Introduction - importance of goal setting - goal definition – types of goals -what exactly goal setting why people don't set goals -how to choose the right goals - SMART GOALS -Career goals -benefits of career goal setting -goal setting tips		**CO2**
UNIT-III	**STRESS AND TIME MANAGEMENT**	**Periods: 06**
Definition of Stress management - types of stress - causes of stress - stress management and reduction techniques Definition of Time management - Setting goals, planning – prioritizing - setting deadlines - multi-tasking - practicing self-discipline - overcoming procrastination		**CO3**
UNIT-IV	**TEAMWORK SKILLS**	**Periods: 06**
Communication as Social Construction - Dynamics of professional Group communication - Group and Team - Team Building Process - Managing conflict and appreciating/respecting differences - Decision making & effective negotiation - Types of teams - Understanding, Identity and nurturing sensitivity (in terms of gender, orientation, language)		**CO4**
UNIT-V	**PROBLEM SOLVING THROUGH CREATIVE THINKING**	**Periods: 06**
Thinking Creatively-Improving Perceptions -Creative thinking as an essential skill - Techniques of creative thinking (such as brainstorming, lateral thinking, mind mapping, rich pictures, role play) - Practical problem solving through creative thinking - Case Study		**CO5**

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

Text Books ((Minimum 2 and maximum 3 – Latest editions to be given)

1. Sabina Pillai, Agna Fernandez, *Soft Skills and Employability Skills*, Cambridge University Press, 2017.
2. Jeff Butterfield, *Soft Skills for Everyone*, Cengage India Private Limited, 2nd Edition, 2020.
3. Alex K, *Soft Skills*, S Chand & Company, 1st Edition, 2014

Reference Books (Minimum 5– Latest editions to be given)

1. Barun Mitra, *Personality Development and Soft Skills 2*, Oxford University Press, 2016
2. Prashant Sharma, *Soft Skills 3rd Edition: Personality Development for Life Success*, BPB Publications, 2021.
3. Ghosh, B.N, *Managing Soft Skills for Personality Development*, Tata McGraw Education Publication, 1st Edition, 2012.

Web References (Minimum 5)

1. https://www.mindtools.com/a5ykiuq/personal-goal-setting
2. https://www.healthlinkbc.ca/health-topics/stress-management-managing-your-time
3. https://www.herzing.edu/blog/7-important-teamwork-skills-you-need-school-and-your-career

* TE – Theory Exam, LE – Lab Exam

COs/POs/PSOs Mapping

COs	Program Outcomes (POs)												Program Specific Outcomes (PSOs)		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
1	-	-	-	-	-	3	-	-	3	3	2	3	2	2	3
2	-	-	-	-	-	3	-	-	2	3	3	2	3	2	3
3	-	-	-	-	-	2	-	-	3	3	3	3	2	2	3
4	-	-	-	-	-	2	-	-	3	2	3	2	3	2	3
5	-	-	-	-	-	2	-	-	2	2	2	1	2	1	3

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

Evaluation Method

Assessment	Continuous Assessment Marks (CAM)					End Semester Examination (ESE) Marks	Total Marks
	CAT 1	CAT 2	Model Exam	Assignment*	Attendance		
Marks	80		-	10	10	-	100

Department	**Computational Studies**	Programme: **B.Sc COMPUTER SCIENCE**						
Semester	**I**	Course Category Code: **AEC**			*End Semester Exam Type: **TE**			
Course Code	**A23AETA01C**	Periods / Week			Credit	Maximum Marks		
		L	T	P	C	CAM	ESE	TM
Course Name	**Public Administration**	**2**	**0**	**0**	**1**	**100**	**-**	**100**
(Common to all science Branches)								

Prerequisite	Basic Knowledge in Public administration	
Course Objectives	**The main objectives of the course are,**	
	To introduce the elements of public administration	
	To help the students obtain a suitable conceptual perspective of public administration	
	To introduce them the growth of institution devices to meet the need of changing times	
	To instill and emphasize the need of ethical seriousness in contemporary Indian Public Administration	
Course Outcome	**On completion of the course, the students will be able to**	BT Mapping (Highest Level)
	CO1 Understand the concepts and evolution of Public Administration.	**K2**
	CO2 Be aware of what is happening in the Public Administration in the country.	**K1**
	CO3 Explain the Territory Administration in the State and the Centre.	**K2**
	CO4 Appreciate emerging issues in Indian Public Administration.	**K6**
	CO5	

UNIT-I	INTRODUCTION TO PUBLIC ADMINISTRATION	**Periods: 07**
Meaning, nature and Scope of Public Administration and its relationship with other disciplines- Evolution of Public Administration as a discipline –– Woodrow Wilson, Henry Fayol , Max Weber and others - Evolution of Public Administration in India – Arthashastra – Colonial Administration upto 1947		**CO1**
UNIT-II	PUBLIC ADMINISTRATION IN INDIA	**Periods: 08**
Enactment of Indian Constitution - Union Government – The Cabinet – Central Secretariat –– All India Services – Training of Civil Servants – UPSC – NitiAyog – Statutory Bodies: The Central Vigilance Commission – CBI - National Human Rights Commission – National Women's Commission –CAG		**CO2**
UNIT-III	STATE AND UNION TERRITORY ADMINISTRATION	**Periods: 08**
Differential Administrative systems in Union Territories compared to States Organization of Secretariat: - Position of Chief Secretary, Functions and Structure of Departments, Directorates – Ministry of Home Affairs supervision of Union Territory Administration – Position of Lt.Governor in UT – Government of UnionTerritories Act 1963 – Changing trend in UT Administration in Puducherry and Andaman and Nicobar Island.		**CO3**
UNIT-IV	EMERGING ISSUES IN INDIAN PUBLIC ADMINISTRATION	**Periods: 07**
Changing Role of District Collector – Civil Servants – Politicians relationship – Citizens Charter - Public Grievance Redressal mechanisms –– The RTI Act 2005 – Social Auditing and Decentralization – Public Private partnership.		**CO4**

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

Text Books

1. Avasthi and Maheswari, “Public Administration”, Lakshmi Narain Agarwal, 1st Edition, 2016.
2. Ramesh K.Arora, “Indian Public Administration: Institutions and Issues”, New Age InternationalPublishers, 3rdEdition, 2012.
3. RumkiBasu, “Public Administration: Concept and Theories”, Sterling, 1st Edition, 2013.

Reference Books

1. Siuli Sarkar, “Public Administration in India”, Prentice Hall of India, 2nd Edition, 2018.
2. M. Laxmikanth, “Public Administration”, McGraw Hill Education, 1st Edition, 2011.
3. R.B.Jain, “Public Administration in India, 21st Century Challenges for Good Governance”,Deep andDeepPublications, 2002.

Web References

1. http://cic.gov.in/
2. http://www.mha.nic.in/
3. http://rti.gov.in/
4. http://www.cvc.nic.in/

* TE – Theory Exam, LE – Lab Exam

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

Evaluation Method

Assessment	Continuous Assessment Marks (CAM)					End Semester Examination (ESE) Marks	Total Marks
	CAT 1	CAT 2	Model Exam	Report	Attendance		
Marks	70		-	20	10	-	100