Curriculum Framework under Choice Based Credit System (CBCS) and
Syllabus for Outcome Based Education (OBE) in

BACHELOR OF COMPUTER SCIENCE (B.SC CS) Degree Programme

for the students admitted from the academic year 2021 – 22 and onwards

அறிவிலே தெளிவு
அகத்திலே அண்பு

SREE SARASWATHI THYAGARAJA COLLEGE

An Autonomous, NAAC Re – Accredited with 'A' Grade, ISO 9001:2008 Certified Institution, Affiliated to Bharathiar University, Coimbatore, Approved by AICTE for MBA/MCA and by UGC for 2(f) & 12(B) status
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Approved by Academic Council
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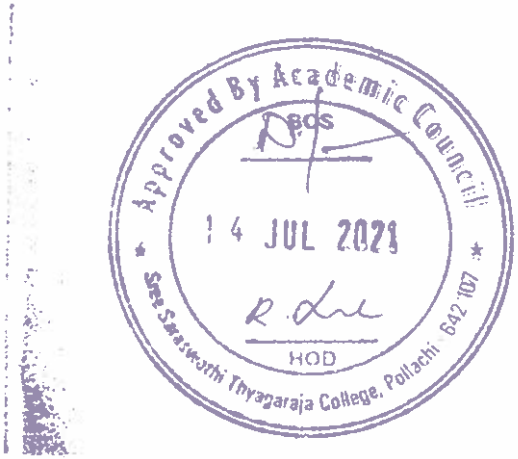


SREE SARASWATHI THYAGARAJA COLLEGE [AUTONOMOUS], POLLACHI

B.Sc (Computer Science) Degree program PEO, PO and PSO

PROGRAMME EDUCATIONAL OBJECTIVES (PEO)

Within a few years of obtaining B.Sc degree in Computer Science, the student will be able to

PEO1: Graduates are prepared to be employed in IT industries by providing expected domain knowledge.

PEO2: Graduates are provided with practical training, hands-on and project experience to meet the industrial needs.

PEO3: Achieve advanced knowledge in field of computer science to excel professionally in IT Industry with effective communication to work in a team.

PEO 4: Exhibit creative and innovative ideas with good analytical and entrepreneur skills in the field of Computer Science

PROGRAMME OUTCOMES (POS)

The students at the completion of the programme will be able to

PO1: Demonstrate professionally with social, cultural and ethical responsibility as an individual as well as in Multifaceted teams with positive attitude

PO2: Adapt to sustain in emerging era and constantly upgrade skills towards independent and lifelong learning.

PO3: Communicate complex concepts with professionalism by adapting appropriate resources and modern tools.

PO4: Design, develop algorithms and provide software solutions to cater the industry needs and to develop the skills to take up entrepreneurships and higher studies in the field of Computer Science

PO5: Inculcate skills to excel in the fields of Computer Science and IT enabled services, Public and Private Sectors, Teaching and Research.

PROGRAMME SPECIFIC OUTCOMES (PSOs)

At the completion of the programme, the students will be able to

PSO1: Apply the knowledge gained during the course of the program to identify, formulate and solve real life problems to meet the core competency with continuous up gradation.

PSO2: Apply the knowledge of ethical and management principles required to work in a team with stewardship of the society.

PSO 3: Able to apply the knowledge gained during the course of the programme in the areas of problem solving, analysis, design & development of software and hardware to choose a career option in high degree of employability / entrepreneurship / Higher Education.

PSO 4: Evolve as globally competent computer professionals possessing leadership skills and domain knowledge for developing innovative solutions in multi disciplinary domains.

PSO 5: To acquire the knowledge on multiple programming skills to develop core software products that lays the foundation for further application development in the field of computer science and recent technology with focus on multimedia and animation.

Mapping the Programme Outcomes with Programme Educational Objectives

POs/PEOs	PEO1	PEO2	PEO3	PEO4
PO1	S	M	M	M
PO2	M	S	M	S
PO3	L	M	S	M
PO4	M	M	M	S
PO5	L	M	S	S

S- Strong; L- Low; M-Medium

Mapping the Programme Specific Outcomes with Programme Educational Objectives

PSOs/PEOs	PEO1	PEO2	PEO3	PEO4
PSO1	M	S	M	M
PSO2	S	M	M	M
PSO3	M	S	S	S
PSO4	M	S	S	S
PSO5	M	S	S	S

S- Strong; L- Low; M-Medium

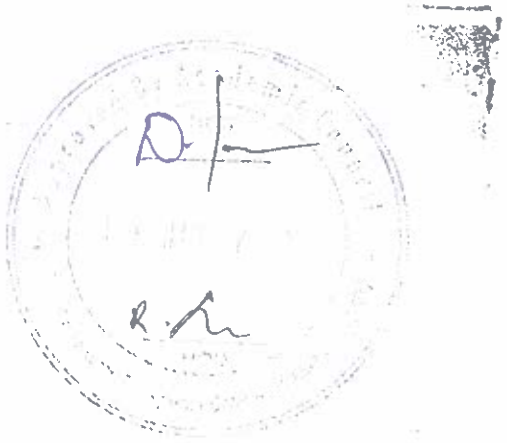
Curriculum Framework with Choice Based Credit System (CBCS) and Syllabus for Outcome Based Education (OBE) in Bachelor of Computer Science (BSc CS) Degree program for the students admitted from the Academic Year 2021 – 22 onwards

The Choice Based Credit System (CBCS) preserves the identity, autonomy and uniqueness of every programme and reinforce their efforts to be student centric in curriculum designing and skill imparting.

Choice Based Credit System (CBCS): Choice based credit system (CBCS), provides a learning platform wherein the student has the flexibility to choose their course from a list of electives, core, allied, non-major courses, value-based courses, and skill-based courses. This is a student-centric approach to learning or acquiring higher education. The curriculum with CBCS aims to achieve and accomplish the students experience their choice of courses and credits for their horizontal and vertical mobility.

For BSc Computer Science programme, a student must earn 140 credits as mentioned in the below table.

Part	Curriculum Structure	No. of Courses	Credits to be earned
I	Languages	02	06
II	English	02	06
III	Core (Major) Courses	21	81
	Allied Courses	04	16
	Core Electives	03	15
IV	Non-Major Electives (NME)	02	04
	Value Based Courses (VBC)	02	04
	Skill Based Courses (SBC)	04	08
V	Extension Activities	01	Grade
	Total	**41**	**140**
IV	Extra Credit Courses (ECC)	04	8
	Grand Total	**45**	**148**



Outcome Based Education:

"Outcome-Based Education" (OBE) is considered as a student-centred instruction model that focuses on measuring student performance through outcomes. Outcomes include knowledge, skills and attitudes. In the OBE model, the required knowledge and skill sets for a particular degree is predetermined and the students are evaluated for all the required parameters (Outcomes) during the course of the program.

Part – I: **Languages:** Part – I comprises of category namely Tamil/Malayalam/French

Part – II: **English**: Part – II comprises of the category namely English

Part – III: **Core Courses:** A set of ***major papers*** that include Theory, Practical, Allied, Core Electives, Project and Internship in the major field of study selected by the student. Core courses are mandatory in nature.

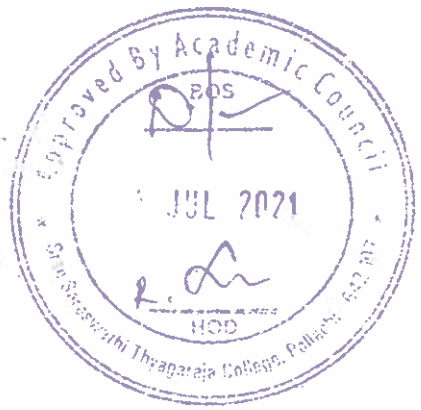
Part – IV: Non - Major Electives (NME): A set of non – major elective courses are offered as choices to the students, outside of their major discipline. The courses other than the core and allied shall be opted by the students as Non – Major Elective.

Value Based Courses (VBC): Courses of cross-cutting issues relevant to the current pressing concerns both nationally and internationally such as gender, environment and sustainability, human values and professional ethics, development of creative and divergent competencies.

Skill Based Courses (SBC): The courses offered as skill - based courses under Part IV of the programme is aimed at imparting Advanced Skill of the programme. This comprises of four courses from 3rd to 6th semesters

Massive Open Online Courses (MOOC): According to the guidelines of UGC, the students are encouraged to avail this option of enriching by enrolling themselves in the MOOC provided by various portals such as SWAYAM, NPTEL, and Spoken Tutorial etc. As per University Grants Commission (UGC) notification published in the gazette of India about UGC (Credit Framework for Online Learning Courses through SWAYAM) Regulation, 2016 on 19th July 2016, The Massive Open Online Course (MOOC) through any online platform is compulsory. The institute is transferring the equivalent credit earned on receipt of MOOCs completion certificate and it shall incorporate these marks/credits in the overall mark sheet of the student.

Part – V: Extension Activities: Students shall be actively participated in the extension activities such as National Service Scheme (NSS), YOGA, Youth Red Cross (YRC), Sports, and Red Ribbon Club (RRC). The extension activities are must for each student to take part in at-least in any one of these activities for the fulfillment of the degree.



Scheme of Examination (Student admitted from 2021-22 onwards)

PART		TYPE OF THE COURSE	COURSE CODE	NAME OF THE COURSE	INS. HRS	CIA	EXT	TOT	CR
SEMESTER – I									
I	Language-1	Theory	21TAM1L10	Language – I	6	50	50	100	3
II	English	Theory	21GEN1L10	Communicative English – I	6	50	50	100	3
III	Core1	Theory	21BCAGCA0	Digital Fundamentals and Computer Organization	4	50	50	100	4
III	Core2	Theory	21BCT1C20	Programming in C	4	50	50	100	4
III	Core3	Practical	21BCT1C30	Programming in C Lab	3	50	50	100	2
III	Allied 1	Theory	-	Allied – 1	5	50	50	100	4
IV	VBC1	Theory	-	Value Based Courses – 1	2	50	-	50	2
	ECC	Theory	21GEN1Z10	Professional English I	4*	50	50	100*	2*
				Total for Semester – I	**30**	-	-	**650**	**22**
SEMESTER – II									
I	Language -2	Theory	21TAM2L20	Language – II	6	50	50	100	3
II	English	Theory	21GEN2L20	Communicative English – II	6	50	50	100	3
III	Core4	Theory	21BCS2C10	Data Structures and Algorithms	4	50	50	100	4
III	Core5	Theory	21BCS2C20	Programming in C++	4	50	50	100	4
III	Core6	Practical	21BCS2C30	C++ and Data Structures Lab	3	50	50	100	2
III	Allied 2	Theory	-	Allied – 2	5	50	50	100	4
IV	VBC2	Theory	-	Value Based Courses – 2	2	50	-	50	2
	ECC	Theory	21GEN2Z10	Professional English II	4*	50	50	100*	2*
				Total for Semester – II	**30**	-	-	**650**	**22**
SEMESTER – III									
III	Core7	Theory	21BCS3C10	Operating Systems	5	50	50	100	5
III	Core8	Theory	21BITGCA0	Java Programming	5	50	50	100	5
III	Core9	Practical	21BITGCB0	Java Programming Lab	5	50	50	100	5
III	Core10	Theory	21BCS3C40	System Analysis and Design	4	50	50	100	2
III	Allied 3	Theory	-	Allied – 3	5	50	50	100	4
IV	SBC1	Practical	19BCS3S10	Multimedia Systems Lab-1	4	30	45	75	2
IV	NME1	Theory/ Practical	-	NME Course – 1	2		50	50	2
				Total for Semester – III	**30**	-	-	**625**	**25**
SEMESTER – IV									
III	Core11	Theory	21BCA4C10	Software Engineering	5	50	50	100	5
III	Core12	Theory	21BCS4C20	VB.Net Programming	5	50	50	100	5
III	Core13	Practical	21BCS4C30	VB.Net Programming Lab	5	50	50	100	5
III	Core14	Theory	21BIT4C40	Database Management System	4	50	50	100	4
III	Allied 4	Theory	-	Allied – 4	5	50	50	100	4
IV	SBC2	Practical	19BCS4S10	Multimedia Systems Lab-2	4	30	45	75	2
IV	NME2	Theory/ Practical		NME Course – 2	2	-	50	50	2
				Total for Semester – IV	**30**	-	-	**625**	**27**

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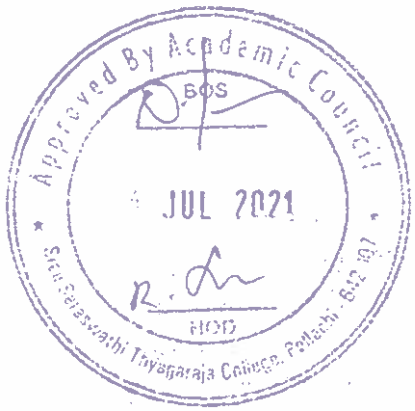
SEMESTER – V									
III	Core15	Theory	21BCA5C10	Computer Networks and Information Security	5	50	50	100	5
III	Core16	Theory	21BCS5C20	Python Programming	6	50	50	100	4
III	Core17	Practical	21BCS5C30	Python Programming Lab	6	50	50	100	3
III	Core18	Project	21BCS5C40	Project Work Lab	4	50	50	100	2
III	CE1	Theory	-	Core Elective – 1	5	50	50	100	5
IV	SBC3	Practical	19BCS5S10	Animation Technique Lab-1	4	30	45	75	2
V	EAC		18ETN5X10	**Extension Activity** National Service Scheme / Sports	GRADE				
				Total for Semester – V	**30**	-	-	**575**	**21**
SEMESTER – VI									
III	Core19	Theory	21BCS6C10	PHP Programming	6	50	50	100	5
III	Core20	Practical	21BCS6C20	PHP Programming Lab	6	50	50	100	4
III	Core21	Theory	21BCS6C30	Artificial Intelligence and Machine Learning	4	50	50	100	2
III	CE2	Theory	-	Core Elective – 2	5	50	50	100	5
III	CE3	Theory	-	Core Elective – 3	5	50	50	100	5
IV	SBC4	Practical	19BCS6S10	Animation Techniques Lab-2	4	30	45	75	2
				Total for Semester – VI	**30**	-	-	**575**	**23**
				Total	**180**	-	-	**3700**	**140**
	ECC			**Professional English (2 courses)**	-	-	-	-	**4**
	ECC		-	**MOOC (2 courses)**	-	-	-	-	**4**
				Grand Total					**148**

$ INS.HR = Instructional Hours

****Note: As per UGC guidelines SWAYAM Courses is made compulsory for students of BSC CS programme admitted during 2020 – 21 onwards. Every student has to compulsorily complete 2 SWAYAM courses to earn 4 credits (2 Credits per course) to become eligible for the award of degree. Credits will appear in the consolidated mark sheet only.**



List of Part – 1 Language Courses

S.No.	Semester	Type of the course	Course Code	Course Name
1	I	Theory	21TAM1L10	Tamil – I
2	I	Theory	21HIN1L10	Hindi – I
3	I	Theory	21MAL1L10	Malayalam - I
4	I	Theory	21FRE1L10	French – I
5	II	Theory	21TAM2L20	Tamil – II
6	II	Theory	21HIN2L20	Hindi – II
7	II	Theory	21MAL2L20	Malayalam – II
8	II	Theory	21FRE2L20	French – II

List of Allied Courses (CBCS)

S.No.	Semester	Type of the course	CourseCode	Course Name
Allied – I				
1	I	Theory	21BMAGAA0	Applied Statistics
2	I	Theory	21BMAGAB0	Basic Mathematics for Science
3	I	Theory	21BMAGAC0	Theory of Matrices and Differential Equations
Allied – II				
1	II	Theory	21BMAGAD0	Numerical Methods
2	II	Theory	21BMAGAE0	Operations Research
3	II	Theory	21BMAGAF0	Numerical Ability
Allied – III				
1	III	Theory	21BMAGAL0	Discrete Mathematics for Science
Allied – IV				
1	IV	Theory	21BCM4A30	Principles of Accountancy
2	IV	Theory	21BCM4A20	Fundamentals of Accounting

List of Value Based Courses

S.No.	Semester	Type of the course	Course Code	Course Name
1	I	Theory	18DHE1V10	Environmental Studies
2	II	Theory	18DHE2V20	Value Education and Human Rights

List of Non – Major Electives offered

S. No.	Semester	Type of the course	Course Code	Course Name	Offering Department
1	III	Theory	18TAM3N10	Basic Tamil – I	Tamil
2	III	Theory	18TAM3N20	Advanced Tamil – I	
3	IV	Theory	18TAM4N30	Basic Tamil II	
4	IV	Theory	18TAM4N40	Advanced Tamil II	
5	III	Theory	19BEN3N10	Basic English for Competitive Examinations – I	English
6	IV	Theory	19BEN4N20	Basic English for Competitive Examinations – II	
7	III	Theory	19BMA3N10	Numerical Ability-I	Mathematics
8	IV	Theory	19BMA4N20	Numerical Ability-II	

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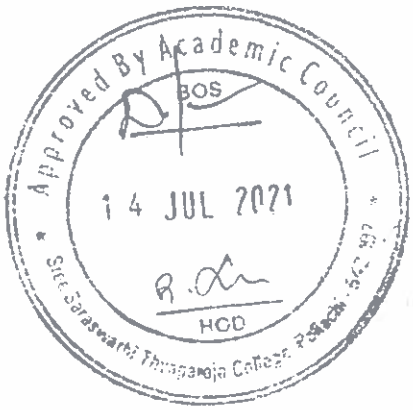
9	III	Theory	19BPH3N10	Physics of Sports	Physics
10	IV	Theory	19BPH4N20	Physics of Music	
11	III	Theory	19BCH3N10	Chemistry for everyday life -1	Chemistry
12	IV	Theory	19BCH4N20	Chemistry for everyday life -2	
13	III	Theory	19BSY3N10	Psychology Life Skills-I	Psychology
14	IV	Theory	19BSY4N20	Psychology Life Skills-II	
15	III	Theory	19BCM3N10	Practical Banking	Commerce
16	IV	Theory	19BCM4N20	Capital Market	
17	III	Theory	19BBA3N10	Customer Relationship Management	Management
18	IV	Theory	19BBA4N20	Rural Marketing	
19	III	Practical	19BCS3N10	Excel Communications and Slide Logic	Computer Science
20	IV	Practical	19BCS4N20	Web Design for Non-Designers	

List of Core Elective Courses (CBCS)

S.No.	Semester	Type of the course	Elective	CourseCode	Course Name
Electives of B.Sc(CS)					
1	V	Theory	I	21BCS5EA0	Object Oriented System Development
2	V	Theory	I	21BCS5EB0	Mobile computing and WAP
3	VI	Theory	II	21BCS6EA0	Software Testing and Software Quality Assurance
4	VI	Theory	II	21BCS6EB0	Network Protocols
5	VI	Theory	III	21BCS6EC0	Software Project Management
6	VI	Theory	III	21BCS6ED0	Network Security
Electives of BCA					
1	V	Theory	I	21BCA5EA0	E- Commerce and M-Commerce
2	VI	Theory	II	21BCA6EA0	Business Intelligence
3	VI	Theory	III	21BCA6EB0	Cloud Computing
Electives of B.Sc(IT)					
1	V	Theory	I	21BIT5EA0	Data Mining & Data Warehousing
2	VI	Theory	II	21BIT6EA0	Big Data Analytics
3	VI	Theory	III	21BIT6EB0	Internet of Things

The Course "Yoga" is offered as Capability Enhancement Course. Certificate with grade will be awarded according to the marks obtained.



SEMESTER – I

Course Code	Course Name	Category	Lecture (L)	Tutorial (T)	Practical (P)	Credit
21TAM1L10	Tamil	Part I Tamil Paper I	60	-	-	3

Preamble: தமிழ் இலக்கியத்தில் உள்ள நேரடித்தன்மை, நிகழ்கால சமூகஅசைவுகள், மொழிநடை ஆகியவற்றை மாணவர்கள் எளிதில் விளங்கிக் கொள்ளும் வகையில் முதல் பருவத்துக்கான பாடங்கள் தெரிவு செய்யப்பட்டுள்ளன. இன்றைய இலக்கியங்கள் தரும் படைப்பனுபவத்தின் நீட்சியாகப் பொதுக்கட்டுரைகள், கடிதம், கவிதை, சிறுகதை படைப்பதற்கான பயிற்சிகளையும் தமிழ்ப்பாடம் வழங்குகிறது.

Prerequisite:

- மேனிலைப்பள்ளி முடிய கற்றவற்றைப் பகுத்து தொகுத்து ஆராயும் போக்கில் பாடத்திட்டம் அமைக்கப்பட்டுள்ளது.
- மானிட மதிப்புகளை உணரும் வகையிலும், போட்டித்தேர்வுகளை எதிர்கொள்ளும் நிலையிலும் 'தமிழ்' - பகுதி - I அமைக்கப்பட்டுள்ளது.
- பிழையின்றிப் பேச, எழுத ஆராயும் முயற்சிக்குப் பயிற்சி தரப்படுகிறது.

Course Outcomes (COs)

On successful completion of this course the students will be able to:

CO Number	Course Outcome (CO) Statement	Blooms Taxonomy Knowledge Level
CO1	இக்கால இலக்கியங்களின் பயன்களை அறிவித்தலின் வெளிப்பாடாக கவிதைப் பரிமாணங்கள், படைப்புகள் குறித்த அடிப்படைச் செய்திகளை உணர்ந்து கொள்ளுதல்.	K1
CO2	தமிழர்களின் பண்பாட்டுக் கூறுகளையும் பின்னணியையும் வெளிப்படுத்தும் விதமாகச் சிறுகதைகள், புதினம் சார்ந்த கருத்துகளைப் புரியவைத்தல்.	K2
CO3	நடைமுறையில் தமிழைப் பிழையின்றி எழுத உதவுதல், கவிதை, கடிதம், கதை எழுதும் திறமையை வளர்த்தல்.	K3

Mapping the Programme Outcomes

COs/POs	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S	S	M			S	S			
CO2	S	S	M			S	S			
CO3	S	S	S			M	S			

S- Strong; L- Low; M-Medium

Unit	Course contents	Hours	e-Resources/ e-Content
I	அலகு I கவிதைகள் பாரதியார் – பொய்யோ மெய்யோ - நிற்பதுவே நடப்பதுவே பாரதிதாசன் – மாண்டவன் மீண்டான் - ஆற்றோர தழைமரங்கள் நாமக்கல் கவிஞர் – கண்டிலேன் - ஐயம் இல்லை தெய்வம் வாணிதாசன் – மாலை – அங்கு இங்குமாய் சிதறிய கண்ணதாசன் – தத்துவப்பாடல் - பரமசிவன் கழுத்திலிருந்து நா.காமராசன் – சரித்திர கர்ப்பம் - அம்மா இருட்டுக்குள் மேத்தா – வெளிச்சம் வெளியே இல்லை – வீட்டுக்கு வெளியே அப்துல் ரகுமான் – சுயப்பிரசவம் - தெரிந்துகொள் சிற்பி – பெல்ஜியம் கண்ணாடி – மரச்சட்ட தங்கரேக்குகள் இளம்பிறை – அறுவடைக்காலம் - அல்லும்பகலும் விஜயலட்சுமி – அற்புத ரகசியங்கள் - எந்தப்பாடலும் கல்பனா – பறத்தல் அதன் சுதந்திரம் - ஓடி ஓடித் திரிந்து ஹைக்கூ கவிதைகள் – கிழிந்தது சேலை – என்.டி.ராஜ்குமார் விடுமுறையேவேண்டாம் - சீனு,தமிழ்நெஞ்சன் புதுச்செருப்பு – தோழன் மஞ்சள் பூசி – புதுவை தமிழ்நெஞ்சன் ஐயனார் கை – மணிசண்முகம்	15	YouTube Videos & PPT
II	அலகு II சிறுகதைகள் புதுமைப்பித்தன் – சங்குத்தேவனின் தர்மம் கு.அழகிரிசாமி – பித்தளை வளையல் வ.ரா. – கோட்டைவீடு ஜெயகாந்தன் – இரண்டு குழந்தைகள் பிரபஞ்சன் – அப்பாவின் வேஷ்டி தனுஷ்கோடி ராமசாமி – தீம் தரிகிட ஆதவன் – கனவுக்குமிழி தமயந்தி – பஞ்சாயத்து	15	PPT
III	அலகு III புதினம் திலகவதி - கல்மரம்	10	PPT
IV	அலகு IV இலக்கிய வரலாறு 1. கவிதை இலக்கியத்தின் தோற்றமும் வளர்ச்சியும் 2. சிறுகதையின் தோற்றமும் வளர்ச்சியும் 3. புதினத்தின் தோற்றமும் வளர்ச்சியும்	10	PPT
V	அலகு V இலக்கணம் பயிற்சி அளித்தல் - மொழித்திறன் வளர்த்தல் 1. எழுத்து மாற்றத்தால் ஏற்படும் பிழைகள் 2. வல்லினம் மிகும், மிகா இடங்கள் 3. மெல்லெழுத்து மிகும் இடங்கள் 4. வாக்கியங்களில் ஏற்படும் பிழைகள் 5. இலக்கணக் குறிப்பு 6. சரியான சொற்களைக் கண்டறிதல் கவிதை எழுதுதல், கடிதம், விண்ணப்பம் வரைதல்	10	YouTube Videos& PPT
	Total	60	

Text Book(s):_பாட_நூல்கள்

1. கவிதை, சிறுகதைத் திரட்டு - தமிழ்த்துறை வெளியீடு,
ஸ்ரீ சரஸ்வதி தியாகராஜா கல்லூரி,
2021 ஜூன் பதிப்பு.

2. பன்முக நோக்கில் தமிழ் இலக்கிய வரலாறு - முனைவர் கா. வாசுதேவன்,
தேவன் பதிப்பகம்,
16,43, திருநகர், திருவானைக்கோவில்,
திருச்சிராப்பள்ளி - 620 005
பன்னிரெண்டாம் பதிப்பு - 2017.

3. தமிழ் இலக்கிய வரலாறு - மு. வரதராசன்
சாகித்ய அகாடமி வெளியீடு, புதுதில்லி.
மறுபதிப்பு - 2012.

Reference Book(s): பார்வை நூல்கள்

1.கொங்குதேர் வாழ்க்கை - இ. இராஜமார்த்தாண்டன்
யுனைடெட் ரைட்டர்ஸ்,
67 - பீட்டர்ஸ் சாலை,
இராயப்பேட்டை, சென்னை -14.
முதல் பதிப்பு – 2003

2.சிறுகதையின் தோற்றமும் வளர்ச்சியும் - சிட்டி சிவபாத சுந்தரம்,
க்ரியா பதிப்பகம்,
சென்னை,
முதல் பதிப்பு - 1989.

3.தமிழில் சிறுகதை பிறக்கிறது - சி.சு.செல்லப்பா,
காலச்சுவடு பதிப்பகம்,
நாகர்கோவில்,
பதிப்பு-2007

4. தமிழில் தவறின்றி எழுத, பேச, கற்க! - நல்லாமூர் முனைவர் கோ.பெரியண்ணன்
முத்தமிழ் பதிப்பகம்
9 எ மேக்மில்லன் காலனி
நங்கை நல்லூர், சென்னை – 61.
பதிப்பு -2006.

5.தமிழ் நாவல் நூறாண்டு வரலாறும் வளர்ச்சியும் - பெ.கோ. சுந்தரராஜன்(சிட்டி),சோ. சிவபாத சுந்தரம்
கிறிஸ்தவ இலக்கிய சங்கம்,
அஞ்சல் பெட்டி எண். 501,
பார்க் டவுன்,
சென்னை- 600 003.

Focus of Course: இக்கால இலக்கியங்களின் வகைமைகளை எடுத்துக்காட்டும் விதத்தில் பாடத்திட்டம் அமைக்கப்பட்டுள்ளன. பிழையின்றி பேச, எழுத பயிற்சி வழங்கப்படுகிறது. கடிதம், கதை, கவிதை எழுதுதலுக்குப் பயன்படும் வகையில் பயிற்சி தரப்பட்டுள்ளது.

Course Designer: **Dr. K.Ramganesh,**
Assistant Professor, Dept. of Tamil, STC

14 JUL 2021

HOD

BoS Chairman

SEMESTER – I

HINDI PAPER - I

Credits: 3
Hours per Week: 6
(Prose, Non-detailed Text, Grammar & Translation Books Prescribed:

Course Code : 21HIN1L10
Total Instructional hours: 75

Unit No.	PART I HINDI PAPER I	HOURS
I	**PROSE : NUTHAN GADYA SANGRAH** Lesson 1 – Bharathiya Sanskurthi - Dr.Rajendra Prsad Lesson 3 – Razia - Ramaviksha Benipuri Lesson 4 – Makreal -Yespal Lesson 5 – Bahtha Pani Nirmala -'AGEYA' Lesson 6 – Rashtrapitha Mahathma Gandhi - Mukthibodh Lesson 9 – Ninda Ras - Harishankar Parsayi.	18
II	**NON DETAILED TEXT SHORT STORIES: KAHANI KUNJ** 1. Pareksha – Premchand 2. Mamtha - Jayashankar Prasad 3. Apna paraya - Jaynendrakumar 4. Admi ka bachcha - Yespal 5. Bolaram ka jeev - Harishankar Parsayi 6. Vapasi - Mannu Bhandari	18
III	**GRAMMAR : SHABDHA VICHAR ONLY** (NOUN, PRONOUN, ADJECTIVE, VERB, TENSE, CASE ENDINGS) Theoretical & Applied.	14
IV	**TRANSLATION : English – Hindi only.** ANUVADH ABHYAS – III (1-15 lessons only)	12
V	**COMPREHENSION:** 1 Passage from ANUVADH ABHYAS–III (16-30)	10
	TOTAL	72

Text Book:

Nuthan gadya sangrah, 2009, editor : Jayaprakash, publisher : Sumitra prakashan samitravas, 16/4, hastings road, Allahabad – 211001.

Kahani kunj, 2011, Editor : V.P. Amithab.Publisher : Goyind Prakashan, Sadhar Bagaar, Mathura, Uttar Pradesh,–281 001

Reference Books:

NAVEEN HINDI Vyakaran, 2002, Dakshin Bharat Hindi Prachar Sabha, Chennai – 600 017

SEMESTER – I

MALAYALAM PAPER - I

Credits : 3
Hours per Week: 6

Course Code : 21MAL1L10
Total Instructional hours: 75

This paper will have the following five units:

Unit I-Novel - PathummayudeAadu - Vaikam Muhammed Basheerr
Unit II - Novel- - PathummayudeAadu - Vaikam Muhammed Basheerr
Unit III- Short Story - EntePriyappetaKadhakal – Akbar Kakkattil)
Unit IV- Short Story - EntePriyappetaKadhakal – Akbar Kakkattil)
Unit V- Composition &Translation(English to Malayalam)

***Text Books*:**

1. Novel- PathummayudeAadu - Vaikam Muhammed Basheer

(D.C.Books, Kottayam, Kerala)

2. Short Story - EntePriyappetaKadhakal – Akbar Kakkattil)

(D.C. Books, Kottayam, Kerala)

3. Expansion of ideas, General Eassay and Translation. (A simplepassage)

Reference Books:

1.Malayala Novel SahithyaCharitram-K.M.Tharakan (N.B.S.Kottayam)
2.Cherukatha Innale Innu-M.Achuyuthan (D.C Books, Kottayam)
3.Sahithya CharitramPrasthanangalilude- Dr.K.M George,
(D.C.Books Kottayam)
4. MalayalaSahithyavimarsam-Sukumar Azheekode (D.C.books

SEMESTER – I

FRENCH PAPER - I

Credits : 3
Hours per Week: 6

Course Code : 21FRE1L10
Total Instructional hours: 75

Syllabus:

Part 1 - French 1

Unit No.	Topics
1	Etape 0
	Etape 1 (Lecons 1 - 3)
2	Etape 2 (Lecons 1 - 3)
3	Etape 3 - Leçons 1 - 2
4	Etape 3 – Leçon 3
	Etape 4 – Leçon 1
5	Etape 4 – Leçons 2 - 3

Text Book Prescribed: Adomania 1 – Methode de francais

Authors: Céline Himber, Corina Brillant, Sophie Erlich

Publisher: HACHETTE FLE

Available at: GOYAL Publishers and Distributors Pvt Ltd, New Delhi (9810322459)

Reference: Latitudes 1

Author: Yves Loiseau, Régine Merieux

Publisher: French and European Publications Inc

Available at: GOYAL publishers and distributors Pvt Ltd, New Delhi (9810322459)

SWAYAM : https://swayam.gov.in/nd2_cec19_lg04/preview

by Prof. Nirupama Rastogi (Retd) English and Foreign Languages University, Hyderabad

SEMESTER I

Course Code	Course Name	Category	Lecture (L)	Tutorial (T)	Practical (P)	Credit
21GEN1L10	Communicative English-I	Language	70	5	-	3
Preamble: This course aims to provide a better understanding on the various aspects of communicative skills through a keen focus on LSRW.						
Prerequisite: Basic knowledge in Communicative English and Skills						

Syllabus

Unit	Course contents	Instructional Hours
I	1. **Listening and Speaking** a. Introducing self and others b. Listening for specific information c. Pronunciation (without phonetic symbols) i. Essentials of pronunciation ii. American and British pronunciation 2. **Reading and Writing** a. Reading short articles – newspaper reports / fact based articles i. Skimming and scanning ii. Diction and tone iii. Identifying topic sentences b. Reading aloud: Reading an article/report c. Journal (Diary) Writing 3. **Study Skills** - 1 a. Using dictionaries, encyclopaedias, thesaurus 4. **Grammar in Context:** Naming and Describing • Nouns & Pronouns • Adjectives	15
II	1. **Listening and Speaking** a. Listening with a Purpose b. Effective Listening c. Tonal Variation d. Listening for Information e. Asking for Information f. Giving Information 2. **Reading and Writing** 1. a. Strategies of Reading: Skimming and Scanning b. Types of Reading : Extensive and Intensive Reading c. Reading a prose passage d. Reading a poem e. Reading a short story 2. Paragraphs: Structure and Types a. What is a Paragraph? b. Paragraph structure c. Topic Sentence d. Unity e. Coherence f. Connections between Ideas: Using Transitional words and expressions g. Types of Paragraphs 3. **Study Skills II**: Using the Internet as a Resource a. Online search b. Know the keyword c. Refine your search d. Guidelines for using the Resources e. e-learning resources of Government of India f. Terms to know 4. **Grammar in Context** Involving Action-I a. Verbs b. Concord	15
III	1. **Listening and Speaking** a. Giving and following instructions b. Asking for and giving directions c. Continuing discussions with connecting ideas 2. **Reading and writing** a. Reading feature articles (from newspapers and magazines) b. Reading to identify point of view and perspective (opinion pieces, editorials etc.) c. Descriptive writing – writing a short descriptive essay of two to three paragraphs. 3. **Grammar in Context**: Involving Action – II Verbals - Gerund, Participle, Infinitive • Modals	15
IV	1. **Listening and Speaking** a. Giving and responding to opinions 2. **Reading and writing** a. Note taking b. Narrative writing – writing narrative essays of two to three paragraphs 3. **Grammar in Context**: Tense • Present • Past • Future	15

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V	1. **Listening and Speaking** a. Participating in a Group Discussion 2. **Reading and writing** a. Reading diagrammatic information – interpretations maps, graphs and pie charts b. Writing short essays using the language of comparison and contrast 3. **Grammar in Context**: Voice (showing the relationship between Tense and Voice)	15
	Total	**75**

Text Book(s): Communicative English Text Book

Reference Book(s)

a. Books by Penny Ur

b. The Oxford English-English-Tamil dictionary (for pronunciation)

c. https://www.esolcourses.com/

d. For Readers' Theatre: https://www.youtube.com/watch?v=JaLQJt8orSw&t=469s (the link to the performance; refer scripts by Aaron Shepherd)

Focus of the Course: Skill Development

e-Resources or e-Content: https://www.youtube.com/watch?v=ejGoHFGJQ

Course Designer
TANSCHE

BoS Chairman

Course Outcomes (COs)

On successful completion of this course the students will be able to:

CO Number	Course Outcome (CO) Statement	Blooms Taxonomy Knowledge Level
CO1	Gain mastery in LSRW Skills	K1
CO2	Understand the fundamentals of grammar	K2
CO3	Apply LSRW skills and practice it	K2
CO4	Comprehend the nuances of English Language	K3

Mapping Course Outcomes with Programme Outcomes & Programme Specific Outcomes:

COs/POs	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	M	S	S	M	S	S	S	S	S	M
CO2	M	S	S	M	M	S	M	S	L	M
CO3	M	S	S	S	L	S	M	S	S	S
CO4	M	S	S	M	M	S	M	S	S	M

S – Strong; **L** – Low; **M** – Medium

SEMESTER I

Course Code	Type	Course Name	Category	Lecture (L)	Tutorial (T)	Practical (P)	Credit
21BCAGCA0	Core I	Digital Fundamentals And Computer Organization (Common to B.Sc (CS), B.Sc (CT), B.Sc (IT) & BCA)	Concept	45	5	-	4

Preamble: To make the students to understand the basic concepts of number theory, Boolean algebra, combinational and sequential circuits and to acquire the knowledge on the principles of computer organization.

Prerequisite: Knowledge in Number Systems and Fundamental Electronics.

SYLLABUS

Unit	Course contents	Instructional Hours
I	Binary Systems: Digital Computers and Digital Systems – Binary Numbers – Number Base Conversion – Octal and Hexadecimal Numbers – Complements: 1's Complements and 2's Complements. 9's Complements and 10's Complements. Boolean algebra and Logic Gates: Boolean Function – Canonical and Standard Forms: Minterms - Maxterms– Digital Logic Gates.	13
II	Simplification of Boolean Functions: The Map Method - Two Variables Maps – Three Variables Maps – Four Variables Maps – Product of Sums Simplification – Don't Care Conditions. Combinational Logic: Introduction – Design Procedure – Adders-Full Adder-Half Adder.	10
III	Combinational Logic with MSI and LSI: – Decoders – Encoders - Multiplexers-Demultiplexer. Sequential Logic: Introduction – Flip Flops – Basic Flip Flop Circuit – D Flip Flop – JK Flip Flop – T Flip Flop.	9
IV	Central Processing Unit: Introduction – General Register Organization – Instruction Formats. Input and Output Organization: Peripheral Device – ASCII Alpha Numeric Characters – Input and Output Interface – I/O Bus and Interface Modules – I/O versus Memory Bus – Isolated versus Memory Mapped I/O – Modes of transfer.	9
V	Memory Organization: Memory Hierarchy – Main Memory – RAM and ROM Chips – Memory Address Map – Memory Connection to CPU – Auxiliary Memory – Magnetic Disks – Magnetic Tape – Cache Memory.	9
	Total	**50**

Text Book(s):

1. M.Morris Mano – "Digital Logic & Computer Design", Prentice Hall of India Pvt. Ltd., New Delhi, 2013. (UNIT I, II, III).
2. M.Morris Mano – "Computer System Architecture", Prentice Hall of India Pvt. Ltd., New Delhi, Third Edition, 2013. (UNIT IV, V).

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Reference book(s):

1. Donald P.Leach, Albert Paul Malvino, Goutam Saha, "Digital Principles & Applications", Tata McGraw Hill, Six Edition, 2008.
2. R.P. Jain, "Modern Digital Electronics", Tata McGraw Hill, Fourth Edition, 2012.
3. Poornachandra.S, "Digital Computer Fundamentals", Tata McGraw Hill, First Edition, 2009.
4. William Stallings,"Computer Organization and Architecture", Pearson Education, Eighth Edition, 2010.

Focus of Course: Employability

e-Resource/e-Content URL:
- **Vidyamithra Portal : http://vidyamitra.inflibnet.ac.in/**
- **NPTEL**

Course Designer: **Ms. Dr.Sasikala**
Assistant Professor, Dept. of CS, STC

Mrs.D.Geetha, HOD, Dept of CS,
BoS Chairman

Course Outcomes (COs)

On successful completion of this course the students will be able to:

CO Number	Course Outcome (CO) Statement	Blooms Taxonomy Knowledge Level
CO1	Define number systems with digital circuits and basic computer organization	K1
CO2	Outline the map method for circuit design.	K2
CO3	Summaries the digital components – Combinational and sequential circuits.	K2
CO4	Make use of the concept of Boolean Algebra, Circuits, Processors and Memory Management	K3

Mapping Course Outcomes with Programme Outcomes and Programme Specific Outcomes:

COs/POs/ PSOs	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO 4	PSO5
CO1	L	L	M	M	M	M	L	M	M	M
CO2	L	L	M	M	M	M	L	M	M	M
CO3	L	M	M	M	M	M	M	S	M	M
CO4	L	M	S	M	S	S	M	S	M	S

S – Strong; L – Low; M – Medium

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SEMESTER I

Course Code	Type	Course Name	Category	Lecture (L)	Tutorial (T)	Practical (P)	Credit
21BCT1C20	Core 2	Programming In C (Common to B.Sc (CS), B.Sc (CT), B.Sc (IT) & BCA)	Application	45	5	-	4
Preamble: This course provides the student with strong foundation on programming concepts and its application.							
Prerequisite: Mathematical and logical skills.							

SYLLABUS:

Unit	Course contents	Instructional Hours
I	Introduction to C: Structure of a C Program - Programming Rules - The C Character Set - The C Keywords - Identifiers – Constants. Variables: Rules for Defining Variables - Declaring Variables - Data Types - Type Conversion - Arithmetic Operators - Relational Operators - Logical Operators - Bitwise Operators - Comma and Conditional Operator.	09
II	Input and Output in C: Formatted Functions - Unformatted Functions. Decision Statements: If Statements - The Break Statement - The Continue Statement - The GOTO Statement - The Switch Statement. Looping Statements: For Loops - The While Loop - The Do-While Loop.	09
III	Arrays: Array Initialization - Definition of Array - Characteristic of Array - Two-Dimensional Array - Three or Multi-Dimensional Arrays. Functions: Basics of a function – Function Definition – The return statement - Types of Functions - Call by Value - Call by Reference - Recursion. Strings: Introduction - String Standard Functions.	11
IV	Pointers: Introduction - Features of Pointers – Pointer and Address - Pointer Declaration - Array of Pointers - Pointers to Pointers. Structure and Union: Introduction - Features of Structures - Declaration & Initialization of Structures - Array of Structures - Pointer to Structures - Union - Typedef.	11
V	Files: Introduction - Streams & File Types - Steps for File Operations - File I/O - Structures Read & Write - Other File Functions - Command Line Arguments – Application of Command Line Arguments - Environment Variables - I/O Redirection.	10
	Total	**50**

Text Book(s):

1. Ashok N.Kamthane, Amit Ashok Kamthane, "**Programming in C**", Pearson India Education Services Pvt, Ltd, Third Edition, 2019.

Reference book(s):

1. Yaeshwant Kanitkar, **"Let Us C"**, BPB publications, New Delhi, 16th Edition, 2018.
2. E. Balagurusamy, **"Programming in ANSI C"**, TMH Publishing Pvt., Ltd., 6th Edition, 2013.
3. Byron S. Gottfried, **"Programming with C"**, TMH Publishing Pvt., Ltd., 3rd Edition, 2013.
4. Paul Deitel, Harvey Deitel **", C How to Program"**, Pearson India Education Services Pvt, Ltd, 6th Edition, 2010.

Focus of Course: Employability

e-Resource/e-Content URL:
https://nptel.ac.in/courses/106104128/
https://www.udemy.com/c-programming-for-beginners

Course Designer :
Mr. M. Premkumar
Assistant Professor,
Dept. of CS, STC

Approved By Academic Council
BOS
14 JUL 2021
Mrs.D.Geetha
HOD, CS
BoS, Chairman
HOD
Sri Vasavi Thyagaraja College, Pollachi

Course Outcomes (COs)		
On successful completion of this course the students will be able to:		
CO Number	**Course Outcome (CO) Statement**	**Blooms Taxonomy Knowledge Level**
CO1	Define the structure and fundamental concept of C programming.	K1
CO2	Demonstrate various control statements.	K2
CO3	Construct program using arrays, functions, structures and union.	K3
CO4	Implement pointer and file operations for any given application.	K3

Mapping Course Outcomes with Programme Outcomes & Programme Specific Outcomes:

COs/POs/ PSOs	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO 4	PSO5
CO1	L	M	M	S	M	M	L	S	M	M
CO2	L	M	M	M	M	M	L	M	M	M
CO3	M	M	M	S	M	S	M	S	M	M
CO4	M	M	S	M	M	S	M	S	M	M

S – Strong; **L** – Low; **M** – Medium

SEMESTER I

Course Code	Type	Course Name	Category	Lecture (L)	Tutorial (T)	Practical (P)	Credit
21BCT1C30	Core 3	Programming In C Lab (Common to B.Sc (CS), B.Sc (CT), B.Sc (IT) & BCA)	Practical	-	5	30	2
Preamble: Students will be able to apply logic which helps to develop programs, applications in C.							
Prerequisite: Basic programming skills and logical thinking.							

SYLLABUS:

Ex. No	Course contents	Instructional Hours
1	Develop a C Program to find the sum and average of N marks of a student.	2
2	Develop a C program to find the Fibonacci series for a given limit.	3
3	Develop a C program to check whether the given number is prime or not and display the n range of prime numbers.	3
4	Develop a C program to illustrate recursive function.	3
5	Develop a C program to find the number of palindromes in a given sentence.	3
6	Develop a C program to manipulate strings using string functions.	3
7	Develop a C program to swap two integers using pointers.	3
8	Develop a C program using Array of Pointers.	3
9	Develop a C program using the structures.	3
10	Develop a C program using Array of Structures.	3
11	Develop a C program to calculate electricity bill using files.	3
12	Develop a C program to copy the contents of one file to another file using Command Line Arguments.	3
	Total	**35**

Reference Book:

1. Ashok N.Kamthane, Amit Ashok Kamthane, "**Programming in C**", Pearson India Education Services Pvt, Ltd, Third Edition, 2019.

Recommended
Tools to be used: C Editor

Focus of Course: Employability

Course Designer :
Mr. M. Premkumar
Assistant Professor,
Dept. of CS, STC

Approved By Academic Council
BOS
14 JUL 2021
HOD
Sree Saraswathi Thyagaraja College, Pollachi - 642 107

Mrs.D.Geetha
HOD, CS
BoS, Chairman

Course Outcomes (COs)		
On successful completion of this course the students will be able to:		
CO Number	**Course Outcome (CO) Statement**	**Blooms Taxonomy Knowledge Level**
CO1	Apply the fundamental concepts of C programming & Data Structures	K3
CO2	Implement various control statements	K3
CO3	Develop C programs to implement arrays, function, structures, pointers	K3
CO4	Solve analytical problems using Data Structure programming paradigm	K4

Mapping Course Outcomes with Programme Outcomes and Programme Specific Outcomes:

COs/POs/ PSOs	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO 4	PSO5
CO1	L	M	M	S	M	M	M	M	M	M
CO2	L	M	M	M	M	M	M	M	M	M
CO3	M	M	S	S	S	S	M	S	M	M
CO4	M	M	S	S	M	S	M	S	S	S

S – Strong; L – Low; M – Medium

SEMESTER – I

Course Code	Course Name	Type	Course Category	Lecture (L)	Tutorial (T)	Practical (P)	Credit
21BMAGAA0	Applied Statistics	Allied	Application	45	15	-	4

Preamble: This course aims at facilitating the student to learn the concepts in statistics.

Prerequisites: Basic concepts in Mathematics at HSc level

SYLLABUS

Unit	Course Contents	Instructional Hours
I	**Time series:** Components of time series – Measurement of trend - graphical method – semi average method– moving average method – method of least square & problems.	12
II	Index number: Introduction -Weighted and Un weighted Index numbers - Cost of living Index number - Ideal index number –Laspeyre's, Paasche's, Fisher's, Marshal – Edgeworth, Bowley's, Kelley's index numbers.	12
III	**Probability:** Introduction - classical definition – Addition & multiplication theorem - Axiomatic Theorem of probability – Conditional probability & problems.	12
IV	Binomial distribution – definition – properties (Statement only) – Problems – Poisson distribution – definition – properties (Statement only) – problems.	12
V	Normal distribution: Standard of normal distribution & problems.	12
	Total	60

Text Book(s):

1. Gupta. S. P," Statistical Methods ",Sultan Chand & Sons, New Delhi.
   UNIT I Page No. 614-620,622-644.
   UNIT II Page No. 536,543-557, 576-587.
   UNIT III Page No. 752-755,761-766.
2. D.C. Sancheti & V.K.Kapoor, Statistics, Sultan Chand & Sons, New Delhi.
   UNIT IV Page No. 16.2-16.3, 16.7-16.11,16.14-16.15,16.19-16.25
   UNIT V Page No. 16.30-16.32, 16.34-16.42

Theory 20% and Problems 80%

Reference Book(s):

1. Gupta, S.C., Kapoor, V.K., "Elements of Mathematical Statistics", Sultan Chand & Sons, New Delhi.
2. Gupta C.B, Vijay Gupta, "An introduction to Statistical Methods", Vikas publishing house private limited.
3. S.N.Pillai, Bagavathi, Statistics theory & Practice, S. Chand company PVT Ltd, New Delhi, Reprint 2015.

Learning Methods (*):

- Assignment/Seminar/Quiz etc.,

Focus of Course: Employability

e-Resource/e-Content URL: https://www.youtube.com/watch?v=aG9Bbt3-itk

Course Designer: Dr. R. Senthil Amutha
Head & Associate Professor, Dept. of UG Mathematics , STC

Dr. R. Senthil Amutha
BoS Chairman

Course Outcomes (COs)

On successful completion of this course the students will be able to:

CO Number	Course Outcome (CO) Statement	Blooms Taxonomy Knowledge Level
CO1	Recall the basic concepts of statistics	K1
CO2	Describe the types of index numbers	K2
CO3	Remember the notions of probability	K1
CO4	Understand the concept of Binomial distribution and application.	K2
CO5	Apply the concepts of probabilty in real life situations	K3

Mapping the Programme Outcomes

Cos/POs	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	L	S	S	M	M	S	L	M	M	M
CO2	M	S	S	M	M	S	M	M	M	M
CO3	M	M	M	M	M	M	L	M	M	M
CO4	S	M	M	M	M	M	L	M	M	M
CO5	S	S	S	M	S	S	M	M	M	M

S – Strong; L – Low; M – Medium

SEMESTER – I

Course Code	Course Name	Type	Course Category	Lecture (L)	Tutorial (T)	Practical (P)	Credit
21BMAGAB0	Basic Mathematics for Science	Allied	Concept	45	15	-	4

Preamble: This course aims at facilitating the student to learn the concepts in Differential Calculus.

Prerequisites: Basic concepts in Mathematics at HSc level

SYLLABUS

Unit	Course Contents	Instructional Hours
I	Differentiation-standard forms-product rule-quotient rule-function of function rule-inverse functions-logarithmic differentiation-parametric differentiation (derivations to be avoided)	12
II	Tangent and normal: Direction of tangent-equation of tangent and normal at any point of the curves-angle of intersection of curves-sub tangent and sub normal's	12
III	Curvature: Definition-radius of curvature-Cartesian form of radius of curvature-centre of curvature	12
IV	Integrals of the functions of the form $\int [f(x)]^n f'(x)dx$ – integration of the form $\int \frac{dx}{ax^2+bx+c}$ – integration of the form $\int \frac{lx+m}{ax^2+bx+c}$ – integration of the form $\int \frac{dx}{\sqrt{ax^2+bx+c}}$	12
V	Reduction formula for Trigonometric function: Reduction formula for In = $\int \sin^n x dx$ and I-n = $\int \cos^n x dx$- Double integral- Double integral in polar co-ordinates	12
	Total	60

Text Book(s):

1. T.K. Manicavachagam Pillai, S.Narayanan, Calculus (Volume I), Viswanathan Printers & Publishers Private Ltd, 2003 (For Unit- I, II & III)
2. Prof.M.L.Khanna, Dr.Sudhir.K.Pundir, Integral Calculus, Jayaprakash Nath & Co. (For Unit- IV & V)
   Unit I Pages: 24-44, 50-51, 59-60.
   Unit II Pages: 241-280
   Unit III Pages: 291-308
   Unit IV Pages: 17-19, 38-41, 59-64
   Unit V Pages: 130-134, 425-435

Theory 20% and Problems 80%

Reference Book(s):

1. T.K. Manicavachagam Pillai, S.Narayanan, Calculus (Volume II), Viswanathan Printers & Publishers Private Ltd, 2003
2. P. Kandasamy and K.Thilagavathy, Mathematics for BSc Vol I and. II, S.Chand and Co, 2004.
3. Shanthi Narayanan and J.N. Kapoor, Differential Calculus, S.Chand& Co, 1996.

Learning Methods (*):

• Assignment/Seminar/Quiz etc.,

Focus of Course: Employability

e-Resource/e-Content URL: https://www.youtube.com/watch?v=ZseXYSrQXg8

Course Designer: Mrs. R. Senthil Amutha
Head & Assistant Professor, Dept. of Mathematics , STC

Approved by Academic Council
BoS
14 JUL 2021
HOD
Sree Sevugan Annamalai Thyagaraja College, Pollachi - 642 107

Dr. R. Senthil Amutha
BoS Chairman

Course Outcomes (COs)		
On successful completion of this course the students will be able to:		
CO Number	**Course Outcome (CO) Statement**	**Blooms Taxonomy Knowledge Level**
CO1	Classify different types of differentiation	K2
CO2	Explain equation of tangent and normal at any point of the curves	K3
CO3	Build the concept of curvature and apply if in solving problems	K2
CO4	Explain integration by parts and to develop reduction formula	K1
CO5	Explain double and triple intrgrals	K2

Mapping the Programme Outcomes

Cos/POs	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	L	S	S	M	M	S	L	M	M	M
CO2	M	S	S	M	M	S	M	M	M	M
CO3	M	M	M	M	M	M	L	M	M	M
CO4	S	M	M	M	M	M	L	M	M	M
CO5	S	S	S	M	S	S	M	M	M	M

S – Strong; L – Low; M – Medium

SEMESTER – I

Course Code	Course Name	Category	Lecture (L)	Tutorial (T)	Practical (P)	Credit
21BMAGAC0	Theory of Matrices and Differential Equations	Allied	45	15	-	4
Preamble: To throw light on the importance of the Theory of Matrices and Differential Equations.						
Prerequisite: Matrices and differential equation at HSc level						

SYLLABUS

Unit	Course contents	Instructional Hours
I	Types of Matrices: Addition of matrices – Multiplication of matrices- Inverse matrix – Orthogonal matrices – Properties – Simple Problems.	12
II	Rank of a matrix: Solving a system of m homogeneous linear equations in n unknowns – system of non – homogeneous linear equations.	12
III	Eigen Values and Eigen vectors of a matrix :Similar matrices – Cayley Hamilton Theorem (Statement Only) – Simple Problems	12
IV	**Differential Equations :** Definition- Solution of Differential equations – Formation of Differential equations – Equations of the first order and of the first degree – Variable Separable	12
V	Solution of first order and of a degree of higher than the first : Second and Higher order linear Differential equations of the form $\frac{d^2y}{dx^2} - m\frac{dy}{dx} + ny = k, e^{nx}, x, x^2$.	12
	Total	**60**

Text Book(s):

1. T.K.Manicavachagompillay, T.Natarajan and K.S. Ganapathy,Algebra Volume II, S.V. Publications, Chennai. (Unit I , II and III)
2. Dr.M.K.Venkatraman, ManoramaSridhar ,Differential Equations and Laplace Transforms, . (Unit IV , V)

Unit I Pages: 59-95.
Unit II Pages 96-102,104-109.
Unit III Pages 110-122.
Unit IV Pages 1.1 -1.8,2.1-2.7.
Unit V Pages 4.12-4.47.

Theory 20% and Problems 80%

Reference Book(s):

1. Narayanan S. Manickavachagom Pillai T.K, "Differential Equations and its Applications" Viswanathan Printers, 2007.
2. ZafarAhsan, Differential Equations and their application, second edition, Prentice Hall of India , Pvt ltd,2004
3. P. Kandasamy, K.Thilagavathy, Mathematics for B.Sc Br. I Third Semester Vol III, S.Chand Publications, 2004.

Learning Methods (*):

- Assignment/Seminar/Quiz/Group Discussion/Case-Study/Self-Study etc.,

Focus of Course:Employability

e-Resource/e-Content URL: https://www.youtube.com/watch?v=EVeH6guQaVM.

Course Designer:K,Sivasamy , DeanMathematics, STC

Dr. R. Senthil Amutha
BoS Chairman

Course Outcomes (COs)		
On successful completion of this course the students will be able to		
CO Number	**Course Outcome (CO) Statement**	**Blooms Taxonomy Knowledge Level**
CO1	Classify different types of matrices and their properties	K2
CO2	Apply concept of rank in solving homogeneous and non – homogeneous linear equations	K3
CO3	Discuss eigen values and eigen vectors of a matrix and to apply Cayley Hamilton theorem to get A^{-1}	K3
CO4	Define the concept of ODE and its formation.	K1
CO5	Understand the concept solution of ODE	K2

Mapping the Programme Outcomes

Cos/POs	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	L	S	S	M	M	S	L	M	M	M
CO2	M	S	S	M	M	S	M	M	M	M
CO3	M	M	M	M	M	M	L	M	M	M
CO4	S	M	M	M	M	M	L	M	M	M
CO5	S	S	S	M	S	S	M	M	M	M

S – Strong; L – Low; M – Medium

SEMESTER – I

Course Code	Type	Course Name	Category	Lecture (L)	Tutorial (T)	Practical (P)	Credit
18DHE1V10	VBC 1	Enivronmental Studies	-	27	-	-	2

1.1. Definition, scope and importance **6 Instructional Hours**
1.2. Need for public awareness
1.3. Natural resources

1.3.1. NATURAL RESOURCES AND ASSOCIATED PROBLEMS

a. Forest resources: use and over-exploitation, deforestation, case studies. Timber extraction, mining, dams and their effects on forests and tribal people.
b. Water resources: use and over- utilization of surface and ground water, floods, drought, conflicts over water, dams-benefits and problems
c. Mineral resources: Use and exploitation, environmental effects of extracting and using mineral resources, case studies.
d. Food resources: world food problems, changes caused by agriculture and overgrazing, effects of modern agriculture, fertilizer-pesticide problems, water logging, salinity, case studies.
e. Energy resources: growing energy needs, renewable and non-renewable energy sources, use of alternate sources. case studies.
f. Land resources: land as a resource, land degradation, man induced landslides, soil erosion and desertification.

1.3.2. Role of an individual in conservation of natural resources.
1.3.3. Equitable use of resources for sustainable lifestyles.

2. ECOSYSTEMS **5 Instructional Hours**

2.1 Concept of an ecosystem.
2.2 Structure and function of an ecosystem.
2.3 Producers, consumers and decomposers.
2.4 Energy flow in the ecosystem.
2.5 Ecological succession.
2.6 Food chains, food webs and ecological pyramids.
2.7 Introduction, types, characteristic features, structure and function of the following ecosystem: -

a. Forest ecosystem.
b. Grassland ecosystem.
c. Desert ecosystem.
d. Aquatic ecosystems (ponds, streams, lakes, rivers, oceans, estuaries)

3. BIODIVERSITY AND ITS CONSERVATION **5 Instructional Hours**

3.1 Introduction – Definition: genetic, species and ecosystem diversity.
3.2 Biogeographical classification of India.
3.3 Value of biodiversity: consumptive use, productive use, social, ethical, aesthetic and option values
3.4 Biodiversity at global, National and local levels.
3.5 India as a mega –diversity nation.

3.6 Hot-spots of biodiversity.
3.7 Threats to biodiversity: habitat loss, poaching of wildlife man-wildlife conflicts.
3.8 Endangered and endemic species of India.
3.9 Conservation of biodiversity: In-situ and Ex-situ conservation of biodiversity.

4. ENVIRONMENTAL POLLUTION **5 Instructional Hours**

4.1 Definition
Causes, effects and control measures of: -

1. Air pollution
2. Water pollution
3. Soil pollution
4. Noise pollution
5. Thermal pollution

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4.2 Solid Waste Management: Causes, effects and control measures of urban and industrial wastes.
4.3 Role of an individual in Prevention of Pollution.
4.4 Pollution Case Studies.
4.5 Disaster Management: Floods, Earthquake, Cyclone and Landslides.

5. SOCIAL ISSUES AND THE ENVIRONMENT **6 Instructional Hours**

5.1 Sustainable development
5.2 Urban problems related to energy.
5.3 Water conservation, rainwater harvesting, watershed management.
5.4 Resettlement and rehabilitation of people; its problems and concerns. Case studies.
5.5 Environmental ethics: issues and possible solutions.
5.6 Climate change, global warming, ozone layer, depletion, acid rain, nuclear accidents and holocaust. Case studies
5.7 Consumerism and waste products.
5.8 Environmental protection Act.
5.9 Air (Prevention and Control of Pollution) Act.
5.10 Water (Prevention and Control of Pollution) Act.
5.11 Wildlife Protection Act.
5.12 Forest Conservation Act.
5.13 Issues involved in enforcement of environmental legislation.
5.14 Public awareness.
5.15 Human population and the environment.
- 5.15.1 Population growth and distribution.
- 5.15.2 Population explosion – Family Welfare Programme.
- 5.15.3 Environment and human health.
- 5.15.4 Human rights.
- 5.15.5 Value Education.
- 5.15.6 HIV/ AIDS
- 5.15.7 Women and Child Welfare
- 5.15.8 Role of Information Technology in Environment and Human Health
- 5.15.9 Medical Transcription and Bioinformatics

TEXT BOOKS:

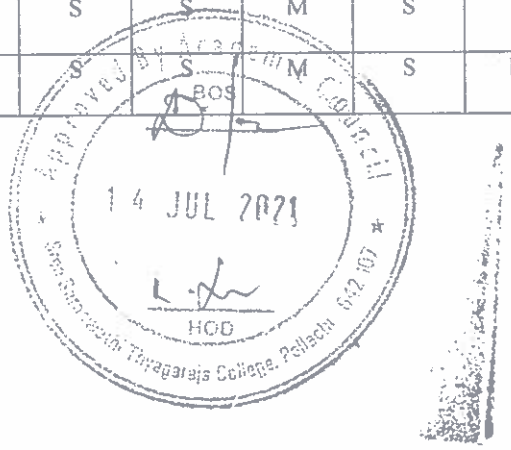
1. Balu V, **"Environmental Studies"**, Sri Venkateshwara Publications, 2004
2. Arumugam N, Kumaresan V, **"Environmental Studies"**, Saras Publication, 2004
3. Rajagopalan R, **"Environmental Studies"**, Oxford University Press, 2005

CO Number	Course Outcome (CO) Statement	Blooms Taxonomy Knowledge Level
CO1	To remember key concepts from environmental studies, political and social studies	K1
CO2	To understand the concepts and methods from renewable and non-renewable sources and their applications in environmental problem solving	K2
CO3	To acquire knowledge on concept of environment issues and links between human and natural system	K3
CO4	To demonstrate the general understanding of the breadth and inter disciplinary nature of environmental issues	K3

Mapping Course Outcomes with Programme Outcomes & Programme Specific Outcomes:

COs/POs/ PSOs	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S	S	M	S	L	S	S	M	S	S
CO2	S	S	M	S	L	S	S	M	S	S
CO3	S	S	M	S	L	S	S	M	S	S
CO4	S	S	M	S	M	S	S	M	S	M

S –Strong; L –Low; M –Medium



SEMESTER I

Course Code	Course Name	Category	Lecture(L)	Tutorial(T)	Practical(P)	Credit
21GEN1Z10	Professional English I	Language	55	5	–	2

Preamble: The course aims to Develop students' competence in the use of English with particular reference to the workplace situation

Prerequisite: Basic knowledge in English

SYLLABUS

Unit	Course contents	Instructional Hours
I	**COMMUNICATION** **Listening:** Listening to audio text and answering questions- Listening to Instructions **Speaking:** Pair work and small group work. **Reading:** Comprehension passages –Differentiate between facts and opinion **Writing:** Developing a story with pictures. **Vocabulary:** Register specific - Incorporated into the LSRW tasks	12
II	**DESCRIPTION** **Listening:** Listening to process description.-Drawing a flow chart. **Speaking:** Role play (formal context) **Reading:** Skimming/Scanning Reading passages on products, equipment and gadgets. **Writing:** Process Description –Compare and Contrast Paragraph-Sentence Definition and Extended definition- Free Writing. **Vocabulary:** Register specific -Incorporated into the LSRW tasks.	12
III	**NEGOTIATION STRATEGIES** **Listening:** Listening to interviews of specialists / Inventors in fields (Subject specific) **Speaking:** Brainstorming. (Mind mapping). Small group discussions (Subject-Specific) **Reading:** Longer Reading text. **Writing:** Essay Writing (250 words) **Vocabulary:** Register specific - Incorporated into the LSRW tasks	12
IV	**PRESENTATION SKILLS** **Listening:** Listening to lectures. **Speaking:** Short talks. **Reading:** Reading Comprehension passages **Writing:** Writing Recommendations Interpreting Visuals inputs **Vocabulary:** Register specific - Incorporated into the LSRW tasks	12
V	**CRITICAL THINKING SKILLS** **Listening:** Listening comprehension- Listening for information. **Speaking:** Making presentations (with PPT- practice). **Reading:** Comprehension passages –Note making. Comprehension: Motivational article on Professional Competence, Professional Ethics and Life Skills **Writing:** Problem and Solution essay- Creative writing –Summary writing **Vocabulary:** Register specific - Incorporated into the LSRW tasks	12
		60

Text Books:
Tamil Nadu State Council for Higher Education(TANSCHE)

Reference Books:
Tamil Nadu State Council for Higher Education(TANSCHE)

Focus of Course: Employability (Employability/Skill Development)

e-Resource/e-Content URL: • **Vidya-MitraPortal:**http://vidyamitra.inflibnet.ac.in/index.php/search • **e-PG Pathshala:**http://epgp.inflibnet.ac.in/ahl.php?csr	
Course Designer **TANSCHE**	**BoS Chairman** Assistant Professor of English

COURSE OUTCOMES

On successful completion of the course the students will be able to:

CO Number	Course Outcome (CO) Statement	Bloom's Taxonomy Knowledge Level
CO1	Enhance the creativity of the students, which will enable them to think of innovative ways to solve issues in the workplace.	K1
CO2	Develop students' competence and competitiveness and thereby improve their employability skills.	K2
CO3	Attend interviews with boldness and confidence	K3
CO4	Adapt easily into the workplace context, having become communicatively competent	K4
CO5	Apply to the Research and Development organizations / sections in companies and offices with winning proposals	K5

Mapping Course Outcomes with Programme Outcomes & Programme Specific Outcomes:

COs/POs	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	M	S	S	S	S	M	M	S	S	S
CO2	M	M	M	S	S	S	M	S	S	S
CO3	M	M	M	S	S	S	S	S	S	S
CO4	M	S	S	S	S	S	M	S	S	S
CO5	M	S	S	S	S	S	M	S	S	S

S- Strong; L- Low; M-Medium

SEMESTER – II

Course Code	Course Name	Category	Lecture (L)	Tutorial (T)	Practical (P)	Credit
21TAM2L20	Tamil	Part I Tamil Paper II	60			3

PPreamble: தொன்மையான தமிழ்ச் சமூகத்தின் பண்பாடு வாயிலாக எடுத்துக் கொள்ளப்பட வேண்டிய அம்சங்களை விளக்குதலையும், வாழ்க்கையை நெறிப்படுத்துவதையும் சமூக நோக்கமாகக் கொண்டிருக்கும் இலக்கியங்களின் வழியே மானிட மதிப்புகளை அறிந்து கொள்ளும் வகையில் தமிழ்ப்பாடம் அமைக்கப்பட்டுள்ளது. மாணவர்களுக்குப் பயன்பாட்டு நோக்கில் மொழிபெயர்ப்புப் பயிற்சி வைக்கப்பட்டுள்ளது.

Prerequisite:

1. மேனிலைப்பள்ளி முடிய கற்றவற்றைப் பகுத்து தொகுத்து ஆராயும் போக்கில் பாடத்திட்டம் அமைக்கப்பட்டுள்ளது.
2. மானிட மதிப்புகளை உணரும் வகையிலும், போட்டித்தேர்வுகளை எதிர்கொள்ளும் நிலையிலும் 'தமிழ்' - பகுதி - I அமைக்கப்பட்டுள்ளது.
3. பிழையின்றிப் பேச, எழுத ஆராயும் முயற்சிக்குப் பயிற்சி தரப்படுகிறது.

Course Outcomes (COs)

On successful completion of this course the students will be able to:

CO Number	Course Outcome (CO) Statement	Blooms Taxonomy Knowledge Level
CO1	தமிழ்ப்பண்பாடு, சமூகஅமைப்பு, குறிக்கோள் அமைந்த இனவாழ்க்கையைப் பற்றிய செய்திகளை உணர்ந்து கொள்ளுதல்.	K1
CO2	பக்தி இயக்கம் வளர்ந்த வரலாறு, தமிழ் உரைநடை காலந்தோறும் மாறிவந்த நிலை ஆகியவை சார்ந்த கருத்துகளைப் புரியவைத்தல்.	K2
CO3	நடைமுறையில் தமிழைப் பிழையின்றி எழுத உதவுதல். மொழிபெயர்ப்புக் கலை, கதை எழுதும் திறமையை வளர்த்தல்.	K3

Mapping the Programme Outcomes

COs/POs	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S	S	M			S	S			
CO2	S	S	M			S	S			
CO3	M	M	S			S	M			

S- Strong; L- Low; M-Medium

Unit	Course contents	Hours	e-Resources/ e-Content
I	அலகு I சங்க இலக்கியம் நற்றிணை - நின்றசொல்லர் (1) – கபிலர் ஐங்குறுநூறு - அன்னாய் வாழி வேண்டன்னை (203) - கபிலர் மறுவல்தூவிச் சிறுகருங்காக்கை (391) - ஓதலாந்தையார் கலித்தொகை - அரிதாய அறன்எய்தி (11) - பாலை பாடிய	12	YouTube Videos & PPT

	பெருங்கடுங்கோ அகநானூறு - கிளியும் பந்தும் கழங்கும் (49) - வண்ணப்புறக்கந்தரத்தனார் சிறுகரு பிடவின் வெண்தலை (34) – மருதனிளநாகனார் புறநானூறு - பல்சான்றீரே பல்சான்றீரே (246) - பெருங்கோப்பெண்டு குழவி இறப்பினும் ஊன்தடி பிறப்பினும் (74) – சேரமான் கணைக்கால் இரும்பொறை		
II	அலகு II பக்தி இலக்கியங்கள் & சிற்றிலக்கியங்கள் தேவாரம் - சுந்தரர் 1. மேலைவிதியே வினையின் பயனே (419) 2. பிறவாய் இறவாய் பேணாய் மூவாய் (420) 3. பொய்யே உன்னைப் புகழ்வார் புகழ்ந்தால் அடியேன் (421) 4. ஊனைப் பெருக்கி உன்னை நினையாது (422) 5. காதல்செய்து களித்துப் பிதற்றி (423) திருக்கோவையார் - மாணிக்கவாசகர் 1.முனிவரும் மன்னரும் பொன்னான் முடியுமென (332) 2.மூவர்நின் றேத்த முதலவன் ஆடமுப் பத்து மும்மைத் (337) 3.பிரியா ரெனவிகழ்ந் தேன் முன்னம் யான்பின்னை எற்பிரியின (340) கருவூர்த்தேவர் - தஞ்சை ராசராசேச்சரம் 1.உலகெலாம் தொழவந்து எழுகதிர்ப் பருதி (162) 2.நெற்றியிற் கண்என் கண்ணின்நின் றகலா (163) 3.எவரும்மா மறைகள் எவையும் வானவர்கள் (166) 4.தனிப்பெருந் தாமே முழுதுறப் பிறப்பின் (168) திருமந்திரம் - திருமூலர் 1.என்பே விறகாகி இறைச்சி அறுத்திட்டு (272) 2.தூய்மை அருள் ஊண் சுருக்கம் பொறை (556) 3.உள்ளத்தும் உள்ளன் புறத்துள்ளன் (1532) 4.தானே தனக்குப் பகைவனும் நட்டானும் (2228) 5.அவமும் சிவமும் அறியார் அறியார் (2340) சித்தர் பாடல்கள் - சிவவாக்கியர் (2 பாடல்கள்) பாம்பாட்டிசித்தர் (2 பாடல்கள்) இடைக்காட்டுச்சித்தர் (2 பாடல்கள்) கடுவெளிச்சித்தர் (2 பாடல்கள்) அழுகணிச்சித்தர் (2 பாடல்கள்) சிற்றிலக்கியங்கள் - தமிழ்விடுதூது தமிழ்மொழியின் சிறப்பு, சிவபெருமானின் சிறப்பு (20 வரிகளில்) அற்புதத்திருவந்தாதி - அரனென்கோ நான்முகன், இன்று நமக்கெளிதே, நேர்ந்தரவங் கொள்ளச், திறத்தான் மடநெஞ்சே, அடிபேரிற பாதாளம் (5 பாடல்கள்) திருவரங்கக் கலம்பகம் - பெருமாளின் அவதாரச் சிறப்பு, புயவகுப்பு (இரண்டாம் பாடல்)	18	YouTube Videos & PPT
III	அலகு III உரைநடை 1. நேரம் கடிகாரத்தில் இல்லை - வெ. இறையன்பு	10	PPT

	2. நான் தோல்வியைத் தழுவிய போது - ஏ.பி. ஜே. அப்துல்கலாம் 3. தமிழகத்தில் இதழியல் வளர்ச்சி – மா. பா. குருசாமி 4. மனிதனும் சுற்றுச்சூழலும் - பேராசிரியர் ஜே. தர்மராஜ் 5. எதையும் தீர்மானிக்கும் சக்தி – சி. எஸ். தேவநாதன்		
IV	அலகு IV இலக்கிய வரலாறு 1. சங்க இலக்கியத்தின் சிறப்புகள் 2. பக்தி இலக்கியத்தின் தோற்றமும் வளர்ச்சியும் 3. சிற்றிலக்கியத்தின் தோற்றமும் வளர்ச்சியும் 4. உரைநடையின் தோற்றமும் வளர்ச்சியும்	10	YouTube Videos & PPT
V	அலகு V இலக்கணம் பயிற்சி அளித்தல் - மொழித்திறன் வளர்த்தல் - மொழி ஆளுமை 1. ஒருமை, பன்மை மயக்கங்கள் 2. வழூஉச்சொற்களை நீக்குதல் 3. பிறமொழிச் சொற்களை நீக்குதல் 4. சொற்பிரிப்பு பிழைகளை நீக்குதல் 5. ஒலி வேறுபாடு அறிந்து சரியான பொருள் அறிதல் 6. மொழிபெயர்ப்பு (ஆங்கிலத்திலிருந்து தமிழுக்கு) 7. சிறுகதை எழுதுதல்.	10	YouTube Videos & PPT
	Total	**60**	

Text Book(s): பாட நூல்கள்

1. சங்க, பக்தி இலக்கிய, உரைநடைத்திரட்டு - தமிழ்த்துறை வெளியீடு, ஸ்ரீ சரஸ்வதி தியாகராஜா கல்லூரி 2021 ஜூன் பதிப்பு
2. தமிழ் இலக்கிய வரலாறு - முனைவர் கா. வாசுதேவன் தேவன் பதிப்பகம், 16 /43,திருநகர், திருவானைக்கோவில், திருச்சிராப்பள்ளி - 620 005 பன்னிரெண்டாம் பதிப்பு - 2017.
3. தமிழ் இலக்கிய வரலாறு - மு. வரதராசன் சாகித்ய அகாடமி வெளியீடு, புதுதில்லி. மறுபதிப்பு - 2012

Reference Book(s): பார்வை நூல்கள்

1. சங்க இலக்கியத் தொகுப்புகள் - நியூ செஞ்சுரி புக் ஹவுஸ் (பி) லிட், 41 - B, சிட்கோ இண்டஸ்டிரியல் எஸ்டேட், அம்பத்தூர், சென்னை - 600 098 இரண்டாம் பதிப்பு - 2004.
2. பத்தாயிரம் மைல் பயணம் - வெ. இறையன்பு புதிய தலைமறை பதிப்பகம், 24, ஜி.என். செட்டி சாலை, தியாகராய்நகர், சென்னை - 600 017. ஆறாம்பதிப்பு - 2015.
3. இந்தியக் கலைகள் - பி. கோதண்டராமன் நியூ செஞ்சுரி புக் ஹவுஸ் (பி) லிட், 41 - B, சிட்கோ இண்டஸ்டிரியல் எஸ்டே, அம்பத்தூர், சென்னை - 600 098

இரண்டாம் பதிப்பு - 2009.

4. அலைகடலுக்கப்பால் அருந்தமிழ் - முனைவர் ஆ. கார்த்திகேயன்
அகரம், மனை எண்.1, நிர்மலா நகர்
தஞ்சாவூர் - 613 007. முதல் பதிப்பு - 2007.

5. பக்தி இலக்கியம் - ப. அருணாசலம்
சைவ சித்தாந்த நூற்பதிப்புக்கழகம்
சென்னை - 06, பதிப்பு - 1900.

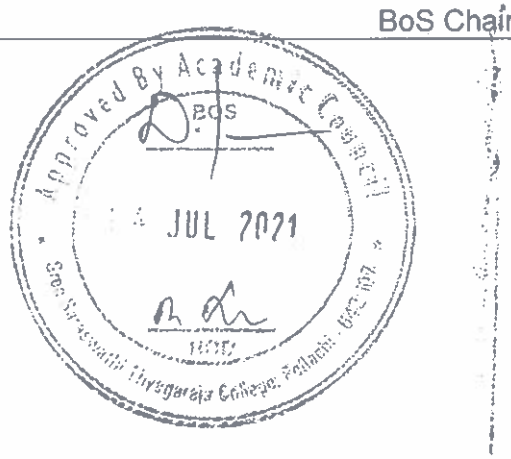
6. சைவமும் சமணமும் - வேலுப்பிள்ளை
எனி இந்தியன் பதிப்பகம்
102 எண் 57 பி.எம்.ஜி.காம்ளெக்ஸ்
தெற்கு உஸ்மான் சாலை
தி.நகர், சென்னை -17, பதிப்பு -1900

7. தமிழில் தவறின்றி எழுத,பேச கற்க! - நல்லாமூர். முனைவர் கோ. பெரியண்ணன்
முத்தமிழ் பதிப்பகம்
9எ மேக்மில்லன் காலனி, நங்கை நல்லூர்,
சென்னை - 61, பதிப்பு - 2006.

Focus of Course: தமிழ் வரலாறு, சமூக வரலாறு குறித்த காலத்தின் செய்திகள் தரப்பட்டுள்ளன. பிழையின்றி எழுத, பேச, கட்டுரை, கதை எழுதுதலுக்குப் பயன்படும் வகையில் பயிற்சி தரப்பட்டுள்ளது.

Course Designer: Dr.T. Radhika lakshmi
Associate Professor, Dept. of Tamil, STC

BoS Chairman



SEMESTER – II

HINDI PAPER - II

Credits : 3
Hours perWeek: 6

Course Code:21HIN2L20
Total Instructional hours: 75

	PART I - HINDI II	
Unit No.		**Hours**
I	**MODERN POETRY :** **PANCHVATI by MYTHLI SHARAN GUPT**	**18**
II	**ONE ACT PLAY: EKANIKI PIYUSH** 1. Owrangjeb ki aakirirath– Ramkumar varma 2. Ek din - Lakshminarayan Misra 3. Vapasi - Vishnuprabhakar 4. Badsurath rajkumari - Krishnachandra 5. Aakket - Harijeeth	**18**
III	**LETTER WRITING** (Leave Letter, Job Application, Ordering Books, Letter to Publisher, Personal Letter)	**10**
IV	**CONVERSATION:** (Doctor & Patient, Teacher & Student, Storekeeper & Buyer, Two Friends, Booking Clerk & Passenger at Railway Station, Auto rickshaw driver and Passenger)Ref : Bolchal Ki Hindi Aur Sanchar by Dr. Madhu Dhavan Vani Prakashan, New Delhi.	**12**
V	**TRANSLATION: HINDI-ENGLISH ONLY** Lessons – 1-15 only ANUVADH ABYAS-III	**14**
	TOTAL	**72**

Text Book:

Panchvati, Mythili sharan Gupt, 2015, Rajkamal Prakashan,1B Nethaji Subash Marg, New Delhi.
Ekaniki piyush ,Srimathi Usha mehra, 1999, Hindu sahithya Bhandar,55 choupattyan rode, Lacknow 226003

Reference Books:

Bolchal Ki Hindi Aur Sanchar, 2015, Dr. Madhu Dhavan Vani Prakashan, New Delhi.

SEMESTER – II

MALAYALAM PAPER - II

Credits : 3
Hours perWeek: 6

Course Code:21MAL2L20
Total Instructional hours: 75

Prose : Non-Fiction

This paper will have the following five units:

Unit I- Enmakajae

Unit II – Enmakajae

Unit III – NeermaathalamPootthakaalam

Unit IV- NeermaathalamPootthakaalam

Text Books:
Emakaje – AmbikasuthanMangad – DC Books Kottayam,Kerala

NeermaathalamPootthakaalam - Madhavikutty -DC Books Kottayam, Kerala

Reference Books:

1.Athmakathasahithyam Malayalathil-Dr.Vijayalam Jayakumar (N.B.S.Kottayam)
2. Malayala Novel SahithyaCharitram-K.M.Tharakan (N.B.S.Kottayam)
3. SahithyaCharitramPrasthanangalilude- Dr.K.M George, (D.C.Books Kottayam)
4. MalayalaSahithyavimarsam-Sukumar Azheekode (D.C.books)

SEMESTER – II

FRENCH PAPER - II

Credits : 3
Hours perWeek:6

Course Code:21FRE2L20
Total Instructional hours:75

Syllabus:

Part 1 - French 2	
Unit No.	**Topics**
1	Etape 5 (Lecons 1 - 3)
2	Etape 6 (Lecons 1 - 3)
3	Etape 7 - Leçons 1 - 2
4	Etape 7 – Leçon 3
	Etape 8 – Leçon 1
5	Etape 8 – Leçons 2 - 3
Etapes 5 to 8, Pages 63 -114	

Text Book Prescribed: Adomania 1 – Methode de francais

Authors: Céline Himber, Corina Brillant, Sophie Erlich

Publisher: HACHETTE FLE

Available at: GOYAL Publishers and Distributors Pvt Ltd, New Delhi (9810322459)

Reference: Latitudes 1

Author: Yves Loiseau, Régine Merieux

Publisher: French and European Publications Inc

Available at: GOYAL publishers and distributors Pvt Ltd, New Delhi (9810322459)

JUL 2021

SWAYAM : https://swayam.gov.in/nd2_cec19_lg04/preview

by Prof. Nirupama Rastogi (Retd) English and Foreign Languages University, Hyderabad

SEMESTER II

Course Code	Course Name	Category	Lecture (L)	Tutorial (T)	Practical (P)	Credit
21GEN2L20	Communicative English-II	Language	70	5	-	3

Preamble: This course aims to provide a better understanding on the various aspects of communicative skills through a keen focus on LSRW.

Prerequisite: Basic knowledge in Communicative English and Skills

Syllabus

Unit	Course contents	Instructional Hours
I	1. **Listening and Speaking** a. Listening and responding to complaints (formal situation) b. Listening to problems and offering solutions (informal) 2. **Reading and writing** a. Reading aloud (brief motivational anecdotes) b. Writing a paragraph on a proverbial expression/motivational idea. 3. **Word Power/Vocabulary** a. Synonyms & Antonyms 4. **Grammar in Context** • Adverbs Prepositions	15
II	1. **Listening and Speaking:** a. Listening to famous speeches and poems b. Making short speeches- Formal: welcome speech and vote of thanks. Informal occasions- Farewell party, graduation speech 2. **Reading and Writing:** a. Writing opinion pieces (could be on travel, food, film / book reviews or on any contemporary topic) b. Reading poetry b .i. Reading aloud: (Intonation and Voice Modulation) b .ii. Identifying and using figures of speech - simile, metaphor, personification etc. 3. **Word Power** : a. Idioms & Phrases 4. **Grammar in Context:** Conjunctions and Interjections	15
III	1. **Listening and Speaking** a. Listening to Ted talks b. Making short presentations – Formal presentation with PPT, analytical presentation of graphs and 3 reports of multiple kinds c. Interactions during and after the presentations 2. **Reading and writing** a. Writing emails of complaint b. Reading aloud famous speeches 3. **Word Power** a. One Word Substitution 4. **Grammar in Context**: Sentence Patterns	15
IV	1. **Listening and Speaking** a. Participating in a meeting: face to face and online b. Listening with courtesy and adding ideas and giving opinions during the meeting and making concluding remarks. 2. **Reading and Writing** a. Reading visual texts – advertisements b. Preparing first drafts of short assignments 3. **Word Power** a. Denotation and Connotation 4. **Grammar in Context**: Sentence Types	15
V	1. **Listening and Speaking** a. Informal interview for feature writing b. Listening and responding to questions at a formal interview 2. **Reading and Writing** a. Writing letters of application b. Readers Theatre (Script Reading) c. Dramatizing everyday situations/social issues through skits. (writing scripts and performing) 3. **Word Power** a. Collocation 4. **Grammar in Context**: Working With Clauses	15

JUL 2021

	Total	**75**
Text Book(s): Communicative English Text Book		
Reference Book(s) a. Books by Penny Ur b. The Oxford English-English-Tamil dictionary (for pronunciation) c. https://www.esolcourses.com/ d. For Readers' Theatre: https://www.youtube.com/watch?v=JaLQJt8orSw&t=469s (the link to the performance; refer scripts by Aaron Shepherd)		
Focus of the Course: Skill Development		
e-Resources or e-Content: https://www.youtube.com/watch?v=ejGoHFGJQ		
Course Designer TANSCHE		BoS Chairman

Course Outcomes (COs)

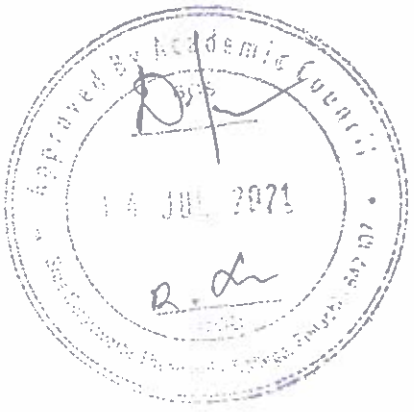
On successful completion of this course the students will be able to:

CO Number	Course Outcome (CO) Statement	Blooms Taxonomy Knowledge Level
CO1	Gain mastery in LSRW Skills	K1
CO2	Understand the fundamentals of grammar	K2
CO3	Apply LSRW skills and practice it	K2
CO4	Comprehend the nuances of English Language	K3

Mapping Course Outcomes with Programme Outcomes & Programme Specific Outcomes:

COs/POs	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	M	S	S	M	S	S	S	S	S	M
CO2	M	S	S	M	M	S	M	S	L	M
CO3	M	S	S	S	L	S	M	S	S	S
CO4	M	S	S	M	M	S	M	S	S	M

S – Strong; **L** – Low; **M** – Medium



SEMESTER II

Course Code	Type	Course Name	Category	Lecture (L)	Tutorial (T)	Practical (P)	Credit
21BCS2C10	Core 4	Data Structures and Algorithms	Concept	45	5	-	4

Preamble: To facilitate the students to gain knowledge in the ways of organizing the data

Prerequisite: Data Types, Representation of Data.

SYLLABUS

Unit	Course contents	Instructional Hours
I	**Introduction:** Overview - How to create programs – Recursion - How to analyze the programs – simple programs - - Arrays: Axiomatization - Ordered Lists – Representation of Arrays	13
II	**Stacks and Queues:** Fundamentals - Evaluation of Expressions – Multiple Stacks and Queues. **Linked Lists:** Singly Linked List-Linked Stacks and Queues-The Storage Pool-Doubly Linked List	10
III	**Trees:** Basic Terminology-Binary Trees-Binary Tree Representations - Binary Tree Traversal. **Graphs:** Terminology and representations: Definitions – Graph Representations – Traversals: BFS – DFS – Spanning Tree – Shortest Paths.	9
IV	**Internal Sorting:** Searching: Sequential Search-Binary Search- **Sorting:** Bubble sort-Quick Sort-Heap sort-Merge Sort	9
V	**Files:** Files,Queries and Sequential Organizations-File Organizations: Sequential Organizations-Random Organizations-Linked Organizations-Inverted Files-Cellular Partitions	9
	Total	**50**

Text Book(s):

1. Ellizs Horowitz, S artajSahni -**"Fundamentals of Data Structures"**, Galgothia Book Source (P) Ltd, RP, 2012.

Reference book(s):

1. Narasimha Karumanchi- **"Data Structures and Algorithms Made Easy: Data Structures and Algorithmic Puzzles"**, CareerMonk Plublications, Fifth Edition, 2016.
2. Thomas H. Cormen, Charles E. Leiserson, Ronald L. Rivest, Clifford Stein –**" Introduction to Algorithms"**, 3rd Edition ,The MIT Press, 2009.
3. Aditya Bhargava -**"Grokking Algorithms: An illustrated guide for programmers and other curious people** ", Manning Publications, 1st Edition, 2015.
4. **Adnan Aziz, Amit Prakash –**"Algorithms For Interviews", **CreateSpace Independent Publishing Platform, 1st Edition, 2010.**

Focus of Course: Skill Development

e-Resource/e-Content URL:
Vidya-Mitra Portal:http://vidyamitra.inflibnet.ac.in/index.php/search
Tutorials point :https://www.tutorialspoint.com/data_structures_algorithms/

Course Designer :
Mrs.P.Sathya
Assistant Professor,
Dept. of CS, STC

Mrs.D.Geetha
HOD, CS
BoS Chairman

Approved by Academic Council
BOS
14 JUL 2021
HOD
Sri Sarawathi Thyagaraja College, Pollachi - 642 107

Course Outcomes (COs)		
On successful completion of this course the students will be able to:		
CO Number	**Course Outcome (CO) Statement**	**Blooms Taxonomy Knowledge Level**
CO1	Define the program and describe the ways to create and analyze it	K1
CO2	Categorize the ways to organize the data	K2
CO3	Illustrate the different methods of searching and Sorting.	K2
CO4	Employ the different ways of organizing the files	K3

Mapping Course Outcomes with Programme Outcomes & Programme Specific Outcomes

COs/POs/ PSOs	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	L	M	M	S	M	M	L	S	M	M
CO2	L	M	M	M	M	M	L	M	M	M
CO3	M	M	M	S	M	S	M	S	M	M
CO4	M	M	S	M	M	S	M	S	M	M

S – Strong; **L** – Low; **M** – Medium

SEMESTER II

Course Code	Type	Course Name	Category	Lecture (L)	Tutorial (T)	Practical (P)	Credit
21BCS2C20	Core 5	Programming in C++ (Common to B.Sc (CS), B.Sc (CT), B.Sc (IT) & BCA)	Application	45	5	-	4

Preamble: The student acquires sufficient knowledge in the principles of object-oriented concepts and features of C++ supporting Object Oriented Programming.

Prerequisite: Theoretical background & programming knowledge in C language with Logical skills.

SYLLABUS

Unit	Course contents	Instructional Hours
I	**Introduction to C++:** Key concepts of OOP – Advantages of OOP. I/O in C++: unformatted and formatted console IO operations. C++ declarations: Parts of C++ program	09
II	**Classes and Objects:** Declaring objects – The Public Keyword – The Private Keyword – The Protected Keyword – Defining member functions – Static member variables and functions – Friend functions. Constructors and Destructors: Characteristics – Calling constructor and destructor	11
III	**Functions in C++:** Parts of function – Inline Functions – Function overloading. Operator overloading: Overloading unary, binary operators, Overloading with friend function. Arrays: Characteristics of Arrays – Arrays of classes	10
IV	**Inheritance:** Types of Inheritances – Single Inheritance – Multilevel Inheritance – Multiple Inheritance – Hierarchical Inheritance – Hybrid Inheritance – Multipath Inheritance – Virtual base classes – Abstract classes.	10
V	**Pointers:** Pointer Declaration – Pointer to class, object – This pointer – Pointer to derived classes and base classes.–Working with Strings: Introduction – String Manipulating Functions. **Files:** File opening modes – Sequential Read/Write operations – Random access operation.	10
	Total	**50**

Text Book(s):

1. Ashok N Kamthane – **"Object oriented Programming with ANSI and Turbo C++"**, Pearson Education Publication, 7th Impression, 2009.

Reference Book(s):

1. E.Balagurusamy, **"Object oriented programming with C++"**, TMH Publication, 6th Edition, 2015.
2. Herbert Schildt, **"C++ - A Beginner's Guide"**, TMH Publication, 1st Edition, 2002
3. Yashavant Kanetkar, **"Let Us C++"**, BPB Publications,2nd Edition, 2010
4. Deitel HM & DJ Deitel, **"C++ How to Program"**, PH/Learning Pvt.Ltd, 7th Edition, 2010.

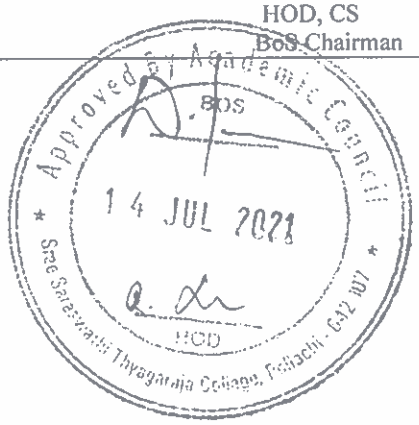
Focus of Course: Employability

e-Resource/e-Content URL:

- http://www.cplusplus.com/
- https://www.learncpp.com/

Course Designer: **R. Sureshkumar**
Assistant Professor, Dept. of CS, STC

Mrs.D.Geetha,
HOD, CS
BoS Chairman



Course Outcomes (COs)		
On successful completion of this course the students will be able to:		
CO Number	**Course Outcome (CO) Statement**	**Blooms Taxonomy Knowledge Level**
CO1	Define the features of C++ supporting object oriented programming	K1
CO2	Outline the major object-oriented concepts like encapsulation, inheritance and polymorphism to implement in C++ programming	K2
CO3	Identify programming goals into object-oriented components for solving problems using techniques in C++	K3
CO4	Develop, test, and debug programs using object oriented principles	K3

Mapping Course Outcomes with Programme Outcomes & Programme Specific Outcomes:

COs/POs/ PSOs	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO 4	PSO5
CO1	L	M	L	M	M	M	L	M	M	M
CO2	L	M	S	M	M	M	M	M	M	M
CO3	M	M	S	S	S	S	M	S	M	S
CO4	M	M	S	S	S	S	M	S	M	S

S – Strong; L – Low; M – Medium

SEMESTER II

Course Code	Type	Course Name	Category	Lecture (L)	Tutorial (T)	Practical (P)	Credit
21BCS2C30	Core 6	C++ and Data Structures Lab (Common to B.Sc (CS), B.Sc (CT), B.Sc (IT) & BCA)	Practical	-	5	30	2

Preamble: Implement Object Oriented Concepts to develop various applications using C++ language

Prerequisite: Programming skills with basic application development ideas

SYLLABUS

Ex. No	Course contents	Instructional Hours
1	Program to implement formatted and Unformatted functions	2
2	Program to implement inline functions.	3
3	Program for function overloading.	3
4	Program using operator overloading	3
5	Program to create a class which consists of required variables with the suitable data types. Using class name create the Constructor and Destructor invoke them using object.	3
6	Program using the concept of overloading with *friend* function	3
7	Program to show single, Multilevel inheritance between classes	3
8	Program to compare and concatenate two strings.	3
9	Develop a C++ program to experiment the operation of stack	3
10	Develop a C++ program to experiment the queue operation	3
11	Develop a C++ program to sort and store the elements using Arrays.	3
12	Develop a C++ program to perform binary search.	3
	Total	**35**

Reference Book:

1. Ashok N Kamthane – **"Object oriented Programming with ANSI and Turbo C++"**, Pearson Education Publication, 7th Impression, 2009.
2. Ellizs Horowitz, S artajSahni -"Fundamentals of Data Structures", Galgothia Book Source (P) Ltd, 2012.

Recommended Tool to be used: Turbo C++

Focus of Course: Employability

Course Designer :

Mr. R. Sureshkumar
Assistant Professor,
Dept. of CS, STC

Approved by Academic Council
14 JUL 2021
Mrs.D.Geetha
HOD, UG-CS
BoS, Chairman
HOD
Sri Saraswathi Thyagaraja College, Pollachi

Course Outcomes (COs)		
On successful completion of this course the students will be able to:		
CO Number	**Course Outcome (CO) Statement**	**Blooms Taxonomy Knowledge Level**
CO1	Illustrate basic features of C++ in various programs	K2
CO2	Illustrate Code reusability using functions and Inheritance	K2
CO3	Apply the knowledge of object and class to design programming paradigm	K3
CO4	Apply Object Oriented Concepts in developing simple and advanced applications	K3

Mapping Course Outcomes with Programme Outcomes & Programme Specific Outcomes

COs/POs/ PSOs	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	L	M	M	S	M	M	M	M	M	M
CO2	L	M	M	M	M	M	M	M	M	M
CO3	M	M	S	S	S	S	M	S	M	M
CO4	M	M	S	S	M	S	M	S	S	S

S – Strong; **L** – Low; **M** – Medium

SEMESTER –II

Course Code	Course Name	Category	Lecture (L)	Tutorial (T)	Practical (P)	Credit
21BMAGAD0	Numerical Methods	Allied	45	15	-	4

Preamble: This course aims give an introduction to Mathematical techniques in analysis of Numerical methods

Prerequisite: Basic Mathematics at higher secondary level

SYLLABUS

Unit	Course contents	Instructional Hours
I	The Solution of algebraic and transcendental equations: The Bisection method - The method of false position - Newton Raphson method	12
II	The Solution of simultaneous linear algebraic equations: GaussEliminationandGauss Jordanmethod - Iterative method - Gauss Jacobi method and Gauss Seidel method.	12
III	Numerical Differentiation: Newton's forward difference formula to get the derivatives - Newton's backward difference formula to compute the derivatives - Derivatives using Stirling's formula - Numerical integration: Trapezoidal rule - Simpson's one third rule-simple problems(Derivation omitted)	12
IV	Interpolation: Newton's forward and backward interpolation - Lagrange's Interpolation Formula- Inverse Interpolation.	12
V	Numerical solution of ODE: Introduction-Power series approximation-point wise methods-solution by Taylor series- Taylor series method for simultaneous first order differential equations-Taylor series method for second order differential equations.	12
	Total	**60**

Text Book:
P. Kandasamy , K. Thilagavathi, K. Gunavathi, Numerical Methods, S. Chand & company Ltd. New Delhi Revised Edition 2005
Unit I : Page.No:69-97.
Unit II : Page.No:112-126,145-159
Unit III : [Page.No:281-284, 300-301, 303-304]
Unit IV : [Page.No209-215,271-277]
Unit V : [Page.No:348-361]

Theory 20% and Problems 80%

REFERENCE BOOKS:

1. Dr.M.K.Venkataraman, Numerical Methods , The National publishing company, 2009.
2. Dr. A. Singaravelu, Numerical Methods, Meenatchi Agency, 2007.
3. Shankar Rao. K, Numerical Methods for Scientists and Engineers, Prentice Hall of India Private Limited, New Delhi- Third Edition ,2008.

Learning Methods (*):

- Assignment/Seminar/ Self-Study/etc.,

Focus of Course:Employability

e-Resource/e-Content URL: https://www.youtube.com/watch?v=ABsBHyEsOgQ

Course Designer: Prof. K. Sivaswamy, Dean Mathematics, STC

Dr. R. Senthil Amutha
BoS Chairman

Course Outcomes (COs)		
On successful completion of this course the students will be able to		
CO Number	**Course Outcome (CO) Statement**	**Blooms Taxonomy Knowledge Level**
CO1	To Solve algebraic and transcendental equations by Bisection method and Newton Raphson method	K3
CO2	Examine the solutions of simultaneous linear algebraic equations	K4
CO3	Apply the concepts of Numerical Differentiation and Integration through Newton's formula	K3
CO4	To show the solutions for Interpolation by Lagrange's and Newton's formula	K2
CO5	Find the numerical solutions of ODE by Taylor series method and power series method	K1

Mapping the Programme Outcomes

Cos/POs	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	M	S	S	L	L	S	L	L	M	M
CO2	M	M	S	L	L	S	S	L	M	M
CO3	M	M	M	L	L	M	M	L	M	M
CO4	L	M	S	L	L	S	M	M	M	M
CO5	L	S	S	M	M	S	M	L	M	M

S – Strong; L – Low; M – Medium

SEMESTER – II

Course Code	Course Name	Category	Lecture (L)	Tutorial (T)	Practical (P)	Credit
21BMAGAE0	Operations Research	Allied	45	15	-	4

Preamble: To enable the learners to apply the concept of Operations Research in Various fields like Business, Industry and to have sound knowledge various models of Operations Research.

Prerequisite: Problem solving skill

SYLLABUS

Unit	Course contents	Instructional Hours
I	Definition of OR - Characteristics of OR - Scope of OR - Uses and limitations of OR - Linear Programming Problem: Introduction - Mathematical formulation of the problem - Graphical method of solving LPP.	12
II	The Transportation problem: Introduction-Mathematical formulation-finding initial basic feasible solution by NWCR, VAM only- MODI'S method of finding optimal solution (Non-degenerate problems only).	12
III	The Assignment problem: Introduction - Mathematical formulation - Hungarian Assignment method-Special cases in assignment problem.	12
IV	Game Theory: Introduction - Two person zero sum game - The Maximin - Minimax principle - saddle point - problems - Pure and Mixed games - Solution of (2 x 2) games - Graphical solution of (2 x n) and (m x 2) games- Dominance property.	12
V	Network scheduling by PERT & CPM - Introduction - Network and basic components -Rules of network construction - Time calculation in networks - CPM, PERT calculations.	12
	Total	**60**

Text Book:

1. Kantiswarup, P. K. Gupta, Man Mohan, Operations Research, S. Chand & Sons Education Publications, New Delhi, 2016
   Unit I : Chapter 1, 2, 3 [Page No 25-29, 39-62,65-73]
   Unit II : Chapter 10 [Page No 247-248,253-266]
   Unit III : Chapter 11 [Page No295-304, 308-312]
   Unit IV : Chapter 17 [Page No 443-460]
   Unit V : Chapter 25 [Page No 763-766,771-785]

Theory - 20% , Problems - 80%

Reference Book(s):

1. Premkumargupta, D.S. Hira,Operations Research, S. Chand & Sons Education,2008.
2. Hamdy A. Taha, An Introduction to Operations Research-Pearson's Education, 2007.
3. J.K. Sharma, Operations Research-Theory of application, Macmillan India Ltd, 2004.
4. Frederick & Hillies, Gerald I.Lieberman, Operations Research, Tata McGraw – Hill Publications company, 2009.
5. Aditham B.Rao, Operations Research, Jaico Publishing House, 2005.

Learning Methods (*):

- Assignment/Seminar/ Self-Study/etc.,

Focus of Course:Employability

e-Resource/e-Content URL: http://youtube.com/watch?v=Pl5F3bdozMw

Course Designer: A.Shak Dawood,
Assistant Professor, Dept. of Mathematics , STC

Dr. R. Senthil Amutha
BoS Chairman

Course Outcomes (COs)		
On successful completion of this course the students will be able to		
CO Number	**Course Outcome (CO) Statement**	**Blooms Taxonomy Knowledge Level**
CO1	To learn the formulation of Linear Programming Problem , Graphical method, Network concepts	K1
CO2	To list the methods of solving Transportation problem and Assignment problem	K1
CO3	Apply assignment problem for special cases	K3
CO4	Identify pure and mixed strategy in game theory	K3
CO5	Explain PERT and CPM concepts in solving real life projects	K2

Mapping the Programme Outcomes

Cos/POs	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	M	S	S	L	L	S	L	L	M	M
CO2	M	M	S	L	L	S	S	L	M	M
CO3	M	M	M	L	L	M	M	L	M	M
CO4	L	M	S	L	L	S	M	M	M	M
CO5	L	S	S	M	M	S	M	L	M	M

S – Strong; L – Low; M – Medium

SEMESTER – II

Course Code	Course Name	Category	Lecture (L)	Tutorial (T)	Practical (P)	Credit
21BMAGAF0	Numerical Ability	Allied	45	15	-	4

Preamble: To develop the Aptitude skill among the learners.

Prerequisite: Arithmetic Knowledge taught in High school level.

SYLLABUS

Unit	Course contents	Instructional Hours
I	Data interpretation – Tabulation – Bar graphs	12
II	Data interpretation– Piecharts – Line graphs	12
III	Area: Area of a triangle – Quadrilateral – rectangle – Square – parallelogram -Equilateral triangle	12
IV	Volume: Volume of cuboid, cube, cone, cylinder, sphere, hemi sphere	12
V	Aligation and mixture: Important facts & formula & related problems	12
	Total	**60**

Text Book: R.S. Aggarwal, Quantitative Aptitude for Competitive Examinations, S. Chand & Company Ltd, 2012 Edition, New Delhi
Unit – I: 661-667, 676-683.;
Unit- II: 695-701, 709-715.
Unit III: 499-505.
Unit IV: 549-555.
Unit V:435-444.

Theory - 20% , Problems - 80%

Reference Book(s):
1. B. S. Sijwali, Quantitative Aptitude, Arihant Publications (India) PVT LTD, 2007.
2. AbhijitGuha, Quantitative Aptitude for Competitive Examinations, McGraw Hill Companies, 2006

Learning Methods (*):
Assignment/Seminar/ Self-Study/etc.,

Focus of Course: Employability

e-Resource/e-Content URL: https://www.youtube.com/watch?v=c4_MJg_c49k

Course Designer: Prof. K. Sivaswamy
Dean Mathematics, STC

Dr. R. Senthil Amutha
BoS Chairman

Course Outcomes (COs)

On successful completion of this course the students will be able to

CO Number	Course Outcome (CO) Statement	Blooms Taxonomy Knowledge Level
CO1	Know the techniques for solving aptitude problems	K1
CO2	Prepare themselves for various competitive examinations	K1
CO3	Find applications of simple formulas	K2
CO4	Solve aptitude problems	K2
CO5	Apply techniques in solving problems in competitive exams	K3

Mapping the Programme Outcomes

Cos/POs	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	M	S	S	L	L	S	L	L	M	M
CO2	M	M	S	L	L	S	S	L	M	M
CO3	M	M	M	L	L	M	M	L	M	M
CO4	L	M	S	L	L	S	M	M	M	M
CO5	L	S	S	M	M	S	M	L	M	M

S – Strong; L – Low; M – Medium

SEMESTER – II

Course Code	Type	Course Name	Category	Lecture (L)	Tutorial (T)	Practical (P)	Credit
18DHE2V20	VBC 2	Value Education & Human Rights	-	27	-	-	2

Preamble: காப்பிய இலக்கியங்களின் வழியே சமூகவியல் அரசியல் மானுடவியல் ஆகியவற்றின் சிறப்புக்களைக் கற்பித்தல் தமிழ்ப் பாடத்தின் நோக்கமாகும். காப்பியத் தோற்றத்திற்கான காரணங்களையும் அது உண்டாக்கிக் காட்டும் பண்பாட்டு அசைவுகளையும் அறிவதை முக்கியமாகக் கொள்கிறது.

Prerequisite:

- மேனிலைப்பள்ளி முடிய கற்றவற்றைப் பகுத்து தொகுத்து ஆராயும் போக்கில் பாடத்திட்டம் அமைக்கப்பட்டுள்ளது.
- மாணிட மதிப்புகளை உணரும் வகையிலும், போட்டித்தோவுகளை எதிர்கொள்ளும் நிலையிலும் 'தமிழ்' - பகுதி – I அமைக்கப்பட்டுள்ளது.
- பிழையின்றி, பேச, எழுத ஆராயும் முயற்சிக்குப் பயிற்சி தரப்படுகிறது

SYLLABUS:

Unit	Course contents	Instructional Hours
I	அலகு I கல்வி–வரையரை - கல்வியின் நோக்கம்- வாழ்வியல் நெறிகள் – குடும்ப உறவின் உன்னதம், கலாச்சாரத்தின் அவசியம், சமுதாயத்தில் தனி மனிதனின் பங்கு, முழுமையாக வாழும்கலை.	05
II	அலகு II இந்திய சுதந்திர போராட்ட வரலாறு - கிழக்கிந்திய கம்பெனி ஆட்சி 1757 - 1858 - கம்பெனியின் வன்முறை கொடுமைகள் - பிரிட்டிஷ் அரசின் நேரடி ஆட்சி - சிப்பாய் கலகம் - இந்தியர்களின் புரட்சிப் போராட்டம் - ஜாலியன் வாலா பாஹ் படுகொலை - மக்கள் ஒத்துழையாமை இயக்கம்.	05
III	அலகு II I இந்திய அரசியல் சட்டம் - தோற்றமும் அவசியமும் - இந்தியக் குடியுரிமை - சம உரிமை - சுதந்திர உரிமை - கலை, கல்வி உரிமை - சொத்துரிமை - இந்தியன் ஒவ்வொருவரின் அடிப்படைக் கடமைகளும், உரிமைகளும், சட்டங்களும்.	06
IV	அலகு IV காந்தியச்சிந்தனைகள் - காந்தியும் சத்தியாகிரக கொள்கையும், சர்வோதயம் – அர்த்தமும் விளக்கமும், மாணவர்களுக்கு விவேகானந்தரின் நெறிகள், அப்துல்கலாமும் மாணவர்களும்.	05
V	அலகு V மனிதஉரிமை–வரையரை–மனிதஉரிமைப் பாகுபாடுகள் - வாழும் உரிமை - சமத்துவ உரிமை- கலாச்சாரபண்பாட்டு உரிமை - அரசியல், பொருளாதார உரிமை-பெண்கள் உரிமை- குழந்தைகள் உரிமை - பெண்கள் வதை - பெண்ணுரிமைகாக்கும் அமைப்புகள் - மனிதஉரிமைக் கழகம் - நீதிமன்றம் - பெண்கள் உரிமைப் பாதுகாப்பு.	06
	Total	27

Text Book(s): பாட நூல்கள்

1. அறவியல் கல்வியும் மனித வாழ்வியலும்
   ஸ்ரீ சரஸ்வதி தியாகராஜா கல்லூரி வெளியீடு.2018

Reference Book(s): பார்வை நூல்களஸ

1. பெண் வரலாறும் விடுதலைக்கான போராட்டமும் - பேராசிரியர்.ப.கு.சந்திரபாபு
   முனைவர் இல.திலகவதி
   பாரதி புத்தக நிலையம்
   421, அண்ணாசாலை,

JUL 2021

		தேனாம்பேட்டை, சென்னை -18. முதற்பதிப்பு - 2011
2.	மகாத்மா காந்தி நூல்கள் அகிம்சா தருமம்	- காந்தி நூல் வெளியீட்டுக் கழகம் வர்த்தமானன் பதிப்பகம் 21, இராமகிருஷ்ணா தெரு, தியாகராய நகர், சென்னை - 17. ஏழாம் பதிப்பு -2014
3.	இந்திய விடுதலைப் போராட்ட வரலாறு	- டாக்டர் க.வெங்கடேசன் ஜெ.ஜெ.பப்ளிகேசன்ஸ 29, கற்பக விநாயகர் காம்பிளக்ஸ் கே.பகதூர், மதுரை. மறுபதிப்பு -2002.
4.	முழுமையாக வாழும் கலை	- மு.சேட்டு ஸ்ரீ சரஸ்வதி தியாகராஜா கல்லூரி வெளியீடு . 2008.

Focus of Course: கல்வியின் உன்னதம், மனித இன மாண்புகள், தேசியத்தின் தாக்கம், உரிமையின் மகத்துவம் ஆகியவற்றை உணரும் வகையில் எடுத்துரைக்கப்பட்டுள்ளது.

Course Designer: **Dr G.Malarvizhi**
Associate Professor, Dept. of Tamil, STC

Dr. S.Rajalatha,
HOD,Dept. of Tamil
BoS Chairman

Course Outcomes (COs)		
On successful completion of this course the students will be able to:		
CO Number	**Course Outcome (CO) Statement**	**Blooms Taxonomy Knowledge Level**
CO1	கல்வியின் நோக்கம், குடும்ப உறவு, கலாச்சாரம், சமூகத்தில் தனிமனிதனின் பங்கு பற்றி அறியப்படுகிறது.	K1
CO2	இந்திய சுதந்திர போராட்ட வரலாறு மற்றும் இந்திய அரசியல் சட்டம் பற்றி அறியப்படுத்துகிறது.	K2
CO3	காந்திய சிந்தனைகள், விவேகானந்தரின் நெறிகள், அப்துல்கலாமின் மொழிகள் பற்றியும் மனித உரிமை, பெண்உரிமையின் அவசியம் பற்றியும் அறியப்படுத்துகிறது.	K3

SYLLABUS:

Unit	Course contents	Instructional Hours
I	**Unit- I** Education – Definition –The purpose of education – Important values of life – The excellence of family and family relations – The significance and the necessity of culture – The role of individual in a society – The art of complete life.	05
II	**Unit- II** History of Indian freedom struggle – East India Company and its rule in India 1757 -1858 – Its unlawful practices and atrocities – Direct rule by British Government – Sepoy mutiny – Indians revolt against British Raj – The massacre of Jallionwalah Bagh – Indians' non-cooperation movement. **Short notes:** Pandit Jawaharlal Nehru, Patel, Subash Chandra Bose,V.O.Chithambaram pillai, Baghat Sing.	06
III	**Unit-III** Indian Constitution – The birth and the significance of Indian Constitution – Indian citizenship – Equality of rights – The right to freedom – Right to arts, culture and education –Right to property – Basic responsibilities of every Indian – The rights and the Acts concerned.	05
IV	**Unit- IV** Gandhian thoughts – Gandhi and his principle of Sathyagraha – Sarvodhaya – concept and meaning – Swami Vivekananda and his teachings to the students – Dr. Abdul Kalam and the students.	06
V	**Unit- V** Human rights – Definition – Classification of human rights – Rights to live – Rights to Equality – Traditional and cultural rights – Social, political and economic rights – Rights of women – Rights of children – Exploitation and cruelty to women – Organization protecting women's rights – Human rights organizations – Courts of justice – Safety of women rights.	05
	Total	**27**

Text Book(s):

1. Ethics of life and the Great Religions of the world

   Publication of Sree SaraswathiThyagaraja College – 2018.

Reference Book(s):

1.Pen varalarum viduthalaikana poratamum - Pro.P.S.Santhirababu
Dr L.Thilagavathi
Bharathi Buthaga nilayam
421, Anna street
Thenampettai, Chennai -18.
Muthl pathippu - 2011.

2. Mahathma Gandhi Books - Gandhi Nool Vellietuk kalagam,
Agimsai Dharumam
Varthamanan Pathippagam
21, Ramakrishna Street,
Thiyagaraya Nagar, Chennai - 17
7th Pathippu -2014

3. Inthiya viduthalai poratta varalaru	- Dr K.Vengatesh J.J.Publications 29, Karpaga vinayagar complex K.Puthur, Madurai. Marupathippu - 2002.
4. Mulumaiyaga vazhum kalai	- M.Setu Sree SaraswathiThyagaraja College Publication – 2008.
Focus of Course: Skill Development (Employability/Entrepreneurship/Skill Development)	
Course Designer: **Dr G.Malarvizhi** Associate Professor, Dept. of Tamil, STC	**Dr. S.Rajalatha,** HOD,Dept. of Tamil BoS Chairman

Course Outcomes (COs)		
On successful completion of this course the students will be able to:		
CO Number	**Course Outcome (CO) Statement**	**Blooms Taxonomy Knowledge Level**
CO1	Define the purpose of education, role of a person in a family relationship, culture and society.	K1
CO2	Understand the history of Indian independence and the Indian constitution.	K2
CO3	Develop Gandhian ideas, Vivekananda's norms, Abdulkalam's languages, need for human rights and feminism.	K3

Mapping Course Outcomes with Programme Outcomes & Programme Specific Outcomes:

COs/POs/ PSOs	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S	S	M	S	L	S	S	M	M	M
CO2	S	M	M	L	L	S	S	L	L	L
CO3	S	S	M	M	M	S	S	M	M	L

S- Strong; L- Low; M-Medium

SEMESTER II

Course Code	Course Name	Category	Lecture(L)	Tutorial(T)	Practical(P)	Credit
21GEN2Z10	Professional English II	Language	55	5	_	2
Preamble: The course aims to Develop students' competence in the use of English with particular reference to the workplace situation						
Prerequisite: Basic knowledge in English						

SYLLABUS

Units	Course Contents	Instructional Hours
I	**Communicative Competence** **Listening** – Listening to two talks/lectures by specialists on selected subject specific topics and answering comprehension exercises (inferential questions) eg://youtu.be/moJjKqkn_Xs. **Speaking:** Small group discussions and narrating stories. **Reading:** Two subject-based reading texts followed by comprehension activities/exercises **Writing:** Summary writing based on the reading passages. Grammar and vocabulary exercises/tasks to be designed based on the discourse patterns of the listening and reading texts in the book. This is applicable for all the units.	12
II	**Persuasive Communication** **Listening:** listening to a product launch- sensitizing learners to the nuances of persuasive communication **Speaking:** Debates and Just a Minute Activities **Reading:** investigate a topic by answering inferential questions **Writing:** dialogue writing- writing an argumentative /persuasive essay.eg: Watch a you tube video on Natural Language Processing and draft a report based on the following link: https://youtu.be/5ctbvkAMQO4.	12
III	**Digital Competence** **Listening** to you tube video and doing exercises in comprehension e.g. https://youtu.be/nt2OIMAJj6o. **Speaking:** Interviews with subject specialists (using video conferencing skills) group discussion regarding drastic industrial disasters. eg: Vishakhapatnam gas leak disaster on 7 May, 2020 **Reading:** Selected sample of Web Page (subject area) and discuss the benefits of multilingualism and prepare a presentation based on discussion. **Writing:** Creating Web Pages. Essay Writing - Digital Competence for Academic and Professional Life. This essay must address all aspects of digital competence in relation to MS Office and how they can be utilized in relation to work in the subject area.	12
IV	**Creativity and Imagination** **Listening** to short (2 to 5 minutes) academic videos (prepared by EMRC/ other MOOC videos on Indian academic sites – E.g. https://www.youtube.com/watch?v=4WZTzKu3CsY) **Speaking:** Talk about a script on Analytical Engine – subject based. **Reading:** Essay on Creativity and Imagination **Writing:** Basic Script writing imagining your floating (individual), Role play of considering one's own self as a water molecule (group discussion).	12
V	**Workplace Communication and Basics of Academic Writing** **Listening:** Pronunciation Practice (Collins Dictionary) and Listening Comprehension. **Speaking:** Short academic presentations using PowerPoint, e.g. How man interferes with nature to console his greed. **Reading**: comprehension and reading activity Product Profiles, Circulars, Minutes of Meeting, Imagine a meeting to decide if you can invest a research product related to artificial photosynthesis.	12

	Writing: Introduction, Paraphrase and Summary, Creating webpages, Blogs, Flyers and brochures - Poster making writing slogans/captions Punctuation(period, question mark, exclamation point, comma, semicolon, colon, dash, hyphen, parentheses, brackets, braces, apostrophe, Capitalization (use of upper case quotation marks, and ellipsis)	
		60

Text Books:
Tamil Nadu State Council for Higher Education(TANSCHE)

Reference Books:
Tamil Nadu State Council for Higher Education(TANSCHE)

Focus of Course: Employability (Employability/Skill Development)

e-Resource/e-Content URL:

- **Vidya-MitraPortal:**http://vidyamitra.inflibnet.ac.in/index.php/search
- **e-PG Pathshala**:http://epgp.inflibnet.ac.in/ahl.php?csr

Course Designer
TANSCHE

BoS Chairman
Assistant Professor of English

COURSE OUTCOMES
On successful completion of the course the students will be able to:

CO Number	Course Outcome (CO) Statement	Bloom's Taxonomy Knowledge Level
CO1	Enhance the creativity of the students, which will enable them to think of innovative ways to solve issues in the workplace.	K1
CO2	Develop students' competence and competitiveness and thereby improve their employability skills.	K2
CO3	Attend interviews with boldness and confidence	K3
CO4	Adapt easily into the workplace context, having become communicatively competent	K4
CO5	Apply to the Research and Development organisations / sections in companies and offices with winning proposals	K5

Mapping Course Outcomes with Programme Outcomes & Programme Specific Outcomes:

COs/POs	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	M	S	S	S	S	M	M	S	S	S
CO2	M	M	M	S	S	S	M	S	S	S
CO3	M	M	M	S	S	S	S	S	S	S
CO4	M	S	S	S	S	S	M	S	S	S
CO5	M	S	S	S	S	S	M	S	S	S

S- Strong; L- Low; M-Medium

SEMESTER III

Course Code	Type	Course Name	Category	Lecture (L)	Tutorial (T)	Practical (P)	Credit
21BCS3C10	Core 7	Operating Systems (Common to B.Sc (CS), BCA, B.Sc (CT) & B.Sc (IT))	Concept	55	5	-	5

Preamble: This course provides the student to know the basic operating system abstractions, mechanisms, and their implementations

Prerequisite: Aware of basic computer concepts like files, primary memory and secondary memory.

SYLLABUS

Unit	Course contents	Instructional Hours
I	**Introduction and Process Concepts:** Definition of OS - Early History of OS - Definition of Process - Process States - Process State Transitions - Process Control Block - Operations on Processes - Suspend and Resume - **Interrupt Processing:** Interrupt classes - Concept Switching.	11
II	**Deadlock & Indefinite Postponement:** Introduction - Examples of Deadlock - Related Problem: Indefinite Postponement - Resource Concepts - Four Necessary Conditions for Deadlock - Major Areas of Deadlock Research - Deadlock Prevention - Deadlock Avoidance and the Banker's Algorithm - Deadlock Detection - Deadlock Recovery.	12
III	**Storage Management and Virtual Storage Management:** Storage Hierarchy - Real Storage Management Strategies - Contiguous Vs Non-Contiguous Storage allocation - Single User Contiguous Storage Allocation - Fixed Partition Multiprogramming - Variable Partition Multiprogramming, Multiprogramming with Storage Swapping. **Virtual Storage Management Strategies**: Page Replacement Strategies - Working Sets - Demand Paging – Page size.	13
IV	**Processor Scheduling:** Scheduling Levels - Preemptive Vs Non-Preemptive Scheduling - Priorities - Deadline Scheduling - FIFO - RR - Quantum Size - SJF - SRT - HRN. **Multiprocessor Architecture:** Classifying Sequential and Parallel Architectures - Processor Interconnection Schemes - Loosely Coupled vs. Tightly Coupled Systems. **Process Migration:** Flow of Process Migration – Process Migration Concepts. **Load Balancing:** Static load Balancing - Dynamic load Balancing	12
V	**Information Management Disk Performance Optimization**: Operation of Moving Head Disk Storage - Need for Disk Scheduling - Seek Optimization - FCFS - SSTF - SCAN - RAM Disks - Optical Disks. **File and Database Systems:** Introduction - File System - File System Functions - File Organization - Allocating and Freeing Space - File Descriptor - Access Control Matrix.	12
	Total	**60**

Text Book(s):

1. H. M. Deitel, Paul J. Deitel , David R. Choffnes **"Operating System"**, Pearson Education Publication, Third Edition, 2013.

Reference book(s):

1. Achyut S Godbole, **"Operating System"**, Third edition, TMH Publishers, 2011.
2. Silbersehatz, Galvin, **"Operating System Concepts"**, Wiley India, New Delhi, Sixth Edition, 2011.
3. William Stallings, **"Operating Systems: Internals and Design Principles"**, Pearson Education, (English) Seventh Edition, 2016.
4. Deitel, Deitel and Choffness, **"Operating System"**, Pearson Education Pvt Ltd, India, Third Edition 2011.

Focus of Course: Employability

e-Resource/e-Content URL:

- **Vidya-Mitra Portal:**http://vidyamitra.inflibnet.ac.in/index.php/search
- **Tutorials point :**https://www.tutorialspoint.com/operating_system/

Course Designer: **Mrs.A.Pavithra,**
Assistant Professor,
Dept. of Computer Science, STC.

Mrs.D.Geetha,
HOD, Dept. of Computer Science,
BoS, Chairman.

Course Outcomes (COs)		
On successful completion of this course the students will be able to:		
CO Number	**Course Outcome (CO) Statement**	**Blooms Taxonomy Knowledge Level**
CO1	Understand Process concept and Process scheduling	K1
CO2	Describe System model for deadlock, Methods for handling deadlocks and memory management strategies	K2
CO3	Illustrate Scheduling algorithms and formulate solutions for critical section problem	K3
CO4	Analyze File ,directory and learn various Access methods and implementation	K3

Mapping Course Outcomes with Programme Outcomes & Programme Specific Outcomes:

COs/POs/ PSOs	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO 4	PSO5
CO1	L	M	M	M	L	S	L	M	M	M
CO2	L	L	M	M	M	M	L	M	M	L
CO3	L	S	S	S	M	S	L	S	S	S
CO4	L	L	L	M	M	M	L	M	M	L

S – Strong; L - Low; M – Medium

SEMESTER III

Course Code	Type	Course Name	Category	Lecture (L)	Tutorial (T)	Practical (P)	Credit
21BITGCA0	Core 8	Java Programming (Common to B.Sc (IT) , BCA & BSc (CS))	Application	55	5	-	5
Preamble: This course aims at facilitating the student to understand the OOPS concepts using Java.							
Prerequisite: Basic OOPs Concepts.							

SYLLABUS

Unit	Course contents	Instructional Hours
I	**OOPS:** Fundamentals of Object Oriented Programming – Introduction- Object Oriented Paradigm–Basic Concepts of Object Oriented Programming– Benefits of OOP-Applications of OOP. **Java Evolution:** Java History – Java Features - How java differs from C and C++. Overview of Java Language - Constants, Variables and Data types.	12
II	**Classes and Objects:** Operators and Expressions- Decision Making and Branching, Decision Making and Looping- Classes, Objects and Methods-Arrays, Strings and Vectors.	12
III	**Interfaces:** Multiple Inheritances. **Packages:** Putting classes together- Multithreaded Programming- Creating threads -Life Cycle of a Thread –Implementing the 'Runnable' Interface- Managing Errors and Exceptions.	12
IV	**Applet and AWT:** Applet programming- Introduction- Applet Lifecycle- Adding Applet to HTML File-Graphics Programming. **Frames and Windows:** Frame class-Creating and displaying a Frame – Displaying messages in a window-Button and Label- Events Handling.	12
V	**I/O Package:** Managing Input / Output Files in Java: Introduction-Concepts of Streams-Stream Classes – Using streams - Input/Output Exceptions – Creation of files – Reading / Writing Characters, Reading /Writing Bytes - Handling Primitive Data types.	12
	Total	60

Text Book(s):

1. E. Balagurusamy, "**Programming With Java – A Primer**", TMH publication 4th Edition, 2011. (UNIT I, II, III, IV, V).
2. C.Xavier, "**Programming With Java 2**", Scitech Publications (INDIA) Pvt. Ltd.2010 (UNIT IV).

Reference Book(s):

1. Patrick Naughton& Hebert Schildt, "The Complete Reference Java 2", 6thEdition, TMH Publication, 2012.
2. Herbert Schildt, "Java: A Beginner's Guide", TMH Publication, 6th Edition, 2014.
3. D.T. Editorial Services , "Java 8 Programming Black Book", Dream Tech Publication,2015 edition.
4. John R. Hubbard, "**Programming with Java**", McGraw Hill Publication, 2nd Edition,2012.

Focus of Course: Employability

e-Resource/e-Content URL:

- **Vidya-MitraPortal:**http://vidyamitra.inflibnet.ac.in/index.php/search
- **Tutorials point :**https://www.tutorialspoint.com/java

Course Designer: Mr.G.Murugesan
Assistant Professor,
Dept. of Computer Science, STC.

Mrs.D.Geetha,
HOD,Dept of CS
BoS, Chairman.

Course Outcomes (COs)		
On successful completion of this course the students will be able to:		
CO Number	**Course Outcome (CO) Statement**	**Blooms Taxonomy Knowledge Level**
CO1	Recall the fundamentals of Object Oriented Programming	K1
CO2	Outline the major concepts like inheritance,packages to implement in Java Programming	K2
CO3	Make use of exception handling and Input/Output operations in programming	K3
CO4	Develop Programs using event handling and abstract window tool kit	K3

Mapping Course Outcomes with Programme Outcomes &Programme Specific Outcomes

COs/POs/ PSOs	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	L	M	M	S	M	M	L	S	M	M
CO2	L	M	M	M	M	M	L	M	M	M
CO3	M	M	M	S	M	S	M	S	M	M
CO4	M	M	S	M	M	S	M	S	M	M

S – Strong; L - Low; M – Medium

SEMESTER III

Course Code	Type	Course Name	Category	Lecture (L)	Tutorial (T)	Practical (P)	Credit
21BITGCB0	Core 9	Java Programming Lab (Common to B.Sc(CS,IT), & BCA)	Practical	-	5	55	5
Preamble: Implement object oriented concepts to develop various applications using Java.							
Prerequisite: Programming skills with OOPs concepts.							

SYLLABUS

Ex. No	Course contents	Instructional Hours
1	Develop a java program to find Fibonacci numbers	4
2	Develop a java program for sorting numbers	4
3	Develop a Java program to display the mark statement with result and grade.	4
4	Develop a Java program to implement Method Overloading.	4
5	Develop a Java Applications to extract a portion of a character string and print the extracted string.	4
6	Develop a Java program to add, delete list of elements using Vectors.	4
7	Develop a Java program to create your own package.	4
8	Develop a Java Program to implement the concept of multiple inheritance using Interfaces.	4
9	Develop a Java Program to implement the concept of multithreading with the use of any three multiplication tables and assign three different priorities to them.	4
10	Develop a Java Program to create an Exception called payout-of-bounds and throw the exception.	4
11	Develop a Java Program to draw gridlines using Applets.	4
12	Develop a Java Program to create an Applet with three text fields for name, age and qualification and a text field for multiple line for address.	4
13	Develop a Java Program to demonstrate the Multiple Selection List-box.	4
14	Develop a Java Program to create Menu Bars and pull down menus.	4
15	Develop a Java Program which open an existing file and append text to that file.	4
	Total	**60**

Reference Books:

1. E. Balagurusamy, "**Programming With Java – A Primer**", TMH publication,4th Edition, 2011

Focus of the Course: Employability

Course Designer: Mr.G.Murugesan
Assistant Professor,
Dept. of Computer Science, STC.

Mrs.D.Geetha ,
HOD,Dept of CS
BoS, Chairman.

Course Outcomes (COs)		
On successful completion of this course the students will be able to:		
CO Number	**Course Outcome (CO) Statement**	**Blooms Taxonomy Knowledge Level**
CO1	Illustrate the basic features of OOPs concepts in various programs	K2
CO2	Demonstrate interfaces and packages using JAVA programs	K2
CO3	Apply the concepts of multithreading and exception handling in programming.	K3
CO4	Develop applets and implement the concepts of file handling.	K3

Mapping Course Outcomes with Programme Outcomes &Programme Specific Outcomes

COs/POs/ PSOs	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	L	M	M	S	M	M	L	S	M	M
CO2	L	M	M	M	M	M	L	M	M	M
CO3	M	M	M	S	M	S	M	S	M	M
CO4	M	M	S	M	M	S	M	S	M	M

S – Strong; L - Low; M – Medium

SEMESTER III

Course Code	Type	Course Name	Category	Lecture (L)	Tutorial (T)	Practical (P)	Credit
21BCS3C40	Core 10	System Analysis and Design	Concept	45	5	-	2

Preamble: To make the students to understand the system planning, various use cases and anatomy of modern and make them capable to develop the required system design

Prerequisite: Knowledge in various structured analysis, E-R, DFD, SFD diagrams and database

SYLLABUS

Unit	Course contents	Instructional Hours
I	**An Overview of Systems Analysis and Design:** Software Development and Systems Analysis and Design, The System Development Life Cycle (SDLC) **Investigating System Requirements:** Systems Analysis Activities, What Are Requirements? Stakeholders, Information-Gathering Techniques, Models and Modeling, Documenting Workflows with Activity Diagrams	10
II	**Identifying User Stories and Use Cases:** User Stories and Use Cases, Use Cases and the User Goal Technique, Use Cases and Event Decomposition, Use Cases in the Ridgeline Mountain, Outfitters Case **Domain Modeling:** The Entity-Relationship Diagram, The Domain Model Class Diagram, The State Machine Diagram—Identifying Object Behavior	10
III	**Use Case Modeling:** Use Case Descriptions, Activity Diagrams for Use Cases, The System Sequence Diagram—Identifying Inputs and Outputs, SSD Notation. **Foundations for Systems Design:** What Is Systems Design? Design Activities, System Controls and Security	10
IV	**Defining the System Architecture:** Overview, Anatomy of a Modern System, Architectural Concepts. Interoperability, Architectural Diagrams, Describing the Environment, Designing Application Components	10
V	**Designing the Database:** Overview, Databases and Database Management Systems , Database Design and Administration, Relational Databases, Distributed Database Architectures, Protecting the Database	10
	Total	**50**

Text Book(s):

1. John W. Satzinger, Robert B. Jackson and Stephen D. Burd, "Systems Analysis and Design In a Changing World" ,7th Edition", Cengage Learning Publications, 2016.

Reference book(s):

1. Gary B. Shelly Harry J. Rosenblatt, "System Analysis and Design" 9th Edition, Course Technology, Cengage Learning Publications, 2012.
2. Alan Dennis, Barbara Haley Wixom, David Tegarden – "System Analysis & Design-A n Object -Oriented Approach with UML", Fifth Edition, Wiley Publications, 2015.

Focus of Course: Employability

e-Resource/e-Content URL:

- **Vidyamithra Portal : http://vidyamitra.inflibnet.ac.in/**
- **NPTEL**

Course Designer: **P.Sudha**
Assistant Professor,
Dept. of CS, STC

Mrs.D.Geetha ,
HOD, Dept of CS,
BoS Chairman

Course Outcomes (COs)		
On successful completion of this course the students will be able to:		
CO Number	**Course Outcome (CO) Statement**	**Blooms Taxonomy Knowledge Level**
CO1	Demonstrate knowledge of Activity Diagrams for Use Cases	K1
CO2	Understand the Stakeholders requirement and various Information-Gathering Techniques	K2
CO3	Ability to develop various System Architecture	K3
CO4	Capable to develop real time database system	K3

Mapping Course Outcomes with Programme Outcomes and Programme Specific Outcomes:

COs/POs/ PSOs	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	L	M	M	M	M	M	L	M	M	S
CO2	L	M	M	M	M	M	L	M	M	S
CO3	L	S	S	M	M	S	L	S	S	S
CO4	L	S	S	M	M	S	L	S	S	S

S – Strong; L – Low; M – Medium

SEMESTER – III

Course Code	Course Name	Category	Lecture (L)	Tutorial (T)	Practical (P)	Credit
21BMAGAL0	Discrete Mathematics for Science	Allied	50	10	-	4

Preamble: This course aims at facilitating the student to learn the concepts in Discrete Mathematics

Prerequisites: Basic concepts in Mathematics at HSc level

Syllabus

Unit	Course contents	Instructional Hours
I	Mathematical Logic – Statements and Notations – Connectives – Negation, Conjunction, Disjunction, Conditional and Bi conditional – Well-formed Formulas –Tautology – Equivalence of Formulas - Duality law – Tautological Implications – Normal Forms – Theory of Inference for Statement Calculus.	12
II	Set Theory: Basic Concepts of Set Theory – Notations – Inclusions and Equality of Sets – Some Operations on Sets – Venn Diagrams – Some Basic Sets Identities. Relations: Properties of Binary Relations in a Set – Relation matrix and a Graph of a Relation – Equivalence Relations – Composition of Binary Relations.	12
III	Partial Ordering – Poset – Hasse Diagrams – Lattices – Some Properties of Lattices – Lattices as Algebraic Systems -Sub Lattices – Direct Product and Homomorphism – Some Special Lattices.	12
IV	Boolean algebra: Definition and Examples – Sub Algebra – Direct Product and Homomorphism. Boolean Functions: Boolean Forms and Free Boolean algebras – Values of Boolean Expressions and Boolean Functions. Representation and Minimization of Boolean Functions: Representation of Boolean Functions - Minimization of Boolean Functions.	12
V	Introduction and Basic concepts of Graphs Theory : Basic definitions – Paths, Reachability and Connectedness – Matrix representation of Graphs –Trees.Storage Representation And Manipulation of Graph :- Trees and their Representation and Operations – List Structure and Graphs.	12
	Total	**60**

Text Book: 1. J. P.Tremblay R Manohar, Discrete Mathematical Structures with Applications to Computer Science, McGraw Hill International Edition, 2007.

Unit I : Sections 1.1,1.2(1-2.1,1-2.2,1-2.3,1-2.6,1-2.7, 1-2.8, 1-2.9, 1-2.10, 1-2.11),1.3,1.4
Unit II: Sections 2.1(2-1.1, 2-1.2, 2-1.4 - 2-1.6), 2-3.1 – 2-3.3, 2-3.5, 2-3.6)
Unit III Sections 2-3.8, 2-3.9, 4.1(4-1.1 – 4-1.5)
Unit IV Sections 4-2.1 - 4-4.2
Unit V Sections 5.1,5.2,5.3,5.4

Theory - 20% , Problems - 80%

Reference Book(s):

1. C.L.Liu, Elements of Discrete Mathematics, McGraw – Hill Book Company second edition, 1977
2. "Discrete Mathematical Structures" : Tremblay and Manohar, Tata McGraw Hill.

Learning Methods (*):

- Assignment/Seminar/ Self-Study/etc.,

Focus of Course: Employability, Skill Development
(Employability/Entrepreneurship/Skill Development)

e-Resource/e-Content URL:https://www.youtube.com/watch?v=O0KbymiE7xU

Course Designer: K. Dhanalakshmi
Assistant Professor, Dept. of Mathematics, STC

Dr. R. Senthil Amutha
BoS Chairman

Course Outcomes (COs)		
On successful completion of this course the students will be able to		
CO Number	**Course Outcome (CO) Statement**	**Blooms Taxonomy Knowledge Level**
CO1	Know the concepts of mathematical logic	K1
CO2	Understand the concepts of sets and relations	K2
CO3	Compute the properties of lattices	K2
CO4	Understand the concepts of Boolean Algebra	K2
CO5	Solve problems using mathematical inducton	K3

Mapping the Programme Outcomes (For BSc CS)

Cos/POs	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	M	L	L	S	M	M	L	L	S	M
CO2	S	M	M	M	M	S	M	M	M	M
CO3	S	M	M	M	L	S	M	M	M	L
CO4	M	L	M	M	L	M	L	M	M	L
CO5	M	L	L	M	M	M	L	M	L	L

S – Strong; L – Low; M – Medium

SEMESTER III

Course Code	Type	Course Name	Category	Lecture (L)	Tutorial (T)	Practical (P)	Credit
19BCS3S10	SBC 1	Multimedia Systems Lab 1	Practical	-	3	47	2

Preamble: Implement multimedia Concepts to develop various applications.

Prerequisite: Basic knowledge on application development ideas.

SYLLABUS

Ex. No	Course contents	Instructional Hours
1	Implement the following tools for an image in Photoshop: Basic Selection Tools, Rectangular Marquee Tool, Moving the Marquee, Resizing While Selecting, Making a Perfect Circle, Make a Circular Selection Starting from Center, Clearing an Area.	5
2	Animate an image with implementing the concept of Layers.	5
3	Crop an image with the help of crop tool in Photoshop and use save as option.	5
4	Create a Sunflower and Water drops using Photoshop.	5
5	Create Roll over button using Photoshop.	5
6	Upload an image and work with different filters option.	5
7	Create lighting effects in Photoshop.	5
8	Animate a Plane Flying in the Clouds using Photoshop.	5
9	Create Plastic Surgery for the Nose using Photoshop	5
10	Convert a Black and White Photo to Color Photo using Photoshop	5
	Total	**50**

Reference Book:

1. Ranjan Parekh, **"Principles of Multimedia(2/e)"**, Tata McGraw-Hill Publishing Company Limited, New Delhi, 2012

Recommended: Photoshop

Focus of Course: Employability

Course Designer: **Mrs.P.Sathya**
Assistant Professor,
Dept. of Computer Science, STC.

Mrs.D.Geetha,
HOD, Dept. of Computer Science,
BoS, Chairman.

Course Outcomes (COs)

On successful completion of this course the students will be able to:

CO Number	Course Outcome (CO) Statement	Blooms Taxonomy Knowledge Level
CO1	Apply the fundamental concepts of multimedia programming.	K3
CO2	Make use of various image editing tools.	K3
CO3	Develop multimedia programs to implement designing and streaming concepts.	K3
CO4	Examine the tools for developing real time applications	K4

Mapping Course Outcomes with Programme Outcomes & Programme Specific Outcomes:

COs/POs/ PSOs	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO 4	PSO5
CO1	L	M	M	M	S	S	L	M	M	M
CO2	L	M	S	S	M	M	M	M	M	M
CO3	M	M	S	S	S	S	M	S	S	S
CO4	L	M	S	M	M	S	M	S	S	S

S – Strong; L – Low; M – Medium

SEMESTER – III

Course Code	Type	Course Name	Category	Lecture (L)	Tutorial (T)	Practical (P)	Credit
19BCM3N10	NME - 1	Practical Banking	Application	27	-		2

Preamble : Understand the basic ideas and latest development of banking activities

Prerequisite: Fundamental Knowledge on Banking

Unit	Course Contents	Instructional Hours
I	Indian Banking System – Structure – RBI - Functions – Commercial Banks –Rural banks – Cooperative Banks-Ombudsman – Organisation structure	6
II	Real time examples and Case studies discussion on Endorsement and Crossing of Cheques	4
III	Pay in slip – Demand Draft applications and preparation of demand drafts –online / off line filling up of account opening forms of time and demand deposits.	5
IV	Banking Services: ATM, Credit Card, Debit Card, Rupay Card – E-Services – On-line/Internet Banking – Mobile Banking – EFT (Electronic Fund Transfer) –	6
V	Real Time Gross Settlement (RTGS) System, Negotiated Dealing System (NDS), Centralized Funds Management System (CFMS), National Financial Switch (NFS), and Inter Bank Funds Transfer Processor (IFTP) – Immediate Payment Service (IMPS).	6
	Total	27

Text Book :

1. E.Gordon & K. Natrajan, " Banking Theory, Law & Practice", Himalaya Publishing House, Mumbai, 24th Revised edition, 2015.

Focus of Course :- Employability

e-Resources/e-Content URL :

- NPTEL Video: http://nptel/index.php/search
- e-Pathshala : http://e-pathshala /index.php/search
- You Tube :http://you tube /index.php/search
- Www. rbi.org.in

Course Designer
A.Syed Beer
Assistant Professor, Dept.of B.Com

BoS - Chairman
Dr.I.Siddiq
Head, Dept. of Commerce

Course Outcomes (COs) :		
On Successful completion of this course the students will able to:		
CO Number	**Course Outcome (CO) Statement**	**Blooms Taxonomy Knowledge Level**
CO1	To know the recent development in e banking system.	**K1**
CO2	To understand the functions of commercial banks	**K2**
CO3	To know the different banking services to the society.	**K3**
CO4	To apply knowledge on E-Banking in real time activities	**K4**

Mapping with Program Outcomes and Program Specific Outcomes:

COs / POs	PO1	PO2	PO3	PO4	PO5		PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S	S	S	S	S		S	S	S	S	S
CO2	M	M	M	M	M		M	M	M	M	M
CO3	S	S	S	S	S		S	S	S	S	S
CO4	S	S	S	S	S		S	S	S	S	S

S – Strong; L – Low; M – Medium

SEMESTER III

Course Code	Course Type	Course Name	Category	Lecture (L)	Tutorial (T)	Practical (P)	Credit
19BBA3N10	NME I	Customer Relationship Management	Concept	27	-	-	2

Preamble:

- To enable the students to understand the importance of satisfying the customer in today's competitive world
- To develop the students with an ability to manage effective relationships with customers in a range of business settings
- Students would be able to Design, develop & integrate CRM mechanism in the organization.

Prerequisite: Basic Marketing & IT Knowledge

Syllabus:

Unit	Course contents	Instructional Hours	e-Resources/ e-Content
I	CRM – Introduction – Definition – Need for CRM – Complementary Layers of CRM – Customer Satisfaction – Customer Loyalty – Product Marketing – Direct Marketing.	4	PPT/YouTube Videos
II	Customer Learning Relationship – Key Stages of CRM – Forces Driving CRM – Benefits of CRM – Growth of CRM Market in India – Key Principles of CRM.	6	PPT/YouTube Videos Field Visits
III	CRM Program – Groundwork for Effective use of CRM – Information Requirement for an Effective use of CRM – Components of CRM – Types of CRM – Data Ware housing - Advantages	5	PPT/YouTube Videos
IV	CRM Process Framework – Governance Process – Performance Evaluation Process.	6	PPT/YouTube Videos Field Visits
V	Use of Technology in CRM – Call Center Process – CRM Technology Tools – Implementation – Requirements Analysis – Selection of CRM Package – Cyber Security in CRM.	6	PPT/YouTube Videos
	Total	**27**	

Text Book(s):

1. Customer Relationship Management, K. Balasubramaniyan, GIGO publication, 2005.
2. The Essentials Guide to Knowledge Management – E-Business and CRM Application, Amrit Tiwana, Pearson Education, 2001.

Reference Book(s):

1. E-business – Roadmap for Success, Dr. Ravi Kalakota, Pearson Education Asia, 2000.
2. Business – The Dell Way, Rebecca Saunders, India Book Distributors, 2000.

Focus of Course: Employability
(Employability/Entrepreneurship/Skill Development)

e-Resource/e-Content URL:

- Vidya-MitraPortal:http://vidyamitra.inflibnet.ac.in/index.php/search
- e-PG Pathshala :http://epgp.inflibnet.ac.in/ahl.php?csrno=7

Course Designer: Dr. V. Sivakamy
Professor & Head, Dept. of BBA
STC

Dr. V. Sivakamy/Asso.
Asso. Professor & Head, Dept. of BBA,
BoS Chairman

Course Outcomes (COs)		
On successful completion of this course the students will be able to:		
CO Number	**Course Outcome (CO) Statement**	**Blooms Taxonomy Knowledge Level**
CO1	To know the basic concepts of CRM	**K1**
CO2	To understand the CRM process	**K2**
CO3	Acquire knowledge on CRM strategies	**K2**
CO4	Understand the integration of IT in CRM & its implementation	**K3**

Mapping with Program Outcomes:

COs/POs	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S	M	S	S	S	S	M	S	S	S
CO2	S	S	S	S	M	S	S	S	M	S
CO3	S	S	S	S	S	S	S	S	S	S
CO4	S	S	M	S	M	S	S	M	M	S

S – Strong; L – Low; M – Medium

SEMESTER IV

Course Code	Type	Course Name	Category	Lecture (L)	Tutorial (T)	Practical (P)	Credit
21BCA4C10	Core 11	Software Engineering	Concept	55	5	-	5

Preamble: This course aims at facilitating the students to understand the software engineering concepts

Prerequisite: Basic knowledge in software development.

SYLLABUS

Unit	Course contents	Instructional Hours
I	Software and Software Engineering: The Nature of Software - Software Engineering - The Software Process - Software Engineering Practice- Software Myths.Process Models: A Generic Process Model - Prescriptive Process Models - Specialized Process Models - The Unified Process. Agile Development: What is agility? - Agile Process- Agile Process Models.	14
II	Understanding Requirements: Requirements Engineering - Eliciting Requirements. Requirement Modeling: Requirements Analysis - Data Modeling Concepts - Class-Based Modeling - Flow Oriented Modeling -Creating a Behavioral Model.	12
III	Design Concepts: Design Concepts - The Design Model. Architectural Design: Architectural Styles - Architectural Design. Component Level Design: Designing class based components. User Interface Design: User Interface Analysis and Design - Interface Design steps.	12
IV	Software Testing: Unit Testing – Integration Testing - Validation Testing - System Testing - Software Testing Fundamentals - White Box Testing – Basic Path Testing - Control Structure Testing - Black Box Testing.	11
V	Reengineering: Reengineering – Business Process Reengineering - Software Reengineering - Reverse Engineering - Restructuring. Case study: SRS for Banking System.	11
	Total	**60**

Text Book(s):

1.Roger S Pressman, "Software Engineering a Practitioner's Approach", McGraw Hill International, Seventh Edition, 2014

Reference Book(s):

1. Richard Fairley, "Software Engineering Concepts", 1st Edition, Tata McGraw-Hill Publishing Company Limited, 2010.
2. Waman S. Jawadekar, "Software Engineering – Principles and Practice", 1st Edition, Tata McGraw Hill Publishing Company Limited, 2011.
3Rajib Mall, —*Fundamentals of Software Engineering, McGraw-Hill International, Sixth Edition*, 2010
4. K.K.Aggarwal, Yogesh Singh, "Software Engineering", New Age International Publishers, 2007

Focus of Course: Skill Development

e-Resource/e-Content URL:

1.https://onlinecourses.nptel.ac.in/noc18_cs43/preview
2.https://nptel.ac.in/downloads/106105087/

Course Designer: **Dr. S.Rajeswarii**
Associate Professor,
Dept of CS

Mrs.D.Geetha, HoD CS
Dept of CS
BoS Chairman

Course Outcomes (COs)		
On successful completion of this course the students will be able to:		
CO Number	**Course Outcome (CO) Statement**	**Blooms Taxonomy Knowledge Level**
CO1	Select the process model for different applications	K1
CO2	Understand the software requirements and describe various models. and architectural styles	K2
CO3	Outline the approaches involved in software testing	K2
CO4	Apply the software engineering process in creating real time applications	K3

Mapping Course Outcomes with Programme Outcomes & Programme Specific Outcomes

COs/Pos	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	L	M	M	M	S	M	M	S	M	M
CO2	L	M	M	M	S	M	M	M	M	M
CO3	M	M	S	M	S	M	S	M	S	S
CO4	S	S	M	M	S	M	S	S	S	S
CO5	L	M	M	M	S	S	S	S	S	S

S – Strong; L – Low; M – Medium

SEMESTER IV

Course Code	Type	Course Name	Category	Lecture (L)	Tutorial (T)	Practical (P)	Credit
21BCS4C20	Core 12	VB.NET PROGRAMMING	Application	55	5	-	5
Preamble: This course provides the students to build Windows applications using structured and object-based programming techniques							
Prerequisite: Basic concepts of programming							

SYLLABUS

Unit	Course contents	Instructional Hours
I	**Getting started in Visual Basic to .NET:-** Welcome to Visual Basic.NET - .NET Framework. **Welcome to IDE:** What is IDE – Using the Auto Hide facility – using the Properties Window – setting the properties of Forms and Controls – using the Solution Explorer – writing an Event Procedure – the Standard Toolbar. **Setting properties using the Properties Window:** Classification of Properties. **Visual Basic.NET Programming Language-I:** Variables and Data types.	12
II	**Visual Basic.NET Programming Language-I:** Text box control – Radio button control – Programming Statements: IF...THEN AND IF...THEN…ENDIF – IF…THEN…ELSE…ENDIF. **Visual Basic.NET Programming Language-II:** The MsgBox ( ) function – The InputBox ( ) function – List box control – Programming Statement: Select Case. **Visual Basic.NET Programming Language-III:** Check box control – Iteration Statements – Do While Loop – Do Loop While – Do until Loop – Do Loop until – For Next – Arrays.	12
III	**Menus and Dialog Boxes:** Basic elements of menus – Generic procedure of creating menus – creating a simple menu application. **Structured programming:** - What is structured programming? – Events, Subroutines & Functions – scope of variables – scope of procedures – Elementary and composite data types.	12
IV	**Object-oriented programming:** What is OOP? – Implementing OOPS – Inheritance overriding – Collections. **Working with files:** Introduction to files – classification of files – Handling files and folders using functions – File processing using streams. **Advanced Techniques in Visual Basic.NET:** Single document interface and multiple document interface.	12
V	**Data Access with ADO.NET:** What are databases? – Connections, Data Adapters and Datasets – Accessing Data with the Server Explorer – Accessing Data with Data Adaptors and Datasets – Working with ADO.Net – Overview of ADO.Net Objects.	12

Total	**60**

Text Book(s):

1. Steven Holzner, **"Visual Basic.NET Black Book"**, Wiley dreamtech press, 2013.

Reference book(s):

1. Jeffrey Kent, **"Visual Basic.Net – A beginner's guide"**, Tata McGraw Hill, First Edition, 2013.
2. Noel Jerke, **"Visual Basic 6 - The Complete Reference"**, McGraw-Hill Companies, 2013.
3. Jeffrey R.Sharpiro, **"The Complete Reference VISUAL BASIC.NET"**, Tata McGraw Hill, Sixteenth Reprint, 2010.

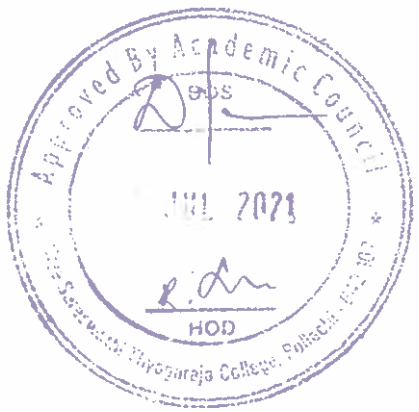
Focus of Course: Employability
e-Resource/e-Content URL: • **Vidya-Mitra Portal:**http://vidyamitra.inflibnet.ac.in/index.php/search • **Tutorials point :**https://www.tutorialspoint.com/ Visual_Basic.Net /
Course Designer: **Mrs.P.Sathya** Assistant Professor, Dept. of Computer Science, STC. **Mrs.D.Geetha,** HOD, Dept. of Computer Science, BoS, Chairman.

Course Outcomes (COs)		
On successful completion of this course the students will be able to:		
CO Number	**Course Outcome (CO) Statement**	**Blooms Taxonomy Knowledge Level**
CO1	To define the basics of Visual Basic to .NET	K1
CO2	To explain the various controls and looping statements of VB.NET	K2
CO3	To construct menus, dialog boxes and understand the structured programming	K3
CO4	To analyze the Object-oriented programming, Working with files and Advanced Techniques in Visual Basic.NET	K4
CO5	To connect Data Access with ADO.NET	K4

Mapping Course Outcomes with Programme Outcomes & Programme Specific Outcomes:

COs/POs/ PSOs	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	L	M	M	M	M	S	L	M	M	S
CO2	L	M	M	M	M	S	L	S	M	M
CO3	L	M	M	M	M	M	L	S	M	M
CO4	L	M	S	M	M	S	L	S	M	S
CO5	L	M	S	M	M	S	L	S	M	S

S – Strong; **L** – Low; **M** – Medium



SEMESTER IV

Course Code	Type	Course Name	Category	Lecture (L)	Tutorial (T)	Practical (P)	Credit
21BCS4C30	Core 13	VB.NET PROGRAMMING LAB	Practical	-	5	55	5

Preamble:
The main objective of the course is to make the students to work in Visual studio environment and able to create application projects using various features of vb.net and apply database concepts.

Prerequisite:
Basic Knowledge of DBMS and programming skills

SYLLABUS

ExNo	Course contents	Instructional Hours
RDBMS Programs: (1-6)		
1	Select Command: a) Global data extract b) The retrieval of specific columns from table c) Elimination of duplicates from the select statement (distinct) d) Sorting of data in a table e) Use arithmetic operators (+, -, *, /) and relational operators (<, >, <=, >=, < >)	6
2	Logical Operators (AND, OR, NOT, BETWEEN)	6
3	Pattern Matching (LIKE, NOT LIKE, IN, NOT IN)	6
4	Aggregate functions (AVG, COUNT, MIN, MAX, SUM)	6
5	Design an E-R Model for any Real Time Application (Example: Railway Reservation System)	6
6	Create a program using Triggers	6
VB.Net Programs :		
7	Develop a VB.NET program with database in VB.NET for a Hospital management	6
8	Develop a VB.NET program with database in VB.NET for Student data management	6
9	Develop a VB.NET program with database in VB.NET for a Hotel management	6
10	Develop a VB.NET program with database in VB.NET for employee details	6
	Total	**60**

Reference Book:

1. Abraham Silberschatz, Henry F.Korth, S. Sudharshan "**Database System Concepts**", McGraw-Hill India Pvt Ltd, 6th Edition, Reprint - 2014.
2. J.Keerthika "**Database Management Systems**", Excellent Publishers, 1st Edition, 2014.
3. C. J Date, A. Kannan, S. Swamynathan "**Introduction to Database Systems**", Pearson Publication, 8th Edition, 2012.
4. Ivan Bayross "**Commercial Application Development using ORACLE Developer 2000 forms 6i**", BPB Publication, 2009.
5. Shirish Chavan, **"Visual Basic.NET"**, Pearson Education, Fourth Edition, 2009.

RecommendedTools to be used:
1.Oracle
2.Visual Studio 2008 or above

Focus of Course: Employability

Course Designer: Ms.P.Shobana
Assistant Professor,
Dept. of Computer Science, STC.

Mrs.D.Geetha
HOD, Dept of CS,
BoS, Chairman

Course Outcomes (COs)		
On successful completion of this course the students will be able to:		
CO Number	**Course Outcome (CO) Statement**	**Blooms Taxonomy Knowledge Level**
CO1	Apply common SQL statements including DDL, DML statements to perform different operations.	K3
CO2	Construct trigger for the entity with ER diagrams and design database schemas based on the conceptual model.	K3
CO3	Develop an application using data base controls.	K3
CO4	Solve problems using Data Base connectivity pararadigm.	K4

Mapping Course Outcomes with Programme Outcomes & Programme Specific Outcomes

COs/POs/PSOs	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	L	M	M	S	M	M	M	M	M	M
CO2	L	M	M	M	M	M	M	M	M	M
CO3	M	M	S	S	S	S	M	S	M	M
CO4	M	M	S	S	M	S	M	S	S	S

S –Strong; **L** –Low; **M** –Medium

SEMESTER IV

Course Code	Type	Course Name	Category	Lecture (L)	Tutorial (T)	Practical (P)	Credit
21BIT4C40	Core 14	Database Management System	Application	45	5	-	4

Preamble: This course aims at facilitating the student to understand the RDBMS concepts and apply it in real time situation

Prerequisite: Basic Knowledge of Database Concepts

SYLLABUS

Unit	Course contents	Instructional Hours
I	**Introduction:** Purpose of Database Systems – View of Data – Database Language – Relational Databases – Database Architecture – Database Users and Administrators. **Introduction to Relational Model:** Structure of Relational Databases – Database Schema – Relational Query Languages –Relational Operations.	10
II	**Database Design and the E-R Model:** Overview of the Design Process – The Entity Relationship Model – Constraints – Entity Relationship Diagrams–Entity-Relationship Design Issues – **Relational Database Design:** Atomic Domains and First Normal Form – Decomposition Using Functional Dependencies – Keys and Functional Dependencies – Boyce Codd Normal Form – BCNF and Dependency Preservation – Third Normal Form.	10
III	**Interactive SQL:** Invoking SQL Plus – Data Manipulation in Database Management System-Oracle Data types – Two Dimensional Matrix Creation - Insertion of Data into tables – Updating the Contents of a table – Deletion Operations – The Many Faces of the Select Command – Modifying Structure of Tables – Removing/Deleting/Dropping Tables – Data Constraints	10
IV	Logical operators – Range Searching – Pattern Matching – Oracle Functions – Grouping Data from Tables in SQL – Manipulating Dates in SQL – Joins – Sub queries – Using the Union, Intersect and Minus Clause – Views - Granting Permissions – Revoking the Permissions Given..	9
V	**PL/SQL:** Introduction – PL/SQL Execution Environment- PL/SQL Syntax – Cursors- Locks. **Stored Functions:** What are Functions? – Where do functions Reside?– How Oracle Creates a Function?– How Oracle Executes a Function?– Advantages of Functions –Syntax for Creating a Stored Function – An Application Using a Function – Deleting a Stored Function. **Database Triggers:** Introduction – Use of Database Triggers – How to apply Database Triggers – Syntax for creating Triggers.	11
	Total	**50**

Text Books:

1. Abraham Silberschatz, Henry F.Korth, S. Sudharshan "**Database System Concepts**", McGraw-Hill India Pvt Ltd, 6th Edition, 2011(UNIT I, II).
2. Ivan Bayross –"**Commercial Application Development using ORACLE Developer 2000**", BPB Publication, 1st Edition, 2007(UNIT III, IV,V).

Reference Books:

1. Abraham Silberschatz, Henry F.Korth, S. Sudharshan "**Database System Concepts**", McGraw-Hill India Pvt Ltd, 6th Edition, Reprint - 2014.
2. J.Keerthika "**Database Management Systems**", Excellent Publishers, 1st Edition, 2014.
3. C. J Date, A. Kannan, S. Swamynathan "**Introduction to Database Systems**", Pearson Publication, 8th Edition, 2012.
4. Ivan Bayross "**Commercial Application Development using ORACLE Developer 2000 forms 6i**", BPB Publication, 2009.

Focus of Course: Employability

e-Resource/e-Content URL:

- **Vidyamithra Portal : http://vidyamitra.inflibnet.ac.in/**
- **NPTEL**

Course Designer: **Mrs.P.Shobana,** Assistant Professor, Dept of CS

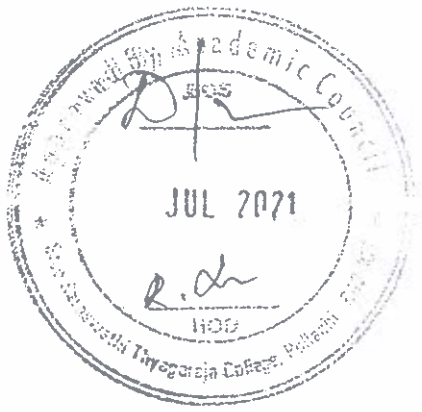
Mrs.D.Geetha, BoS, Chairman, Dept of CS

Course Outcomes (COs)		
On successful completion of this course the students will be able to:		
CO Number	**Course Outcome (CO) Statement**	**Blooms Taxonomy Knowledge Level**
CO1	Understand basic database concepts, including the structure and operation of the relational data model.	K1
CO2	Apply logical database design principles, including E-R diagrams and database normalization.	K2
CO3	Construct simple database queries using Structured Query Language (SQL).	K2
CO4	Manipulate the data in the database and define access permissions.	K3
CO5	Infer the concepts of PL/SQL like stored functions and trigger.	K3

Mapping Course Oucomes with Programme Outcomes and Programme Specific Outcomes:

COs/POs/ PSOs	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	L	M	L	M	M	L	L	L	M	L
CO2	L	M	M	M	M	M	L	L	M	M
CO3	L	M	M	M	M	M	L	M	M	M
CO4	L	M	M	S	M	S	M	M	S	S
CO5	L	S	S	S	M	S	L	M	S	S

S –Strong; L –Low; M –Medium



SEMESTER – IV

Course Code	Type	Course Name	Category	Lecture (L)	Tutorial (T)	Practical (P)	Credit
21BCM4A30	Allied	Principles of Accountancy	Application	75	-	-	4

Preamble: To enable the students to learn the Principles and Concepts of Accountancy

Prerequisite: Fundamental concepts of Accounts learned at Higher Secondary Level & Bridge Course

Unit	Course Content	Instructional Hours
I	Accounting: Meaning- Definition –Nature and Scope of Accounting-Objectives-Advantages – Accounting Cycles, Concepts and Conventions – Accounting Rules	15
II	Journal- Meaning, Objectives, Problems relating to Journal, Ledger –Meaning, Objectives, Problems relating to Ledger and Trial Balance.	15
III	Subsidiary books- meaning - types of subsidiary books- Purchase- Purchase Return - Sales - Sales Return Book - Cash Book-Single Column, Double Column and Triple column cash book.	15
IV	Preparation of final accounts – Trading, Profit and loss account and balance sheet (With Adjustments)	15
V	Bills of exchange: Definition – features – advantages- types – Bills honoured and maturity- Bills discounted with bank – Bills endorsed to creditor – Bills for collection – Retiring of bill before due date – Dishonour of bill	15
	Total	**75**

Text Book

1.T.S.Reddy and A.Murthy Financial Accounting, Margham Publishers, 24, Rameshwaram Road, T.Nagar, Chennai - 600017, 7th Edition – 2016

Reference Books

1. K.L.Narang, S.P.Jain, Advanced Accountancy, Kalyani Publishers, B-I/1292, Rajinder Nagar, Ludhiana – 141008, 18th Edition – 2014.
2. N. Vinayagam, P.L. Mani, K.L. Nagarajan, Principles of Accountancy, Eurasi Publishing House, 16th Edition-2013
3. V. Rajasekaran & R. Lalitha, "Financial Accounting", Pearson India Limited, New Delhi, 1st Edition, 2011

Note: Distribution of marks - Theory -20%, Problems -80%

Focus of Course :- Employability

e-Resources/e-Content URL :

- https://www.youtube.com/watch?v=SPk5OL6jXsk
- https://www.youtube.com/watch?v=Vrs80NdtYnk

Course Designer:
J.Shyamala
Assistant Professor,
Department of B.Com

BOS - Chairman
Dr.I.Siddiq
AssociateProfessor,
Department of B.Com

CO Number	Course Outcome (CO) Statement	Blooms Taxonomy Knowledge Level
CO1	To recollect the basic concepts, conventions, methods and techniques involved in accounting practices	K1
CO2	To understand the preparation of subsidary books	K2
CO3	To Interpret the implications of fina ncial statements on business	K2
CO4	To apply the critical thinking with problem-solving skills while preparing the accounting statements	K3

Mapping with Program Outcomes and Program Specific Outcomes:

COs / POs	PO1	PO2	PO3	PO4	PO5		PSO1	PSO2	PSO3	PSO4	PSO5
CO1	L	S	S	S	S		S	S	S	S	S
CO2	L	M	S	S	M		S	M	S	S	S
CO3	M	S	S	S	M		S	M	S	S	S
CO4	M	S	M	S	M		S	M	S	S	S

S – Strong; L – Low; M – Medium

SEMESTER – IV

Course Code	Type	Course Name	Category	Lecture (L)	Tutorial (T)	Practical (P)	Credit
21BCM4A20	Allied	Fundamentals of Accounting	Application	75	-	-	4

Preamble: To enable the students to learn the Principles and Concepts of Accountancy

Prerequisite: Fundamental concepts of Accounts learned at Higher Secondary Level & Bridge Course

Unit	Course Content	Instructional Hours
I	Accounting: Meaning- Definition –Nature and Scope of Accounting-Objectives-Advantages – Accounting Cycles, Concepts and Conventions – Accounting Rules – Journal, Ledger and Trial Balance.	15
II	Subsidiary books- meaning - types of subsidiary books- Purchase- Purchase Return -Sales - Sales Return Book - Cash Book-Single Column, Double Column and Triple column cash book.	15
III	Bank Reconciliation Statements: Reconciliation between Cash Book, Pass Book and overdraft - Problems relating to the preparation of Bank Reconciliation Statement	15
IV	Preparation of final accounts – Trading, Profit and loss account and balance sheet (With Adjustments)	15
V	Bills of exchange: Definition – features – advantages- types – Bills honoured and maturity-Bills discounted with bank – Bills endorsed to creditor – Bills for collection – Retiring of bill before due date – Dishonour of bill	15
	Total	**75**

Text Book

1.T.S.Reddy and A.Murthy Financial Accounting, Margham Publishers, 24, Rameshwaram Road, T.Nagar, Chennai -600017, 7th Edition – 2016

Reference Books

1.T.S. Grewal, Introduction to Accountancy, Sultan Chand & Company Ltd, 7361 Ram Nagar, New Delhi – 110 055, 16th Edition 2014

2. K.L.Narang, S.P.Jain, Advanced Accountancy, Kalyani Publishers, B-I/1292, Rajinder Nagar, Ludhiana – 141008, 18th Edition – 2014.

3. N. Vinayagam, P.L. Mani, K.L. Nagarajan, Principles of Accountancy, Eurasi Publishing House, 16th Edition-2013

4. V. Rajasekaran & R. Lalitha, "Financial Accounting", Pearson India Limited, New Delhi, 1st Edition, 2011

Note: Distribution of marks - Theory -20%, Problems -80%

Focus of Course :- Employability

e-Resources/e-Content URL :

- https://www.youtube.com/watch?v=SPk5O_6jXsk
- https://www.youtube.com/watch?v=Vrs80NHtYnk

Course Designer:
P.SenthilKumar
Assistant Professor,
Department of B.Com

BOS - Chairman
Dr.I.Siddiq
AssociateProfessor,
Department of B.Com

CO Number	Course Outcome (CO) Statement	Blooms Taxonomy Knowledge Level
CO1	To recollect the basic concepts, conventions, methods and techniques involved in accounting practices	K1
CO2	To understand the preparation of subsidary books	K2
CO3	To Interpret the implications of financial statements on business	K2
CO4	To apply the critical thinking with problem-solving skills while preparing the accounting statements	K3

Mapping with Program Outcomes and Program Specific Outcomes:

COs / POs	PO1	PO2	PO3	PO4	PO5		PSO1	PSO2	PSO3	PSO4	PSO5
CO1	L	S	S	S	S		S	S	S	S	S
CO2	L	M	S	S	M		S	M	S	S	S
CO3	M	S	S	S	M		S	M	S	S	S
CO4	M	S	M	S	M		S	M	S	S	S

S – Strong; L – Low; M – Medium

SEMESTER IV

Course Code	Type	Course Name	Category	Lecture (L)	Tutorial (T)	Practical (P)	Credit
19BCS4S10	SBC 2	Lab 2: Multimedia Systems	Practical	-	3	47	2

Preamble: Implement multimedia Concepts to develop various applications.

Prerequisite: Basic knowledge on application development ideas.

SYLLABUS

Ex. No	Course contents	Instructional Hours
1	Create a 3D text in Corel Draw.	5
2	Create a logo for your department in Corel Draw.	5
3	Create a logo for a sports team in Corel Draw.	5
4	Create an advertisement for a Textile company in Corel Draw.	5
5	Using Corel Draw, design a business card for a company.	5
6	Using Corel Draw, design a party invitation card.	5
7	Using Corel Draw, design a banner for a marriage function.	5
8	Using Corel Draw, design a brochure for a Restaurant	5
9	Create a table using Corel draw	5
10	Apply half tone effect as a photo background and other cool effects using Corel draw	5
	Total	**50**

Reference Book:

1. Ranjan Parekh, **"Principles of Multimedia(2/e)"**, Tata McGraw-Hill Publishing Company Limited, New Delhi, 2012

Recommended: Coraldraw

Focus of Course: Employability

Course Designer: **Mrs.N.Priyadharshini**,
Assistant Professor,
Dept. of Computer Science, STC.

Mrs.D.Geetha,
HOD, Dept. of Computer Science,
BoS, Chairman.

Course Outcomes (COs)		
On successful completion of this course the students will be able to:		
CO Number	**Course Outcome (CO) Statement**	**Blooms Taxonomy Knowledge Level**
CO1	Apply the fundamental concepts of multimedia programming.	K3
CO2	Make use of various image editing tools.	K3
CO3	Develop multimedia programs to implement designing and streaming concepts.	K3
CO4	Examine the tools for developing real time applications	K4

Mapping Course Outcomes with Programme Outcomes & Programme Specific Outcomes:

COs/POs/ PSOs	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO 4	PSO5
CO1	L	M	M	M	S	S	L	M	M	M
CO2	L	M	S	S	M	M	M	M	M	M
CO3	M	M	S	S	S	S	M	S	S	S
CO4	L	M	S	M	M	S	M	S	S	S

S – Strong; L – Low; M – Medium

SEMESTER – IV

Course Code	Type	Course Name	Category	Lecture (L)	Tutorial (T)	Practical (P)	Credit
19BCM4N20	NME-2	Capital Market	Application	27	-	-	2

Preamble: To create an awareness among the students about the relevant facts of Capital Market

Prerequisite: 12th Commerce

Unit	Course Contents	Instructional Hours
I	**Overview of Capital Market :** Indian Capital Market - Authorities Governing Capital Markets in India -Profile of Securities Market - Securities Market Reforms and Regulatory Measures to Promote Investor Confidence - Features of Developed Capital Market: IOSCO-Overview of Depository System in India	6
II	**Capital Market Instruments and Rating :** Capital Market Instruments: Equity, Debentures, Preference Shares, Sweat Equity, Non-Voting Shares, Share Warrants - Pure, Hybrid and Derivatives - Rating and Grading of Instruments: Concept, Scope and Significance, Regulatory Framework -Rating Agencies in India, Rating Methodologies	4
III	**Securities Market Intermediaries :** Primary Market and Secondary Market Intermediaries: Role and Functions-Merchant Bankers, Stock Brokers, Syndicate Members, Registrars, Underwriters, Bankers to an Issue-Portfolio Managers, Debenture Trustees- Foreign Institutional Investors-Depositories- Depositories Participants Custodians, Credit Rating Agencies, Venture Capitalists	5
IV	**Debt Market :** Debt Market: Instruments, Listing, Primary and Secondary Segment- **Money Market :** Growth of Money Market in India – Structure and Institutional Mechanism- Money Market Instruments: Treasury Bills, Commercial Bills, Commercial Paper, Factoring Agreements & Discounting of Bill	6
V	**Resource Mobilization in International Capital Market:** Listing of Securities Issued Outside India -Foreign Currency Convertible Bonds - Global Depository Receipts-American Depository Receipts-External Commercial Borrowings- Procedure for Issue of Various Instruments	6
	Total	27

Text Book

1. Shashi K Gupta : Financial Institutions and Markets ; Kalyani Publishers, 4863/2B, Bharat

Reference Books

2. E. Gordon & : Capital Market in India; Himalaya Publishing House, Ramdoot,K. Natarajan Dr. Bhalerao Marg, Girgaon, Mumbai - 400004.
3. Sanjeev Aggarwal : Guide to Indian Capital Market; Bharat Law House, 22, Tarun Enclave,Pitampura, New Delhi – 110 034.
4. V.L. Iyer : SEBI Practice Manual; Taxman Allied Service (P) Ltd., 59/32, New Rohtak Road, New Delhi-110005.
5. M.Y. Khan : Indian Financial Systems; Tata McGraw Hill, 4/12, Asaf Ali Road, New Delhi – 110 002.
6. S. Suryanarayanan & : SEBI – Law, Practice & Procedure; Commercial Law Publishers (India)
7. V. Varadarajan Pvt. Ltd., 151, Rajindra Market, Opp. His Hazari Court, Delhi – 110054
8. Mamta Bhargava : Compliances and Procedures under SEBI Law; Shreeji Publishers, 8/
9. 294, Sunder Vihar, New Delhi – 110 087
10. Asim Kumar Mishra : Venture Capital Financing in India; Shipra Publications, 115A, Vikas Marg,Shakarpur, Delhi-110092.

Note: Distribution of marks - 100 %Theory

Focus of Course :- Employability

e-Resources/e-Content URL :
https://www.taxmann.com/bookstore/bookshop/bookfiles/Capital%20samplechapter2.pdf

14 JUL 2021

Course Designer: V.Murugesan Assistant Professor, Department of B.Com (BPS)	BOS - Chairman Dr.I.Siddiq HOD, Dept. Of Commerce

CO Number	Course Outcome (CO) Statement	Blooms Taxonomy Knowledge Level
CO1	To learn the overview of capital market	K2
CO2	To apply the Capital Market Instruments and Rating	K3
CO3	To analyse the Securities Market Intermediaries , Debt Market and Money Market	K3
CO4	To identify the Resource Mobilization in International Capital Market	K3

Mapping with Program Outcomes and Program Specific Outcomes:

COs / POs	PO1	PO2	PO3	PO4	PO5		PSO1	PSO2	PSO3	PSO4	PSO5
CO1	L	S	S	S	S		S	S	S	S	S
CO2	L	M	S	S	M		S	M	S	S	S
CO3	M	S	S	S	M		S	M	S	S	S
CO4	M	S	M	S	M		S	M	S	S	S

S – Strong; L – Low; M – Medium

SEMESTER – IV

Course Code	Course Type	Course Name	Category	Lecture (L)	Tutorial (T)	Practical (P)	Credit
19BBA4N20	NME 2	Rural Marketing	Concept	27	-	-	2

Preamble:

- To enable the students to understand the elements of the unexplored rural markets.
- To identify the significance and strategies of rural markets.
- To familiarize the students with innovations in rural marketing.

Prerequisite: Basic Marketing terms

Syllabus:

Unit	Course contents	Instructional Hours
I	Introduction of Rural Marketing - Definition – Concepts- Scope of rural marketing – Components of rural markets – Classification of rural markets – Problem in Rural Marketing. Rural vs. Urban markets.	7
II	Rural marketing environment - Population – Occupation pattern – Income generation - Expenditure pattern – Literacy level – Infrastructure facilities. Rural credit institutions – Rural retail outlets – Media in rural areas — Rural demand	6
III	Rural marketing strategies - Rural Marketing Segmentation – STP Strategies for RM. Social marketing.	4
IV	Rural Sector marketing - Marketing of agricultural produce and rural and cottage industry products –Consumer and durable goods – FMCG products-Health and financial services	5
V	Rural Marketing Management – Diversity management - Role of financial institutions, Commercial banks and Cooperative institutions in rural marketing – Problems and challenges in rural marketing – Recent trends.	5
	Total	27

Course Outcomes (COs)

On successful completion of this course the students will be able to:

CO Number	Course Outcome (CO) Statement	Blooms Taxonomy Knowledge Level
CO1	To know the basic concepts of rural marketing	K1
CO2	To understand the rural marketing environment	K2
CO3	Acquire knowledge on rural marketing strategies	K2
CO4	Interpret the recent trends in rural marketing	K3

Mapping with Program Outcomes:

COs/POs	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S	M	S	S	S	S	M	S	S	S
CO2	S	S	S	S	M	S	S	S	M	S
CO3	S	S	S	S	S	S	S	S	S	S
CO4	S	S	M	S	M	S	S	M	M	S

S – Strong; L – Low; M – Medium

SEMESTER V

Course Code	Type	Course Name	Category	Lecture (L)	Tutorial (T)	Practical (P)	Credit
21BCA5C10	Core 15	Computer Networks & Information Security	Concept	55	5	-	5

Preamble: This course provides the student with strong foundation on networking concepts and the ways to provide the security for the information that are being transmitted

Prerequisite: Basics of computer components

SYLLABUS

Unit	Course contents	Instructional Hours
I	Introduction to network: Uses - Network Hardware: LAN – WAN – MAN – Wireless – Home Networks. Network Software: Protocol Hierarchies – Design Issues for the Layers – Connection-oriented and connectionless services – Service Primitives – The Relationship of services to Protocols. Reference Models: OSI Reference Model – TCP/IP reference Model – Comparison of OSI and TCP/IP – Critique of OSI and protocols – Critique of the TCP/IP Reference model.	14
II	Physical layer: Guided Transmission Media: Magnetic Media – Twisted Pair Coaxial Cable – Fiber Optics. Communication Satellites: Geostationary, Medium – Earth Orbit, Low Earth Orbit – Public Switched Telephone Network: Structure of telephone network – local loops – Modems – Switching techniques.	10
III	Data link layer: Data link layer design issues – Error Detection and correction – Medium Access Control Sub Layer: Multiple Access Protocols – ALOHA – Wireless LAN Protocols.Bluetooth: Bluetooth Architecture – Bluetooth application.	11
IV	Network layer: Routing algorithms: The optimality Principle – Shortest path routing – Routing for mobile hosts – Congestion Control Algorithms. Transport Layer: The Transport Service –Services Provided to the Upper Layers. TCP: Introduction to TCP – The TCP Service Model – The TCP Protocol – TCP Connection Establishment and Connection Release. Application layer: DNS – The Domain Name System	15
V	Cryptography and Network Security: Security Goals – Attacks - Services and Techniques – Confidentiality: Symmetric-Key Ciphers - Asymmetric-Key Ciphers. Other Aspects Of Security: Message Integrity - Message Authentication - Digital Signature - Entity Authentication - Key Management.	10
	Total	**60**

Text Book:

1. Andrew S. Tanenbaum, David J.Wetherall – "Computer Networks", Pearson Education, 5th Edition, 2014. (UNIT – I,II,III IV)
2. Forouzan, "Data Communication and Networking 5E", McGraw Hill Education, 5th Edition, 2013. (UNIT- V)

Reference books:

1. AchyutGodbole,KahateAtul"Data Communication and Networks", 2nd Edition TMH, 2013.
2. Uyless Black," Computer Networks Protocols, Standards, and Interfaces ", PHI, 2nd Edition, 2010.
3. Sarma.C.R, "Computer Networks a systematic Approach ",1st Edition, Jaico Publishing Home, 2014.

Focus of Course: Employability

e-Resource/e-Content URL
Vidya-MitraPortal: http://vidyamitra.inflibnet.ac.in/index.php/search
Tutorials point : https://www.tutorialspoint.com/computer_networks/

Course Designer: **Mr. P.Boopathi**
Assistant Professor, Dept.of CS

Mrs.D.Geetha, HoD CS
BoS Chairman

Course Outcomes (COs)		
On successful completion of this course the students will be able to:		
CO Number	**Course Outcome (CO) Statement**	**Blooms Taxonomy Knowledge Level**
CO1	To gain knowledge on the basic concepts of computer networks.	K1
CO2	Have agood understanding of the OSI Reference Model& Information security.	K2
CO3	Ability to analyze the requirements for a given organizational structure and select the most appropriate networking architecture and technologies.	K2
CO4	Students understand the conceptsin the areas of Information Security.	K3

Mapping Course Outcomes with Programme Outcomes & Programme Specific Outcomes

COs/POs/ PSOs	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	L	M	M	S	M	M	L	S	M	M
CO2	L	M	M	M	M	M	L	M	M	M
CO3	M	M	M	S	M	S	M	S	M	M
CO4	M	M	S	M	M	S	M	S	M	M

S –Strong; L –Low; M –Medium

SEMESTER V

Course Code	Type	Course Name	Category	Lecture (L)	Tutorial (T)	Practical (P)	Credit
21BCS5C20	Core 16	Python Programming	Application	70	5	-	4

Preamble: This course aims at with facilitating the student to learn and develop applications using Python

Prerequisite: Basic Programming concepts

SYLLABUS

Unit	Course contents	Instructional Hours
I	The way of the program: The python programming language – What is a program? – What is debugging? – Formal and natural languages – The first Program – Variables, expressions and statements – values and types – variables- variables names and keywords – statements – Evaluating expressions – Operators and operands – order of operations – operations on strings - composition	15
II	Functions: Function calls – Type conversion – Type coercion – Math functions – Composition – Adding new functions- Definition and use – Flow of execution – parameters and arguments – variables and parameters are local – stack diagrams -	15
III	Conditionals and recursions: The modulus operator – Boolean expression – Logical operator – Conditional execution – Alternative execution – Chained conditionals – Nested conditionals. Iterations: Multiple assignments- The while statements – Encapsulation and generalization - Strings: A compound data type –Length – Traversal and the for loop – String slices – string comparison – strings immutable – Find function	15
IV	Lists: List values – Accessing elements – List length – List membership List and for loop- List operations – List slices – mutable –deletion –-Tuples : Mutability and tuples – Tuple assignment – Tuples as return values – Random numbers- counting - buckets–Dictionaries: Operations – Methods –Aliasing and copying – Sparse matrices- Hints – Long integers- Counting letters – Linked Lists -: Embedded reference – node class – Lists as collections	15
V	Stacks: Abstract data types – The Stack ADT- Implementing stacks with python lists – pushing and popping – Queues: Linked queue – Improved linked queue – Trees: Building trees – Traversing trees – Expression trees – Tree Traversal .	15
	Total	**75**

Text Book(s):

1. Allen Downey, Jeffrey Elkner, Chris Meyers – **"Learning with python",** Reprint Edition' DreamTech 2016 (UNIT I, II, III, IV, V).

Reference Book(s):

1. Mark Lutz, David Ascher – "Learning Python", O'Reilly Media, Inc.5th edition,2013
2. Solem Jan Erick "Programming Computer Vision with Python", creative commons ,2012.
3. David Beazley, "Python ESSENTIALREFERENCE", 3rd Edition, Sams Publishing,2010
4. Martin C. Brown, "Python: The Complete Reference", 4th Edition, McGraw-Hill,2012

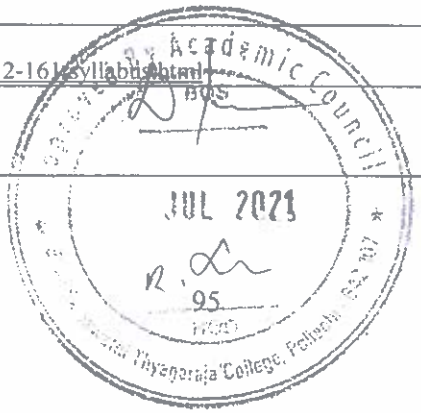
Focus of Course:
Skill Development

e-Resource/e-Content URL:

- http://www.pitt.edu/~peterb/0012-16...syllabus.html

Course Designer: **A.Somasundaram**
Assistant Professor, Dept of CS

Mrs.D.Geetha, HoD CS
BoS Chairman



Course Outcomes (COs)		
On successful completion of this course the students will be able to:		
CO Number	**Course Outcome (CO) Statement**	**Blooms Taxonomy Knowledge Level**
CO1	Understand the fundamentals of Python programming language	K2
CO2	Acquire knowledge on Functions, type conversions, variables and parameters	K2
CO3	Explore the knowledge on conditionals and recursions and strings	K2
CO4	Understand the concept of lists, tuples, dictionaries and linked lists	K2
CO5	Apply the knowledge of stacks, queues and trees	K3

Mapping Course Outcomes with Programme Outcomes and Programme Specific outcomes:

COs/Pos	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	L	M	M	M	M	M	M	M	M	M
CO2	L	M	M	M	M	M	M	M	M	M
CO3	L	M	M	M	M	S	M	S	M	S
CO4	L	M	M	M	M	M	M	S	M	S
CO5	L	S	S	S	S	S	M	S	S	S

S –Strong; L –Low; M –Medium

SEMESTER V

Course Code	Type	Course Name	Category	Lecture (L)	Tutorial (T)	Practical (P)	Credit
21BCS5C30	Core 17	Python Programming Lab	Practical	-	5	70	3

Preamble: The course has been designed to impart practical knowledge on Python Programming

Prerequisite: Basic Programming concepts

SYLLABUS

Ex. No	Course contents	Instructional Hours
1	Compute the GCD of two numbers.	7
2	Program using While Loop	7
3	Find the square root of a number (Newton's method)	7
4	Find the most frequent words in a text read from a file	7
5	String Type Functions	7
6	Dictionary Type Methods	8
7	First n prime numbers	8
8	Stacks with python lists	8
9	Queue with python lists	8
10	Create a simple tree with 4 nodes	8
	Total	**75**

Reference Book:

1. Wesley J.Chun – **"Core Python Programming"**, 2nd Edition, Pearson
2. Mark Summerfield –**"Programming in Python 3"**, Pearson

Tools to be used: Python 3.7.1

Focus of Course: Skill Development
(Employability/Entrepreneurship/Skill Development)

Course Designer: **D.Balashivasri,**
Assistant Professors ,
Dept of CS

Mrs.D.Geetha,
HoD CS
BoS Chairman

Course Outcomes (COs)		
On successful completion of this course the students will be able to:		
CO Number	**Course Outcome (CO) Statement**	**Blooms Taxonomy Knowledge Level**
CO1	Understand the concepts of object-oriented programming as used in Python	K2
CO2	Develop applications using build in functions ,GUI , CGI and Network functions	K3
CO3	Illustrate the concept of exception handling in Python applications for error handling.	K2
CO4	Design and program Python applications.	K3

Mapping Course Outcomes with Programme Outcomes and Programme Specific Outcomes:

COs/Pos	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	L	M	S	M	M	M	M	M	M	M
CO2	L	M	S	M	S	S	M	S	M	S
CO3	L	M	S	M	M	M	S	S	M	M
CO4	L	M	S	M	S	S	M	S	M	S

S –Strong; L –Low; M –Medium

SEMESTER V

Code	Type	Course Name	Category	Lecture (L)	Tutorial (T)	Practical (P)	Credit
21BCS5C40	Core 18	Project Work Lab	Project			4	2

GUIDELINES FOR PROJECT

SREE SARASWATHI THYAGARAJA COLLEGE (Autonomous)
An ISO 9001:2008 Certified and NAAC Accredited Institution
(Affiliated to Bharathiar University, Coimbatore), Pollachi – 642 107

1. OBJECTIVE OF THE PROJECT

The primary objective of the Project is to gain through practical experience, a sound appreciation and understanding of the theoretical principles learnt in four semesters. Project is oriented towards developing the skills, knowledge and attitudes needed to make an effective start as a member of the Computer / IT profession.

Some of the many expected advantages to be gained by an UG graduates are

- ✓ Systematic introduction to the ways of industry and developing talent and attitudes, so that he / she can enjoy fully, a career in IT industry (as a S/W developer / Trainee / Software Engineer/ Database administrator etc.).
- ✓ Recognizing his / her responsibilities as a professional of the future.
- ✓ Understanding real life situations in industrial organizations and their related environments and accelerating the learning process of how his / her knowledge could be used in a realistic way.
- ✓ Understanding that the problems encountered in the industry rarely have unique solutions and gaining experience to select the optimal solution from the many alternatives available.

2. PROCEDURE

The following procedure will be adopted for the process:

2.1 Before the training actually starts, profile of the company / organization must be submitted for the evaluation purposes.

2.2 The letter of the training will be issued only by the Centre Head or Project incharge.

2.3 No student will change organization/Project during the training period. However for the betterment of students case will be put up by Project Incharge approved by the Centre Head.

2.4 After the student joins the training, a joining report must be submitted within stipulated time.

2.5 No project will be accepted unless it is done in consultation with the faculty and signed by him/her.

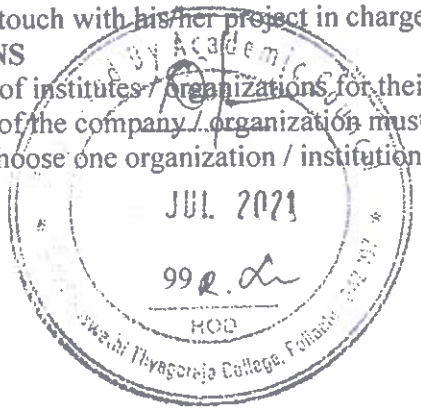
3. RULES

All the students must follow the following rules & regulations.

a. All the communication must be in writing. No verbal communication will be accepted.
b. Students should follow the procedures as mentioned in guidelines.
c. All the reports and forms must be submitted in the prescribed formats.
d. Student must be in regular touch with his/her project in charge.

4. TYPES OF ORGANIZATIONS

Students can opt for various types of institutes / organizations for their summer project. But before the training actually starts, profile of the company / organization must be submitted. A group of students not exceeding four may choose one organization / institution for project.



5. FIELDS FOR PROJECTS

Following is the list of fields under which projects can be undertaken. Students are required to select only one project from the category listed below and get it approved from their project in charge.

- ✓ *Database projects*
- ✓ *Network projects*
- ✓ *Web based projects*
- ✓ *Application Oriented*
- ✓ *System side projects*

6. RULES FOR PRESENTATION

- ✓ Students **should use LCD** for Presentation and Demonstration.
- ✓ The presentation **should not be paper reading** and **duration** of the project will be of **10 minutes to 20 minutes** for each presentation.

7. GUIDELINE FOR PRESENTATION OF PROJECT REPORT

7.1. NUMBER OF COPIES TO BE SUBMITTED

Students should submit two copies to the Head of the Department concerned on or before the specified date. The Head of the Department should send one and one copy to the student concerned.

7.2. SIZE OF PROJECT REPORT

The size of project report should not exceed 100 pages of typed matter reckoned from the first page of Chapter 1 to the last page.

7.3. ARRANGEMENT OF CONTENTS OF PROJECT REPORT

The sequence in which the project report material should be arranged and bound should be as follows

7.4. PROJECT REPORT FORMAT: Refer Appendix 1

7.5. PAGE DIMENSIONS AND MARGIN

The dimensions of the final bound copies of the project report should be 290mm x 205mm. Standard A4 size (297mm x 210mm) paper may be used for preparing the copies. The final two copies of the project report (at the time of submission) should have the following page margins:

Top edge	:	30 to 35 mm
Bottom edge	:	25 to 30 mm
Left side	:	35 to 40 mm
Right side	:	20 to 25 mm

The project report should be prepared on good quality white paper preferably not lower than 80gms /Sq. Meter.

Tables and figures should conform to the margin specifications. Large size figures should be photographically or otherwise reduced to the appropriate size before insertion.

7.6. MENUSCRIPT PREPARATION

The candidates shall supply a typed copy of the manuscript to the guide for the purpose of approval. In the preparation of the manuscript, care should be taken to ensure that all textual matter is typed to the extent possible in the same format as may be required for the final project report.

Hence, some of the information required for the final typing of the project report is included also in this section.

The headings of all items 2 to 11 listed section 4 should be typed in capital letters without punctuation and centered 50mm below the top of the page. The text should commence 4 spaces below this heading. The page numbering for all items 1 to 8 should be done using lower case Roman numerals and the pages thereafter should be numbered using Arabic numerals.

7.6.1. Title page – A specimen copy of the title page for respective UG programmes for project report is given in Appendix 2.

7.6.2. Bonafide Certificate – Using double spacing for typing the Bonafide Certificate should be in this format as given in Appendix 3.

7.6.3. Synopsis – Synopsis should be an essay type of narrative not exceeding 200 words, outlining the problem, the methodology used for tackling it and a summary of the project.

7.6.4. Acknowledgement – It should be brief and should not exceed one page when typed double spacing.

7.6.5. Table of contents – The table of contents should list all material following it as well as any material which precedes it. The title page, bonafide Certificate and acknowledgement will not find a place among the items listed in the table of contents but the page numbers of which are in lower case Roman letters. One and a half spacing should be adopted for typing the matter under this head.

7.6.6. List of Tables and Figures – The list should use exactly the same captions as they appear above the tables/Figures in the text. One and a half spacing should be adopted for typing the matter under this head.

7.6.7. Parts – The Project may be broadly divided into 3 parts (i) Introduction (ii) Development of the main theme of the project report, (iii) Results, Discussion and Conclusion.

7.6.8. Appendices – Appendices are provided to give supplementary information, which if included in the main text may serve as a distraction and cloud the central theme under discussion.

7.6.9. Bibliography

Books: AUTHOR NAME, TITLE, PUBLICATION, EDITION.

Web Reference: URL/Web Address.

8. TYPING INSTRUCTIONS

8.1. General

This section includes additional information for final typing of the project report. Some information given earlier under 'Manuscript preparation' shall also be referred.

- The impressions on the typed copies should be black in colour.
- Uniformity in the font of letters in the same project report shall be observed.
- A sub-heading at the bottom of a page must have at least two full lines below it or else it should be carried over to the next page.
- The last word of any page should not be split using a hyphen.
- One and a half spacing should be used for typing the general text.
- Single spacing should be used for typing:
    a. Long Tables
    b. Long quotations
    c. Foot notes
    d. Multiline captions
    e. References

All quotations exceeding one line should be typed in an indented space – the indentation being 15mm from either margin.

Double spacing should be used for typing the Bonafide Certificate and Acknowledgement.

8.2. Chapters

The format for typing chapter headings, division's headings and sub division headings are explained through the following illustrative examples.

Chapter heading : CHAPTER 1
Division heading : INTRODUCTION
Division heading : 1.1 OUTLINE OF PROJECT REPORT
Sub-division heading : 1.1.2. Literature Review

The word CHAPTER without punctuation should be centered 50mm down from the top of the page. Two spaces below, the title of the chapter should be typed centrally in capital letters. The text should commence 4 spaces below this title, the first letter of the text starting 20mm, inside from the left hand margin.

The division and sub-division captions along with their numberings should be left-justified. The typed material directly below division or sub-division heading should commence 2 spaces below it and should be offset 20mm from the left hand margin. Within a division or sub-division, paragraphs are permitted. Even paragraph should commence 3 spaces below the last line of the preceding paragraph, the first letter in the paragraph being offset from the left hand margin by 20mm.

9. NUMBERING INSTRUCTIONS

9.1. Page Numbering

All pages numbers (whether it be in Roman or Arabic numbers) should be typed without punctuation on the upper right hand corner 20mm from top with the last digit in line with the right hand margin. The preliminary pages of the project report (such as Title page, Acknowledgement, Table of Contents etc.) should be numbered in lower case Roman numerals. The title page will be numbered as (i) but this should not be typed. The page immediately following the title page shall be numbered (ii) and it should appear at the top right hand corner as already specified. Pages of main text, starting with Chapter 1 should be consecutively numbered using Arabic numerals.

9.2. Numbering of Chapters, Divisions and Sub-Divisions

The numbering of chapters, divisions and sub-divisions should be done, using Arabic numerals only and further decimal notation should be used for numbering the divisions and sub-divisions within a chapter. For example, sub-division 4 under division 3 belonging to chapter 2 should be numbered as 2.3.4. The caption for the sub-division should immediately follow the number assigned to it.

Every chapter beginning with the first chapter should be serially numbered using Arabic numerals. Appendices included should also be numbered in an identical manner starting with Appendix 1.

9.3. Numbering of Tables and Figures

Tables and Figures appearing anywhere in the project report should bear appropriate numbers. The rule for assigning such numbers is illustrated through an example. Thus if as figure in Chapter 3, happens to be the fourth then assign 3.4 to that figure. Identical rules apply for tables except that the word Figures is replaced by the word Table. If figures (or tables) appear in appendices then figure 3 in Appendix 2 will be designated as Figure A 2.3. If a table to be continued into the next page this may be done, but no line should be drawn underneath an unfinished table. The top line of the table continued into the next page should, for example read Table 2.1 (continued) placed centrally and underlined.

10. BINDING SPECIFICATIONS

Project report submitted for UG Programmes should be bound using flexible cover of Silver white. The cover should be printed in black letters and the text for printing should be identical to what has been prescribed for the title page.

APPENDIX 1

Project Report Format

- *Acknowledgement*
- *Organization Certificate*
- *Synopsis*
- *Table of Contents*
- *Abstract*

1. Introduction

1.1. Organization Profile

1.2. Overview of the Project

2. System Study

2.1. Existing System

2.1.1 Drawbacks of Existing System

2.2. Proposed System

2.2.1 Advantages of Proposed System

3. System Specification

3.1. Hardware specification

3.2. Software specification

4. System Design

4.1. DFD (Level 0, 1, 2)

4.2. ER Diagram

4.3. SFD

4.4. Table Design

5. Testing

5.1. Testing Methodologies

6. Implementation

6.1. Modules and its Descriptions (with Screen Shots)

7. Conclusion and Future Enhancement

8. Source Code

9. Bibliography

******

APPENDIX 2

PROJECT TITLE

A Project report submitted in partial fulfillment of the requirements for the award of the degree of

BACHELOR OF COMPUTER SCIENCE

Submitted by

NAME OF THE STUDENT
(REG_NO.)

Guide
GUIDE NAME

(DEPARTMENT OF UG COMPUTER SCIENCE)

Sree Saraswathi Thyagaraja College, (Autonomous)
(Affiliated to BHARATHIAR UNIVERSITY, Coimbatore),
Pollachi .

(MONTH AND YEAR)

APPENDIX 3

DECLARATION

I <**Student Name**> hereby declare that the project report entitled < **"NAME OF THE PROJECT"**> submitted to **Sree Saraswathi Thyagaraja College (Autonomous), Pollachi** , affiliated to **Bharathiar University**, Coimbatore in partial fulfillment of the requirements for the award of the degree of **BACHELOR OF COMPUTER SCIENCE** is a record of original work done by me under the guidance of <**Guide Name**>, **Assistant Professor**, Department of **COMPUTER SCIENCE** and it has not previously formed the basis for the award of any Degree / Diploma / Associate ship / Fellowship or other similar title to any candidate of any University.

Place : **Signature**

Date : **(STUDENT NAME)**

****

APPENDIX 4

Sree Saraswathi Thyagaraja College (Autonomous)
(Affiliated to Bharathiar University, Coimbatore),
Pollachi.

CERTIFICATE

This is to certify that the project report entitled <"PROJECT TITLE"> submitted to **Sree Saraswathi Thyagaraja College (Autonomous), Pollachi,** affiliated to **Bharathiar University,** Coimbatore in partial fulfillment of the requirements for the award of the degree of **BACHELOR OF COMPUTER SCIENCE** is a record of original work done by <STUDENT NAME_>under my supervision and guidance and the report has not previously formed the basis for the award of any Degree / Diploma / Associate ship / Fellowship or other similar title to any candidate of any University.

Date:
Place:

Guide
(Guide Name)

Counter Signed by

HOD	DIRECTOR	PRINCIPAL
(HOD NAME)	(DIRECTOR NAME)	(PRINCIPAL NAME)

Viva-voce Examination held on ----------

INTERNAL EXAMINER **EXTERNAL EXAMINER**

****

SEMESTER V

Course Code	Type	Course Name	Category	Lecture (L)	Tutorial (T)	Practical (P)	Credit
21BCS5EA0	CE1	Object Oriented System Development (Common to B.Sc (CS), B.Sc (CT), B.Sc (IT) & BCA)	Concept	55	5	-	5

Preamble:

- To understand the concept of object oriented methodologies and unified modeling language.
- To have a firm foundation on object oriented systems development environment, concepts, visual modeling techniques and the UML (Unified Modeling Language)

Prerequisite: Knowledge in Number Systems and Fundamental Electronics.

SYLLABUS

Unit	Course contents	Instructional Hours
I	**Object Basis: Object Oriented Philosophy** – Objects – Object are Grouped in Classes – Attributes: Object State, Properties, Behaviors and Methods – Encapsulation and Information Hiding – Class Hierarchy – Inheritance – Multiple Inheritance – Polymorphism – Advanced Topics: Object Identity – Static and Dynamic Binding – Meta Classes.	12
II	**Object Oriented Methodologies**: Rumbaugh object Model – The Booch methodology – The Jacobson methodology – Patterns – Frameworks – Unified Approach: object Oriented Analysis and Design – Iterative Development and Continuous Testing – Modeling Based on UML – The UA Approach – The Layered Approach to Software Development.	12
III	**Unified Modeling Language:** Introduction – Static and Dynamic Models – UML diagrams – Class Diagrams – Use Case Diagrams – UML Dynamic Modeling: Interaction Diagram – Sequence Diagram – Collaboration Diagram – State Chart Diagram – Activity Diagram.	12
IV	**Identifying Object Relationships, Attributes and Methods:** Introduction, Associations, Super – Sub Class Relationships – A Part of Relationships – Aggregations. **Class Responsibility:** Identifying Attributes and Methods – Methods and Messages.	12
V	**Designing Classes:** Introduction – The Process – Refining Attributes – Designing Methods and Protocols – Packaging and Managing Classes. **Access Layer: Object Storage and Object Interoperability:** Database Management Systems – Database Views – Database Models – Hierarchical Model – Network Model – Relational Model – Database Interface.	12
	Total	**60**

Text Book(s):

1. Ali Bahrami, **"Object Oriented Systems Development"**, Irwin-McGraw Hill, New Delhi, International editions, 10th reprint, 2012.

Reference book(s):

1. Grady Booch, Robert A. Maksimchuk , Michael W. Engle , Bobbi J. Young , Jim Conallen , Kelli A. Houston **"Object-Oriented Analysis and Design with Applications"** 3rd Edition, Addison-Wesley Professional, 2007.
2. G.Sudha Sadasivam **"Object-Oriented Analysis and Design"**, 1st edition, MACMillan Publishers, 2010. .
3. Bennett Simon, McRonn Steve, Farmer Ray **"Object Oriented Analysis and Design"**, Tata McGraw Hill, Second Edition, 2011.
4. Peter Coad,**"Object Oriented Analysis"**, Pearson Education, Second Edition reprint , 2004.

Focus of Course: Employability

e-Resource/e-Content URL:

- **Vidya-Mitra Portal:**http://vidyamitra.inflibnet.ac.in/index.php/search
- **Tutorials point :**https://www.tutorialspoint.com/object_oriented_analysis_and_design/

Course Designer: **Mrs.Juliet Rozario,**
Assistant Professor,
Dept. of Computer Science

Mrs.D.Geetha,
HOD, Dept of CS,
BoS, Chairman.

Course Outcomes (COs)

On successful completion of this course the students will be able to:

CO Number	Course Outcome (CO) Statement	Blooms Taxonomy Knowledge Level
CO1	Define object basis	K1
CO2	Explain and analysis the Methodologies for OOSD.	K2
CO3	Construct system model using UML.	K2
CO4	Identifying Object Relationships, Attributes and Methods	K3

Mapping Course Outcomes with Programme Outcomes & Programme Specific Outcomes:

COs/POs/ PSOs	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO 4	PSO5
CO1	L	L	M	M	M	M	L	M	M	M
CO2	L	L	M	M	M	M	L	M	M	M
CO3	L	M	M	M	M	M	M	S	M	M
CO4	L	M	S	M	S	S	M	S	M	S

S – Strong; **L** – Low; **M** – Medium

SEMESTER V

Course Code	Type	Course Name	Category	Lecture (L)	Tutorial (T)	Practical (P)	Credit
21BCS5EB0	CE1	Mobile Computing And Wap (Common To B.Sc (CS), B.Sc (CT), B.Sc (IT) & BCA)	Concept	55	5	-	5

Preamble:

- To understand the challenges of wireless communication and the solutions that is in use.
- To study about various types of wireless data networks, wireless protocols and wireless voice networks.

Prerequisite: Knowledge to design and implement mobile applications.

SYLLABUS

Unit	Course contents	Instructional Hours
I	**Wireless Communication Fundamentals:** Introduction – Applications-A short History of wireless Communications. Wireless Transmission – Frequencies for Radio transmission – Signals – Antennas – Signal Propagation – Multiplexing- Modulations – Amplitude shift keying- Frequency shift keying-Phase shift keying-Spread Spectrum	14
II	**Medium Access Control** – SDMA – FDMA – TDMA – Fixed TDM- Classical Aloha- CDMA. **Telecommunication Systems:** – Global System for Mobile Communications – GPRS – Satellite Systems – Basics –Applications- Broadcast Systems – Digital Audio Broadcasting – Digital Video Broadcasting.	13
III	**Wireless Networks:** Wireless LAN: Infrared Vs Radio Transmission – Infrastructure Networks – Ad hoc Networks – IEEE 802.11 –System Architecture-Protocol Architecture- Bluetooth-User scenarios- Bluetooth Architecture-Introduction to Wireless ATM – Services - Location Reference Model.	13
IV	**Mobile Network Layer:** Mobile IP – Goals – assumptions – entities and terminology – IP Packet delivery – agent advertisement and discovery – registration – tunneling and encapsulation – optimizations – Dynamic Host Configuration Protocol (DHCP) – routing – DSDV – DSR – Alternative Metrics.	11
V	**WAP:** Introduction – Protocol Architecture – Extensible Markup Language (XML) – WML Script – Applications – Wireless Telephony Application (WTA) – Wireless Telephony Application Architecture.	9
	Total	**60**

Text Book(s):

1. Jochen Schiller – **"Mobile Communications"**, PHI/Pearson Education, Second Edition, 2016.

Reference book(s):

1. C.Siva Ram Murthy, Manoj .B.S, "Adhoc wireless network architecture and Protocol", 25th impression, Pearson Education, 2014.
2. Stallings Williams-**"Wireless Communications and Networks"**, Pearson Education, Second Edition, 2014.
3. Asoke K Talukder, Hasan Ahmed, Roopa R Yavagal – **" Mobile Computing"**, Tata McGraw Hill Publications, Second edition, 2010.

Focus of Course: Employability

e-Resource/e-Content URL:

- **Vidya-Mitra Portal:**http://vidyamitra.inflibnet.ac.in/index.php/search
- **Tutorials point** :https://www.tutorialspoint.com/mobile_computing/

Course Designer: **Mrs.Juliet Rozario,**
Assistant Professor,
Dept. of Computer Science, STC.

JUL 2021

Mrs.D.Geetha,
HOD, Dept. of Computer Science,
BoS, Chairman

Course Outcomes (COs)		
On successful completion of this course the students will be able to:		
CO Number	**Course Outcome (CO) Statement**	**Blooms Taxonomy Knowledge Level**
CO1	Learn the principles of mobile computing technologies	K1
CO2	List different applications that mobile computing offers to people, employees, and businesses	K2
CO3	Describe the possible future of mobile computing technologies and applications	K2
CO4	Learn about traditional and modern network technologies and mobile computing protocols.	K3

Mapping Course Outcomes with Programme Outcomes & Programme Specific Outcomes:

COs/POs/ PSOs	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO 4	PSO5
CO1	L	L	M	M	M	M	L	M	M	M
CO2	L	L	M	M	M	M	L	M	M	M
CO3	L	M	M	M	M	M	M	S	M	M
CO4	L	M	S	M	S	S	M	S	M	S

S – Strong; L – Low; M – Medium

SEMESTER V

Course Code	Type	Course Name	Category	Lecture (L)	Tutorial (T)	Practical (P)	Credit
21BCA5EA0	CE1	E-Commerce & M -Commerce	Concept	55	5	-	5
Preamble: This course introduces the concepts in Electronic Commerce, Electronic Payment Systems, Security, Online Advertising and Marketing.							
Prerequisite: Basic knowledge of commerce and internetwork.							

SYLLABUS

Unit	Course contents	Instructional Hours
I	E-Commerce: Anatomy of E- Commerce Applications - Electronic Commerce Consumer Applications. Network Infrastructure for E-Commerce: Components of the I-way-Network Access Equipment- Global Information Distribution Networks.	12
II	Internet as a Network Infrastructure: The Internet Terminology. NSFNET: Architecture and Components - National Research and Education Network. The Business of Internet Commercialization: Telco/ Cable/ Online Companies- National Independent ISPs – Local-Level ISPs.	12
III	E-Commerce and World Wide Web: Architectural Framework for E-Commerce - WWW as the Architecture. Consumer Oriented E-Commerce: Mercantile Process Model- Mercantile Models from the Consumers Perspective.	12
IV	Introduction: The Fundamental Functional Platform of M - Commerce -Applications-The Value Chain Supporting M-Commerce Transactions. Services and Applications in Horizontal and Vertical Markets: Personal Organizers-Location Based Services and Applications - M-Commerce Portals-Communication and Messaging-M-Commerce Data Synchronization - Education-Gaming Services. Mobile versus Wired Security: Mobile Device Constraints-Security Model-Privacy Issues. Over View of Wireless Networks: Mobile System Work-Evaluation and Migration of Mobile Networks-Mobile Packet Standards-3G Wireless-Standard-Short Range Mobile Networks.	12
V	Mobile Security Overview: Introduction -Public Key Infrastructure-Strategies in Wireless Internet Security-Security Issues in WTLS.Mobile Security in Information Applications: The Basics-Security of Wireless Information Delivery Models-Mobile Servers Security Flaws-Applications Communications Applications:MCRM-SFA-ASP - Messaging.Service Sector: Retail-Banking and Finance-Travel-Manufacturing-Distribution - Healthcare, Public Services and Hospitality - Entertainment and the Military. Bluetooth: Architecture Overview-Security Overview- WAP in Bluetooth.	12
	Total	**60**

Text Book(s):

1. Ravi Kalakota & Andrew B.Whinston, ***"Frontiers of Electronic - Commerce"***, Wesley 2013.
2. Kapil Raina, Anurag Harsh, ***"M-Commerce security: A Beginner's Guide"***, Tata McGraw - Hill Publishing Company Limited, New Delhi. 2002

Reference book(s):

1. PeteLoshin, & Paul A. Murphy, ***"Electronic Commerce"***, 2nd Edition, Jaico Publishing House, 2002.
2. P. J. Louis, "***M-Commerce Crash Course***", McGraw- Hill Companies February 2001
3. Kenneth C. Laudon, "***E-Commerce: Business, Technology, Society***", 4th Edition, Pearson 2008.
4. E.Brian Mennecke, J.Troy Strader, "***Mobile Commerce: Technology, Theory and Applications***", Idea Group Inc., IRM press, 2003.

Focus of Course: Employability

Course Designer: Ms.A.Somasundaram
Assistant Professor,
Dept. of Computer Science, STC.

Mrs.D.Geetha,
HOD, Dept. of Computer Science,
BoS, Chairman

Course Outcomes (COs)		
On successful completion of this course the students will be able to:		
CO Number	**Course Outcome (CO) Statement**	**Blooms Taxonomy Knowledge Level**
CO1	Introduces a comprehensive understanding of the E-Commerce landscape, current and emerging business models, and the technology and infrastructure underpinnings of the business.	K1
CO2	Leverage the E-Commerce platforms to enhance current business or incubate new businesses.	K2
CO3	Emphasizes the concept of Mercantile process, Services and Applications in Horizontal and Vertical Markets	K3
CO4	Gain an understanding on the importance of security, privacy, and ethical issues as they relate to M-Commerce.	K2

Mapping Course Outcomes with Programme Outcomes & Programme Specific Outcomes

COs/POs/ PSOs	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO 5
CO1	M	M	M	M	M	L	M	M	M	M
CO2	L	M	L	M	M	L	M	M	L	M
CO3	M	L	M	M	M	S	M	M	M	M
CO4	M	M	S	M	M	M	M	S	M	M

S – Strong; L – Low; M – Medium

SEMESTER V

Course Code	Type	Course Name	Category	Lecture (L)	Tutorial (T)	Practical (P)	Credit
21BIT5EA0	CE1	Data Mining And Warehousing	Concept	55	5	-	5
Preamble: This course aims at facilitating the student to understand the basic concepts of data Mining and the need for data warehousing.							
Prerequisite: Basic knowledge in database concepts.							

SYLLABUS

UNIT	Course contents	Instructional Hours
I	Data Mining – Data mining versus query tools – Data mining in marketing – Practical applications of data mining – What is learning? – Self-learning computer systems – Machine learning and the methodology of science – Concept learning – A Kangaroo in mist – Data mining and the data warehouse: Need for a data warehouse – Designing decision support systems – Client / Server and data warehousing.	12
II	The Knowledge Discovery Process: Introduction – Data Selection – Cleaning – Enrichment – Coding – Preliminary analysis of the data set using traditional query tools – Visualization techniques – Likelihood and distance – OLAP tools – k-nearest neighbour – Decision trees – Association rules – Setting up a KDD environment: Different forms of Knowledge – The KDD environment – Ten golden rules.	12
III	Real-life applications: Learning as compression of data sets – The information content of a message – Noise and redundancy – The significance of noise – Fuzzy databases – The traditional theory of the relational database – From relations to tables – From keys to statistical dependencies – Denormalization – Data mining primitives.	12
IV	Data Warehousing: Characteristics of a data warehouse – Data marts – Other aspects of data mart – Online Analytical Processing: Introduction – OLTP and OLAP Systems – Data modeling-star schema for multidimensional view – Data modeling- multifact star schema or snow flake schema – OLAP tools – OLAP tools and the Internet.	12
V	Developing a Data Warehouse: Why and how to build a data warehouse? – Data warehouse architectural strategies and organizational issues – Design considerations – Data content – Metadata – Distribution of data – Tools for data warehousing – Performance considerations – Crucial decisions in designing a data warehouse – Applications of data warehousing and data mining in Government: Introduction – National data warehouses – Other areas for data warehousing and data mining.	12

Total	**60**

Text Book(s):

1. Pieter Adriaans, Dolf Zantinge, **"Data Mining"**, Pearson Education, 2012.**(UNITS I, II & III).**
2. C. S. R. Prabhu, **"Data Warehousing Concepts, Techniques, Products and Applications"**, PHI Pvt. Ltd. 2011. **(UNITS IV & V)**

Reference Book(s):

1. Margaret H. Dunham, **"Data Mining Introductory and Advanced Topics"**, Pearson Education, 2013.
2. Alex Berson, Stephen J. Smith, **"Data Warehousing, Data Mining & OLAP"**, Tata McGraw-Hill Edition, 2013.
3. Jiawei Hanand Micheline Kamber,**"Data Mining Concepts and Techniques"**, Elsevier, Third Edition ,Reprinted 2012.

Focus of Course: Employability

e-Resource/e-Content URL:

https://onlinecourses.nptel.ac.in/noc19_cs15

https://swayam.gov.in/course/4412-data-mining

Course Designer: **Ms.G.Murugesan**
Assistant Professor,
Dept. of Computer Science, STC.

Mrs.D.Geetha ,
HOD, Dept. of Computer Science,
BoS, Chairman

Course Outcomes (COs)

On successful completion of this course the students will be able to:

CO Number	Course Outcome (CO) Statement	Blooms Taxonomy Knowledge Level
CO1	Recall the concepts involved in data and database systems	K1
CO2	Understand various tools of Data Mining to solve the real time problems.	K2
CO3	Summarize the applications of Data Mining	K2
CO4	Identify the scope and necessity of Data Mining & Warehousing for the society.	K3

Mapping Course Outcomes with Programme Outcomes & Programme Specific Outcomes:

COs/POs/ PSOs	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	L	L	M	M	M	M	L	M	M	M
CO2	L	L	M	M	M	M	L	M	M	M
CO3	L	M	M	M	M	M	M	S	M	M
CO4	L	M	S	M	S	S	M	S	M	S

S – Strong; L – Low; M – Medium

SEMESTER V

Course Code	Type	Course Name	Category	Lecture (L)	Tutorial (T)	Practical (P)	Credit
19BCS5S10	SBC 3	Animation Technique- Lab 1	Practical		5	45	2

Preamble: The course is designed to provide the applications of multimedia through 2D animation. Students will be able to develop simple and effective aesthetic principles and production process.

Prerequisite: Computer and Mathematics basics at UG Level

SYLLABUS

Unit	Course contents	Instructional Hours
1	Create Shapes and Drawings using Flash.	4
2	Using Flash, Change a Shape to Another Shape (Shape Animation).	4
3	Using Flash, Change the Colors of an Object with the help of Animation.	4
4	Using Flash, Animate a Ball with the help of Guide line Animation.	4
5	Using Flash, Create Buttons and Links with Frames.	4
6	Create animated cursor using startdrag function in Flash.	6
7	Create Morphing between two images in Flash.	6
8	Design a visiting card containing minimum one Graphic and text information using Flash.	6
9	Design a cover page for a book using Flash.	6
10	Use appropriate tool(s) from the toolbox to merge and organize the objects from any 2 or more jpg files using feather effects in Flash.	6
	Total	**50**

Reference Book(s):

1. Brian Underdahl – **"Macromedia Flash MX: The Complete Reference Paperback"**, Mcgraw-Hill Osborne Media, 2012.

Recommended S/W : Macromedia/Adobe Flash

Focus of Course: Skill Development (Employability/Entrepreneurship/Skill Development)

Course Designer: **Dr.A.Krishnakumar,**
Assistant Professor,
Dept. of Computer Science, STC.

Mrs.D.Geetha,
HOD, Dept. of Computer Science,
BoS, Chairmann

Course Outcomes (COs)		
On successful completion of this course the students will be able to:		
CO Number	**Course Outcome (CO) Statement**	**Blooms Taxonomy Knowledge Level**
CO1	Develop the basic 2D animation	**K1**
CO2	Plan models for animation	**K2**
CO3	Construct a key frames and tweening to develop movements.	**K3**
CO4	Use appropriate tools and techniques to create simple movies.	**K4**
CO5	Apply the animation techniques to render effective animated graphics.	**K5**

Mapping Course Outcomes with Programme Outcomes and Programme Specific Outcomes:

COs/POs/ PSOs	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	M	M	M	M	M	M	M	M	M	L
CO2	M	M	M	M	M	S	M	S	M	M
CO3	L	M	M	S	S	S	M	M	M	M
CO4	L	M	M	M	M	M	M	S	M	M

S – Strong; L – Low; M – Medium

SEMESTER VI

Course Code	Type	Course Name	Category	Lecture (L)	Tutorial (T)	Practical (P)	Credit
21BCS6C10	Core 19	PHP Programming	Application	70	5	-	5

Preamble: This course provides a foundation to successfully build interactive and datadriven website using PHP.

Prerequisite: Scriptinglanguages, CSS and HTML.

SYLLABUS

Unit	Course contents	Instructional Hours
I	Introducing PHP – Basic development Concepts – Creating first PHP Scripts – Using Variable and Operators – Storing Data in variable – Understanding Data types – Setting and Checking Variables – Data types – Using Constants – Manipulating Variables with Operators.	16
II	**Controlling Program Flow:** Writing Simple Conditional Statements - Writing More Complex Conditional Statements – Repeating Action with Loops – Working with String and Numeric Functions.	15
III	**Working with Arrays:** Storing Data in Arrays – Processing Arrays with Loops and Iterations – Using Arrays with Forms - Working with Array Functions – Working with Dates and Times	14
IV	**Using Functions and Classes:** Creating User-Defined Functions - Creating Classes – Using Advanced OOP Concepts. Working with Files and Directories: Reading Files-Writing Files-Processing Directories.	14
V	**Files:** Read in files, creating & changing files – moving – copying & deleting files – other file functions – checking whether a file exists – retrieving file time information – dissecting file time information – handling file uploads – locking files with flock () – reading file permission & status – changing file permission & ownership- working with links – working with directories – remote files – file checksum – parsing a configuration file – **Database:** using MYSQL with PHP.	16
	Total	**75**

Text Book(s):
1. VikramVaswani, **"PHP A Beginner's Guide"**, Tata McGraw-Hill, RE- 2017

Reference book(s):
1. Steven Holzner, ***"The PHP Complete Reference"***, Tata McGraw-Hill Edition, 2010
2. Paul Hudson, **"PHP IN A NUTSHELL-A desktop Quick Reference"**, First Edition, O' Reilly, 2005.
3. Steve, Tim converse, Joyce Park, ***"Php6 and Mysql"***, second edition, 2010.
4. 5. R.G.Dromey **"How to Solve it by Computer"**, Pearson Education, India, 2011.

Focus of Course: Skill Development

e-Resource/e-Content URL:
Vidya-Mitra Portal:http://vidyamitra.inflibnet.ac.in/index.php/search
Tutorials point : https://www.tutorialspoint.com/php/index.htm

Course Designer:Mrs.Juliet Rozario
Assistant Professor,
Dept. of Computer Science, STC.

Mrs.D.Geetha,
HOD, Dept. of Computer Science,
BoS, Chairman

Course Outcomes (COs)		
On successful completion of this course the students will be able to:		
CO Number	**Course Outcome (CO) Statement**	**Blooms Taxonomy Knowledge Level**
CO1	Define the basic dynamic web concepts to create rich internet applications	K1
CO2	Demonstrate techniques for developing effective and maintainable dynamic content system.	K2
CO3	Create a program using classes and files	K3
CO4	Apply the concepts to Capture, retrieve and display information via database such as MySQL and SQLite.	K3

Mapping Course Outcomes with Programme Outcomes &Programme Specific Outcomes

COs/POs/ PSOs	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO 5
CO1	L	L	M	M	M	L	L	S	L	M
CO2	L	L	L	M	M	M	L	M	M	M
CO3	M	M	M	M	M	S	M	S	M	M
CO4	M	M	M	M	M	S	M	M	M	M

S –Strong; **L** –Low; **M** –Medium

SEMESTER VI

Course Code	Type	Course Name	Category	Lecture (L)	Tutorial (T)	Practical (P)	Credit
21BCS6C20	Core 20	PHP Programming Lab	Practical	-	5	70	4

Preamble:
Students will able to apply logic to develop programs for dynamic web applications.

Prerequisite: Basic programming skills and logical thinking.

SYLLABUS

Ex. No	Course contents	Instructional Hours
1	Write a PHP script to get the PHP version and configuration information and display any String	4
2	Create a PHP script using for loop to add all the integers between 0 and 30 and display the total.	4
3	Write a PHP script using nested for loop that creates a chess board.	5
4	Write a PHP script to sort the given numbers.	5
5	Write a PHP function that checks whether a passed string is palindrome or not.	5
6	Write a PHP Calculator class which will accept two values as arguments, then add them, subtract them, multiply them together, or divide them on request.	6
7	Create a web page with a) an image b) a table, with a heading and at least one usage of row span/cols pan. c) color the page d) link to another page	6
8	Write PHP Script code that does the form validation in various INPUT elements like Text field, Text area, Password, Selection list etc.	8
9	Create a small PHP script that create/retrieve cookie, modify the cookie value and checks whether cookies are enabled..	8
10	Write PHP script that create/retrieve session, modify the session value and destroy the session.	8
11	Write PHP Script to read and write data in a file.	8
12	Write a PHP program to maintain student mark list using MYSQL database..	8
	Total	**75**

Reference Book:
1. VikramVaswani, **"PHP A Beginner's Guide"**, Tata McGraw-Hill, RE- 2017

Recommended
Tools to be used: Macromedia Dreamweaver, Wamp Server

Focus of Course: Application

Course Designer:**Mrs.Juliet Rozario**
Assistant Professor,
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Mrs.D.Geetha,
HOD, Dept. of Computer Science,
BoS, Chairman

Course Outcomes (COs)		
On successful completion of this course the students will be able to:		
CO Number	**Course Outcome (CO) Statement**	**Blooms Taxonomy Knowledge Level**
CO1	Apply the fundamental concepts of PHP programming.	K3
CO2	Implement various control statements	K3
CO3	Develop PHP programs to implement arrays, function, cookies and session.	K3
CO4	Explain data base connectivity in web application.	K4

Mapping Course Outcomes with Programme Outcomes & Programme Specific Outcomes:

COs/POs/ PSOs	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO 4	PSO5
CO1	L	M	M	M	S	S	L	M	M	M
CO2	L	S	S	S	M	M	M	M	M	M
CO3	M	M	S	S	S	S	M	S	S	S
CO4	L	M	S	M	M	S	M	S	S	S

S – Strong; L – Low; M – Medium

SEMESTER VI

Course Code	Type	Course Name	Category	Lecture (L)	Tutorial (T)	Practical (P)	Credit
21BCS6C30	Core 21	Artificial Intelligence and Machine Learning	Concept	45	5	-	2

Preamble: To make the students to understand the basic of Artificial Intelligence, Intelligent agents, problem solving, Search stratergies, Machine Learning applications. To understand the Supervised Automatic Learning to acquire the knowledge of Artificial Intelligence and Machine Learning. And make them capable of confidently applying common Machine Learning algorithms in practice.

Prerequisite: Knowledge in Data Structures and Algorithms.

SYLLABUS:

Unit	Course contents	Instructional Hours
I	**Introduction:** Define AI - Acting humanly - Thinking humanly - Thinking rationally: The "laws of thought" approach - Acting rationally. The Foundations of Artificial Intelligence - The History of Artificial Intelligence. **Intelligent Agents I:** Agents and Environments - The Nature of Environments .	10
II	**Intelligent Agents II:** The Structure of Agents- Agent programs - Simple reflex agents. **Problem-Solving:** Problems by Searching – Well-defined problems and solutions - Searching for Solutions -Measuring problem-solving performance.	10
III	**Uninformed Search Strategies** Breadth-first search - Depth-first search -Depth-limited search. **Informed Search and Exploration** Informed (Heuristic) Search Strategies - **Greedy best-first search** - progress of a greedy best-first search - A* search : Minimizing the total estimated solution cost.	10
IV	**Machine Learning: Applications of Machine Learning Tools and SVM :** Introduction - Hand writing recognition – Natural Language Processing – Computational Biology – Computer Vision – Text Mining – Drug Design – Continuous Speech Recognition and Translation – SVM for Damage Assessment of Bridges – Machinery Fault Diagnostics.	10
V	**Supervised Automatic Learning:** Introduction – Definitions and Notations: Universe, Objects, Attributes – Learning Sample – Supervised Learning Problem. **Learning Algorithms:** Hypothesis Space – Empirical Risk Minimisation. **Main Classes of Supervised Learning Algorithms:** Linear Models - Artificial Neural Network – K nearest Neighbours – Decision and Regression Trees – Naïve Bayes.	10
	Total	**50**

Text Book(s):

1. Stuart Russell and Peter Nowig -"Artificial Intelligence : A Modern Approach", Pearson Education, Inc., Upper Saddle River; New Jersey, Second Edition, 2013. (UNIT I, II, III).

2.K.P.Soman, R.Loganathan and V.Ajay – "Machine Learning with SVM and Other Kernel Methods", PHI, New Delhi, India.2019.(UNIT IV, V).

Reference book(s):

1. N.P. Padhy – "Artificial Intelligence and Intelligent Systems", ", Pearson Education, Inc.,2012
2. Dan W.Patterson – "Introduction to Artificial Intelligence and Expert Systems", ", Pearson Education, Inc.,2012
3. Elaine Rich, Kevin Knight, Shiva Sankar B. Nair – "Artificial Intelligence" , ", Pearson Education, Inc.,2010

Focus of Course: Employability, Research

e-Resource/e-Content URL:

- **Vidyamithra Portal : http://vidyamitra.inflibnet.ac.in/**
- **NPTEL**

Course Designer: **N.Priyadharshini**
Assistant Professor, Dept. of CS, STC

Mrs.D.Geetha, HOD, Dept of CS,
BoS Chairman

Course Outcomes (COs)		
On successful completion of this course the students will be able to:		
CO Number	**Course Outcome (CO) Statement**	**Blooms Taxonomy Knowledge Level**
CO1	Demonstrate knowledge of the building blocks of AI as presented in terms of intelligent agents.	K1
CO2	Understand complexity of Machine Learning algorithms and their limitations	K1
CO3	Be capable of confidently applying common Machine Learning algorithms in practice.	K2
CO4	Analyze and formalize the problem as a state space, graph, design heuristics and select amongst different search techniques to solve them	K3

Mapping Course Outcomes with Programme Outcomes and Programme Specific Outcomes:

COs/POs/ PSOs	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO 4	PSO5
CO1	S	M	M	L	M	L	M	M	M	S
CO2	M	M	M	L	M	L	M	M	M	S
CO3	M	S	S	M	M	S	M	S	S	S
CO4	L	S	S	M	M	S	M	S	S	S

S – Strong; L – Low; M – Medium

SEMESTER VI

Course Code	Type	Course Name	Category	Lecture (L)	Tutorial (T)	Practical (P)	Credit
21BCS6EA0	CE2	Software Testing and Quality Assurance (Common to B.Sc (CS), B.Sc (CT), B.Sc (IT) & BCA)	Concept	55	5	-	5

Preamble:

- To understand fundamentals of software testing and testing techniques.
- To learn various metrics of software quality.
- To acquire knowledge on software quality management.

Prerequisite: Basic knowledge in software engineering.

SYLLABUS:

UNIT	Course contents	Instructional Hours
I	Software development Lifecycle model – phases of software project – quality, quality assurance and quality control - - testing, verification and validation – process model to represent different phases – life cycle model – white box testing: what is white box testing – static –structural testing – challenges in white box testing.	12
II	Black box testing: - what is black box testing – why black box testing? – When to do black box testing? – how to do black box testing?. Integration testing – what is integration testing? – Integration testing as a type of testing – integration testing as a phase of esting – scenario testing – defect bash-system and acceptance testing: - why system testing done – functional Vs Non-functional Testing – function system – non functional system testing – acceptance testing.	12
III	Performance tests – factors governing performance – Methodology for performance Testing – Tools for performance – Regression Testing: - what is regression testing? – Types of regression testing – when to do regression testing? – How to do regression testing? – Adhoc testing: - buddy testing – pair testing – exploratory testing – iterative testing – Agile and extreme testing – defect testing – usability and accessibility testing.	12
IV	Product metrics:- software quality – Framework for software metrics – Metrics for analysis model – metric for design model –metrics for source code – metrics for testing.	12
V	Quality Management – Quality concepts - Software Quality Assurance – Software reviews – Formal Technical reviews – Formal Approach to SQA – Statistical software quality assurance – Software Reliability – The ISO 9000 quality standards – SQL Plan.	12
	Total	**60**

Text Book(s):

1. Srinivasan Desikan, Gopalaswamy Ramesh, **"Software Testing"**, Pearson Education, 2013. (Unit I, II, III)
2. Roger Pressman, **"Software Engineering A Practitioner's Approach"**, Tata McGraw Hill Education (India), Seventh Edition, 2014. (Unit IV, V)

Reference Book(s):

1. Renu Rajani, Pradeep Oak, **"Software Testing: Effective methods, Tools and Techniques"** Tata McGraw Hill Education (India), 2010.
2. Galin Daniel, **"Software Quality Assurance"**, Pearson Education, 2010.
3. Tian Jeff, **"Software Quality Engineering"**, Wiley India, New Delhi, Second Edition, 2009.

Focus of Course: Employability

e-Resource/e-Content URL:

- **Vidya-Mitra Portal:**http://vidyamitra.inflibnet.ac.in/index.php/search
- **Tutorials point :**https://www.tutorialspoint.com/software_testing/

Course Designer: **N.PriyaDharshini**
Assistant Professor,
Dept. of Computer Science, STC.

Mrs.D.Geetha
HOD, Dept. of Computer Science,
BoS, Chairman

Course Outcomes (COs)		
On successful completion of this course the students will be able to:		
CO Number	**Course Outcome (CO) Statement**	**Blooms Taxonomy Knowledge Level**
CO1	Define the SDLC and basics of testing.	K1
CO2	Outline the types of testing in sample project.	K2
CO3	Apply test cases and testing in sample project.	K3
CO4	Compare and review the quality of the project with SQL plan.	K4

Mapping Course Outcomes with Programme Outcomes & Programme Specific Outcomes:

COs/POs/ PSOs	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO 4	PSO5
CO1	M	S	S	M	S	S	S	S	S	M
CO2	L	M	S	M	S	M	M	S	M	S
CO3	M	M	S	S	S	S	M	M	M	M
CO4	S	S	M	M	M	S	S	M	M	M

S – Strong; L – Low; M – Medium

SEMESTER VI

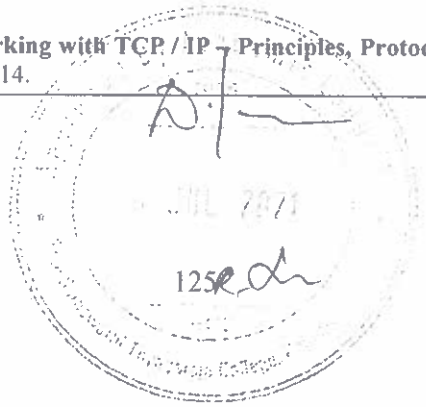
Course Code	Type	Course Name	Category	Lecture (L)	Tutorial (T)	Practical (P)	Credit
21BCS6EB0	CE2	Network Protocols (Common to B.Sc (CS), B.Sc (CT), B.Sc (IT) & BCA)	Concept	55	5	-	5
Preamble: To make the students to understand the basic concepts of Protocols, The high speed network protocols, and design issues and to learn Network Security Technologies and various protocols in wireless LAN, MAN.							
Prerequisite: Knowledge in Networks and security							

SYLLABUS

Unit	Course contents	Instructional Hours
I	**Introduction and Overview:** The Motivation for Internetworking – The TCP/IP Internet – Internet Services. **Review of underlying Network Technologies:** Ethernet Technology – FDDI – WAN Technologies, ARPANET. **Internetworking Concept and Architectural Model:** Application and Network Level Interconnection – Internet Architecture – Interconnection through IP.	12
II	**Error and Control Messages (ICMP):** The Internet Control Message Protocol – Error Reporting vs. Error Correction, ICMP Message Delivery – ICMP Message Format. **Routing in an Autonomous system (RIP, OSPF, HELLO):** Static vs. Dynamic Interior Routes – Routing Information Protocol – The Hello Protocol – The Open SPF Protocol.	12
III	**UNIT III** **Bootstrap and Auto Configuration (BOOTP, DHCP):** The BOOTP Retransmission Policy – The BOOTP Message Format – Then Two-step Bootstrap Procedure – Dynamic Host Configuration Dynamic IP Address Assignment – DHCP Message Format – DHCP Options and Message Type. **Applications: Remote Login (Telnet, Rlogin):** Remote Interactive Computing – TELNET Protocol – Rlogin (BSD UNIX).	12
IV	**Applications: File Transfer and Access (FTP, TFTP, NFS):** File Access and Transfer – Online shared Access – FTP features – FTP Process Model – TFTP – NFS – NFS Implementation – Remote Procedure Call (RPC). **Electronic Mail (SMTP, POP, IMAP, MIME):** Electronic Mail – SMTP – Mail retrieval and mail box manipulation protocols – Post office protocol – Internet Message Access Protocol – The MIME extension for Non-ASCII data.	12
V	**Applications: World Wide Web (HTTP):** Architectural Components – Uniform Resource Locators – Hypertext Transfer Protocol. **Voice and Video Over IP (RTP):** Real-time Transport Protocol (RTP) - RTP Control Protocol (RTCP) – RTCP Operation – IP Telephony and Signaling. **Internet Management (SNMP):** Simple Network Management Protocol.	12
	Total	**60**

Text Book(s):

1. Douglas E.Comer – **"Internetworking with TCP / IP – Principles, Protocols and Architectures"**, Sixth Edition, Prentice – Hall of India, Delhi, 2014.



Reference book(s):

1. Uyless Black – **"Computer Networks – Protocols, Standards and Interfaces"**, Second Edition, Prentice – Hall of India, Delhi, 2012.
2. Fourouzan Behrouz-**"TCP/IP Protocol"**, Fourth Edition,Tata Mcgraw Hill Education ,2012
3. Andrew S. Tanenbaum, David J.Wetherall – **"Computer Networks"**, Pearson Education, 5th Edition, 2014.

Focus of Course: Employability

e-Resource/e-Content URL:

- **Vidya-Mitra Portal:**http://vidyamitra.inflibnet.ac.in/index.php/search
- **Tutorials point :**https://www.tutorialspoint.com/network_protocol/

Course Designer: **Mrs.P.Sathya,**
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Mrs.D.Geetha,
HOD, Dept. of Computer Science,
BoS, Chairman

Course Outcomes (COs)

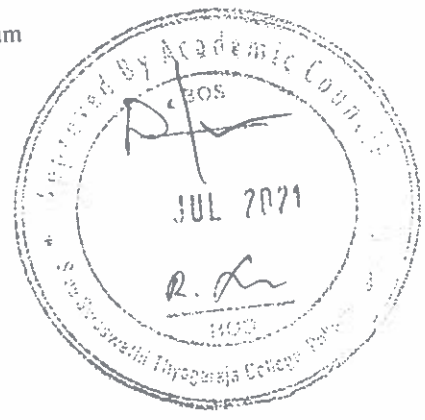
On successful completion of this course the students will be able to:

CO Number	Course Outcome (CO) Statement	Blooms Taxonomy Knowledge Level
CO1	Understand the concepts of internal organization of a PC	K2
CO2	Ability to demonstrate knowledge in Peripheral devices	K3
CO2	Ability to obtain knowledge in Motherboard oriented circuits	K2
CO3	Ability to demonstrate knowledge in Installation and Maintenance process.	K2
CO4	Skill to handle various types of faults occurring in PC	K4

Mapping Course Outcomes with Programme Outcomes and Programme Specific Outcomes:

COs/POs/ PSOs	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	L	M	M	S	M	S	L	M	S	S
CO2	L	M	M	S	M	M	M	M	S	M
CO3	L	M	M	S	M	M	L	M	M	S
CO4	L	M	S	S	M	M	M	M	S	S
CO5	L	L	M	S	M	M	M	M	S	S

S – Strong; L – Low; M – Medium



SEMESTER VI

Course Code	Type	Course Name	Category	Lecture (L)	Tutorial (T)	Practical (P)	Credit
21BCA6EA0	CE2	Business Intelligence	Concept	55	5	-	5

Preamble: This course introduces today's turbulent business environment and describe how organizations survive, the business intelligence methodology and support of managerial decision making.

Prerequisite: Prior knowledge of DBMS

SYLLABUS

Unit	Course contents	Instructional Hours
I	Introduction to Business Intelligence: A Framework for Business Intelligence(BI)- Intelligence Creation and use and BI Governance- Transaction processing versus analytic processing- Major tools and techniques of business intelligence - Data Warehousing: Data warehousing definitions and concepts- Data warehousing overview.	12
II	Data warehousing architectures-Data Integration and the Extraction, Transformation and load (ETL) Process- Data warehouse development-Real time data warehousing. Business performance management: Overview-BPM Methodologies – Performance Dashboards and scorecards.	12
III	Data mining for business intelligence: Data mining concepts and definitions- Data mining Applications – Data mining Process – ANN for data mining – Data mining software tools.	12
IV	Text and web mining: Text mining concepts and definitions – Natural language processing – Text mining Applications – Text mining tools – Web mining overview – Web content mining and web structure mining.	12
V	Business Intelligence Implementation: Integration and emerging trends – Implementing BI – An overview – BI and Integration and Implementation – Connecting BI systems to databases and other enterprise systems – Issues of legality, privacy and ethics – Social networks and BI: Collaborative decision making – Reality mining.	12
	Total	**60**

Text Book(s):

1.Efraim Turban, Ramesh sharda, Dursun Delen, David King, "*Business Intelligence A Managerial Approach*" Pearson Education Publication, 5th Impression, 2015.

Reference book(s):

1. Seema acharya & R N Prasad ,"Business Analytics & its Applications". 5th edition 2016
2. David Loshin ,"Business Intelligence" , 4th edition , 2012
3. Mike Biere ,"Business Intelligence for the Enterprise" 3rd edition, 2003
4. Cindi Howson, "Successful Business Intelligence: Secrets to making Killer BI Applications" 5th edition 2013

Focus of Course: Employability

e-Resource/e-Content URL:

- https://www.technologyreview.com/s/412529/mapping-a-citys-rhythm [Reality mining]
- http://nptel.ac.in/courses/110104086/2
- http://nptel.ac.in/courses/106106093/35

Course Designer: **Ms.D.Balashivasri**
Assistant Professor, Dept of CS

Mrs.D.Geetha, HoD CS
BoS Chairman

Course Outcomes (COs)		
On successful completion of this course the students will be able to:		
CO Number	**Course Outcome (CO) Statement**	**Blooms Taxonomy Knowledge Level**
CO1	Introduces the need for computerized support for managerial decision making.	K1
CO2	Define the role of data warehouse in decision support and role of methodologies in BPM.	K2
CO3	Emphasizes the concept of the process of carrying out a text mining.	K2
CO4	Introduce the needs for connecting BI system with other information systems.List and describe representative privacy, major legal and ethical issues of BI implementation.	K3

Mapping Course Outcomes with Programme Outcomes & Programme Specific Outcomes

COs/POs/ PSOs	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	L	M	M	S	M	L	M	M	M	M
CO2	L	M	M	L	M	M	L	M	L	M
CO3	M	L	M	M	M	S	M	M	M	M
CO4	M	M	S	M	M	S	M	S	M	M

S – Strong; L – Low; M – Medium

SEMESTER VI

Course Code	Type	Course Name	Category	Lecture (L)	Tutorial (T)	Practical (P)	Credit
21BIT6EA0	CE2	Big Data Analytics	Application	55	5	-	5

Preamble: This course facilitates the students with the knowledge of techniques and tools used to solve the problems from a wide variety of industries.

Prerequisite: Basics of statistics, data mining, databases

SYLLABUS

Unit	Course contents	Instructional Hours
I	**Grasping the Fundamentals of Big Data :**The Evolution of Data Management -Understanding the Waves of Managing Data -Defining Big Data -Building a Successful Big Data Management Architecture-The Big Data Journey. **Examining Big Data Types :**Defining Structured Data-Defining Unstructured Data- Looking at Real-Time and Non-Real-Time Requirements- Putting Big Data Together.	12
II	**Old Meets New- Distributed Computing:** A Brief History of Distributed Computing-Understanding the Basics of Distributed Computing- Getting Performance Right. **Digging into Big Data Technology Components:** Exploring the Big Data Stack- Layer 0: Redundant Physical Infrastructure- Layer 1: Security Infrastructure- Interfaces and Feeds to and from Applications and the Internet- Layer2: Operational Databases- Layer 3: Organizing Data Services.	12
III	**Virtualization and How It Supports Distributed Computing:** Understanding the Basics of Virtualization- Managing Virtualization with the Hypervisor- Abstraction and Virtualization-Implementing Virtualization to Work with Big Data. **Examining the Cloud and Big Data:** Defining the Cloud in the Context of Big Data- Understanding Cloud Deployment and Delivery Models- The Cloud as an Imperative for Big Data- Making Use of the Cloud for Big Data-Providers in the Big Data Cloud Market.	12
IV	**Operational Databases:** RDBMSs Arc Important in a Big Data Environment- Non relational Databases- Key-Value Pair Databases- Document Databases- Columnar Databases- Graph Databases- Spatial Databases- Polyglot Persistence. **Map Reduce Fundamentals:** Tracing the Origins of Map Reduce -Understanding the map Function- Adding the reduce Function -Putting map and reduce Together - Optimizing Map Reduce Tasks. **Exploring the World of Hadoop:** Explaining Hadoop -Understanding the Hadoop Distributed File System (HDFS)-HadoopMapReduce.	12
V	**Appliances and Big Data Warehouses:** Integrating Big Data with the Traditional Data Warehouse- Big Data Analysis and the Data Warehouse- Changing the Role of the Data Warehouse –Changing Deployment Models in the Big Data Era- Examining the Future of Data Warehouses. **Defining Big Data Analytics:** sing Big Data to Get Results- Modifying Business Intelligence Products to Handle Big Data- Studying Big Data Analytics Examples- Big Data Analytics Solutions. **Understanding Text Analytics and Big Data:** Exploring Unstructured Data- Understanding Text Analytics- Analysis and Extraction Techniques- Putting Your Results Together with Structured Data -Putting Big Data to Use- Text Analytics Tools for Big Data	12

	Total 60

Text Book:

1. Judith Hurwitz, Alan Nugent, Dr. Fern Halper and Marcia Kaufman, **"Big Data for Dummies"** , John Wiley & Sons, Inc,2013

Reference books:

1. Bill Franks, **"Taming the Big Data Tidal Wave: Finding OpportUNITies in HugeData Streams with advanced analytics"**, John Wiley & sons, 2012.
2. DT Editorial Services, **"Big Data Black Book"**, Dreamtech Press, 2015.
3. SeemaAcharya, SubhashiniChellappan, **"Big Data and Analytics"**, Wiley Publication, first edition. Reprint in 2016
4. O"Reilly Media, **"Big Data now: Current Perspective"** O"Reilly Media, 2013 Edition.

Focus of Course: Employability

e-Resource/e-Content URL:

1. https://www.javatpoint.com/what-is-big-data
2. http://www.guru99.com/bigdata-tutorials.html
3. https://swayam.gov.in/courses/5591-jan-2019-big-data-computing
4. https://onlinecourses.nptel.ac.in/noc19_cs33

Course Designer: Mr.S.Dhanaraj
Assistant Professor,
Dept. of Computer Science, STC.

Mrs.D.Geetha ,
HOD, Dept. of Computer Science,
BoS, Chairman

Course Outcomes (COs)

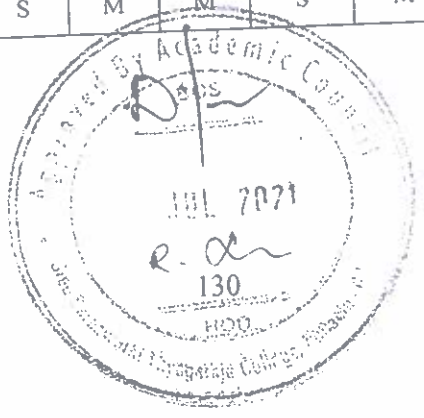
On successful completion of this course the students will be able to:

CO Number	Course Outcome (CO) Statement	Blooms Taxonomy Knowledge Level
CO1	Understand the concept of big data	K1
CO2	Collect, store and analyze various form of big data	K2
CO3	Relate the impact of big data in business decisions and strategy.	K2
CO4	Application the concept of Big Data Warehouse	K3

Mapping Course Outcomes with Programme Outcomes &Programme Specific Outcomes

COs/POs/ PSOs	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	M	M	M	S	L	M	L	S	M	L
CO2	L	M	M	M	M	M	L	M	L	S
CO3	M	M	M	S	M	S	M	S	S	S
CO4	S	M	S	M	M	S	M	S	M	L

S –Strong; L –Low; M –Medium



SEMESTER VI

Course Code	Type	Course Name	Category	Lecture (L)	Tutorial (T)	Practical (P)	Credit
21BCS6EC0	CE3	Software Project Management	Concept	55	5	-	5

SYLLABUS

Unit	Course contents	Instructional Hours
I	**Introduction to Software Project Management:** Introduction – why is software project management importance – Project – s/w projects versus other types of project – Activities covered by s/w project management – Some ways of categorizing s/w projects – Management – Problems with s/w projects – Overview of Project Planning. Project Evaluation: Evaluation of individual projects – Technical assessment – Cost benefit evaluation techniques – Risk evaluation.	13
II	**Selection Approach:** Introduction – Choosing technologies – Structure versus speed of delivery – Waterfall model – V-process model – Spiral model. **Software Estimation:** Basis for s/w estimating – s/w effort estimation techniques – Albrecht function point analysis – COCOMO model. Risk Management: Risk – Categories of risk – Framework – Risk identification – Risk assessment – Risk planning – Risk management – Evaluating risk – Applying PERT technique.	12
III	**Activity Planning:** Introduction – Objectives – Project Schedules – Project and Activities – Sequencing and Scheduling activities – Network planning models – Formulating a network model – Forward pass – Backward pass – Identifying critical activities. Resource Allocation: Nature of resources – Identifying resource requirements – Scheduling resources – publishing resource schedule – Cost schedules – Scheduling Sequence.	11
IV	Monitoring and Control: Creating Framework – Collecting data – Visualizing progress – Cost monitoring – Prioritizing monitoring – Change control. **Managing People:** Organizational behavior – Selecting right person for the job – Motivation – Oldham-Hackman job characteristics model – Decision Making – Leadership – Organizational structures.	13
V	**Software Quality:** Introduction – Importance – Definition – ISO 9126 – Practical s/w quality measures Product versus process quality management – Techniques – Quality plans.	11
	Total	**60**

Text Book(s):

1. Bob Hughes & Mike Cotterell **"Software Project Management"**, Tata McGraw-Hill Publications, Fifth Edition, 2010.

Reference Book(s):

1. Kelkar.S.A **"Software Project Management – A Concise Study"**, Prentice Hall of India Publication, Third Edition, 2012.
2. Joel Henry **"Software Project Management A Real World guide to Success"**, Pearson Education Publication, First Edition, 2009.
3. Bob Hughes, Mike Cotterell, Rajib Mall: **"Software Project Management"**, Tata McGraw Hill Education, Fifth Edition, 2011.
4. Kieron Conway **"Software Project Management"**, Dreamtech Press publication, Sixth Edition, 2008.

Focus of Course: Employability
e-Resource/e-Content URL: • **Vidya-Mitra Portal:**http://vidyamitra.inflibnet.ac.in/index.php/search • **Tutorials point :**https://www.tutorialspoint.com/software_project_management/
Course Designer: Mrs.**Juliet Rozario** Assistant Professor, Dept. of Computer Science, STC. **Mrs.D.Geetha ,** HOD, Dept. of Computer Science, BoS, Chairmann

Course Outcomes (COs)		
On successful completion of this course the students will be able to:		
CO Number	**Course Outcome (CO) Statement**	**Blooms Taxonomy Knowledge Level**
CO1	Determine the software measurement attributes and metrics	**K1**
CO2	Plan and evaluate software projects	**K2**
CO3	Understand Artifacts of the process	**K3**
CO4	Analyze factors involved in implementation of software projects	**K4**
CO5	Understand Project Organizations and Responsibilities	**K5**

Mapping Course Outcomes with Programme Outcomes and Programme Specific Outcomes

COs/POs/ PSOs	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	L	M	M	S	M	S	L	M	S	S
CO2	L	M	M	S	M	M	M	M	S	M
CO3	L	M	M	S	M	M	L	M	M	S
CO4	L	M	S	S	M	M	M	M	S	S
CO5	L	L	M	S	M	M	M	M	S	S

S – Strong; L – Low; M – Medium

SEMESTER VI

Course Code	Type	Course Name	Category	Lecture (L)	Tutorial (T)	Practical (P)	Credit
21BCS6ED0	CE3	Network Security (Common to B.Sc (CS), BCA, B.Sc (CT) & B.Sc (IT))	Concept	55	5	-	5
Preamble: This course aims at facilitating the student to understand the basic concepts of cryptography, threats in networks, threats in databases and solution available							
Prerequisite: Basic understanding of computer networking and cryptography							

SYLLABUS

UNIT	Course contents	Instructional Hours
I	Introduction: Why Network Security Is Needed- Management Principles-Security Principles- Security Attacks-Qualities Of A Good Network. Organizational Policy And Security: Security Policies, Standards And Guidelines-Information Policy-Security Policy-Physical Security-Security Procedures-Building A Security Plan.	13
II	Security Infrastructure: Infrastructure Components-Goals of Security Infrastructure - Design Guidelines. Cryptography: Terminology and Background-Data Encryption Method- Cryptographic Algorithms-Secret Key Cryptography.	11
III	Hardware and Software Security: Hardware Security-Smart Card-Biometrics-Virtual Private Network (VPNs)-Security Protocols Database Security: Introduction to Databases-Characteristics of Database Approach-Database Security Issues- Database Security- Data Warehouse Control And Security Wireless Security: Wireless Application Protocol (WAP)-WAP Security-Wireless LAN-Wireless LAN Security.	12
IV	Network Security: Fundamental Concepts-Identification and Authentication-Access Control-A Model For Network Security-Malicious Software-Firewalls Risk Management: Introduction-Overview-Identify the Risk to an Organization-Risk Analysis.	11
V	Network Management: Goal of Network Management- Network Management Model-Infrastructure for Network Management-Simple Network Management Protocol (SNMP) Security Management: Security Plan- Security Analysis-Change Management- Disaster Recovery- Protecting Storage Media-Protection of System Documentation-Exchanges Of Information And Software-Security Requirements Of System:	13
	Total	**60**

Text Book(s):

1. Brijendra Singh - **"Network Security and Management"**, 3rd Edition,Prentice Hall of India Publications, New Delhi, 2012.

Reference Book(s):

1. Roberta Bragg, Mark Phodes-ousley, Keith Strassberg – **"Network Security - The Complete Reference"**, Tata McGraw-Hill Publishing Company Limited, First Edition,2004.
2. Atual Kahate - **"Cryptography and Network Security"**, Tata McGraw-Hill publications, Second edition, 2011.
3. Ankit Fadia - **"Network Security A Hackers Perspective"**, Macmillan India Ltd. First Edition, 2013.
4. Andrew Lockhart - **"Network Security Hacks"**, O'Reilly media, Second Edition, 2009.

Focus of Course: Employability

e-Resource/e-Content URL:	
•**Vidya-Mitra Portal**:http://vidyamitra.inflibnet.ac.in/index.php/search •**Tutorials point** :https://www.tutorialspoint.com/network_security/	
Course Designer: **Mr.R.Suresh Kumar**, Assistant Professor, Dept. of Computer Science, STC.	**Mrs.D.Geetha** , HOD, Dept. of Computer Science, BoS, Chairmann

Course Outcomes (COs)

On successful completion of this course the students will be able to:

CO Number	Course Outcome (CO) Statement	Blooms Taxonomy Knowledge Level
CO1	Describe network security principles, organizational policy and security infrastructure	K1
CO2	Demonstrate cryptographic algorithms and protocols	K2
CO3	Illustrate Hardware and Database Security	K3
CO4	Analyze the Risk and Security management in networks	K4

Mapping Course Outcomes with Programme Outcomes & Programme Specific Outcomes

COs/POs/ PSOs	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO 4	PSO5
CO1	L	M	M	S	L	M	L	M	L	M
CO2	L	M	S	M	M	L	L	M	L	L
CO3	L	M	S	M	S	M	L	M	L	L
CO4	L	S	M	M	M	M	L	L	M	L

S – Strong; **L** – Low; **M** – Medium

SEMESTER VI

Course Code	Type	Course Name	Category	Lecture (L)	Tutorial (T)	Practical (P)	Credit
21BCA6EB0	CE3	Cloud Computing (Common to B.Sc (CS), B.Sc (CT), B.Sc (IT) & BCA)	Concept	55	5	-	5

Preamble: This course provides basic concepts of cloud computing and its applications

Prerequisite: Computer Networks

SYLLABUS

Unit	Course contents	Instructional Hours
I	Cloud Computing at a Glance - Historical Developments - Building Cloud Computing Environments - Computing Platforms and Technologies Parallel vs. Distributed Computing - Elements of Parallel Computing - Elements of Distributed Computing - Technologies for Distributed Computing.	12
II	**Virtualization:** Characteristics - Virtualization Techniques - Virtualization and Cloud Computing - Pros and Cons of Virtualization. Cloud Computing Architecture: Cloud Reference Model - Types of Clouds - Economics of Clouds, Open challenges.	12
III	Concurrent Computing-**Thread Programming**: Programming applications with Threads - Multithreading with Aneka - Programming applications with Aneka threads. High Throughput Computing-Task Programming: Task Computing - Task-based Application Models - Aneka Task-Based Programming.	12
IV	Data Intensive Computing – Map - **Reduce Programming**: Introduction - Technologies for data - intensive computing - Aneka MapReduceProgramming. Cloud Platforms in Industry: Amazon Web Services - Google AppEngine - Microsoft Azure.	12
V	**Cloud Applications: Scientific Applications**: Healthcare – Biology - Geo-science. Business Applications: CRM and ERP – Productivity - Social Networking. Media Applications - Multiplayer Online Gaming. Advanced Topics in Cloud Computing: Energy Efficiency in Clouds - Market Based Management of Clouds - Federated Clouds / InterCloud - Third Party Cloud Services	12
	Total	**60**

Text Book(s):

1. RajKumar Buyya, Christian Vecchiloa, S. Thamarai Selvi, **"Mastering Cloud Computing Foundations and Applications Programming"**, TMH Publications, New Delhi, 2013.

Refernce Book(s):

1. Velte Anthony and Velte T.J Elsenpeter, **"Cloud Computing a Practical Approach"**, 1st Edition, 2010.
2. Michael Miller, **"Cloud Computing"**, 8th Edition, 2012,
3. Prasant Kumar Pattnaik, Manas Ranjan Kabat, Souvik Pal, **"Fundamentals of Cloud Computing"**, 5th edition, 2014

Focus of Course: Employability

e-Resource/e-Content URL:

- **Vidya-Mitra Portal : http://vidyamitra.inflibnet.ac.in/**
- **NPTEL**

Course Designer: **Mr.P.Boopathi**
Assistant Professor,
Dept. of UG - CT, STC

Mrs.D.Geetha,
HOD, Dept of CS
BoS Chairman

Course Outcomes (COs)		
On successful completion of this course the students will be able to:		
CO Number	**Course Outcome (CO) Statement**	**Blooms Taxonomy Knowledge Level**
CO1	Understand the fundamentals of Clod Computing	**K2**
CO2	Acquire knowledge on Virtualization Techniques	**K2**
CO3	Explore the knowledge on Thread Programming and Task based Application models	**K3**
CO4	Understand the Data Intensive Computing	**K2**
CO5	Apply the concepts in Cloud computing	**K3**

Mapping Course Outcomes with Programme Outcomes & Programme Specific Outcomes:

COs/POs/ PSOs	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	L	M	M	S	L	M	L	M	L	M
CO2	L	M	S	M	M	L	L	M	L	L
CO3	L	M	S	M	S	M	L	M	L	L
CO4	L	S	M	M	M	M	L	L	M	L
CO5	L	M	S	M	S	M	L	M	L	L

S – Strong; L – Low; M – Medium

SEMESTER VI

Course Code	Type	Course Name	Category	Lecture (L)	Tutorial (T)	Practical (P)	Credit
21BIT6EB0	CE3	Internet Of Things(Common to B.Sc (CS), B.Sc (CT), B.Sc (IT) & BCA)	Application	55	5	-	5

Preamble: This course facilitates the student to gain the knowledge in the the variety of different platforms to develop the hardware and software for their own device.

Prerequisite: Basic knowledge in networks

SYLLABUS

Unit	Course contents	Instructional Hours
I	**The Internet of Things:** An Overview -The Flavor of the Internet of Things - The "Internet" of "Things" -The Technology of the Internet of Things - Enchanted Objects - Who is making the Internet of Things? Design Principles for Connected Devices - Calm and Ambient Technology - Magic as Metaphor -Privacy - Keeping Secrets – Who's Data Is It Anyway? - Web Thinking for Connected Devices -Small Pieces, Loosely Joined - First-Class Citizens on The Internet - Graceful Degradation Affordances	12
II	**Internet Principles -Internet Communications:** An Overview - IP- TCP - The IP Protocol Suite (TCP/IP) -UDP - IP Addresses - DNS - Static IP Address Assignment - Dynamic IP Address Assignment - IPv6 MAC Addresses - TCP and UDP Ports - An Example: HTTP Ports - Other Common Ports - Application Layer Protocols -HTTP - HTTPS: Encrypted HTTP - Other Application Layer Protocols	12
III	**Thinking About Prototyping:** Sketching - Familiarity - Costs versus Ease of Prototyping - Prototypes and Production - Changing Embedded Platform - Physical Prototypes and Mass Personalization - Climbing into the Cloud - Open Source versus Closed Source - Why Closed? - Why Open? - Mixing Open and Closed Source –Closed Source for Mass Market Projects - Tapping into the CommUNITy.	12
IV	**Prototyping Embedded Devices :** Electronics - Sensors - Actuators - Scaling Up the Electronics - Embedded Computing Basics - Microcontrollers - System-on-Chips - Choosing Your Platform - Arduino - Developing on the Arduino - Some Notes on the Hardware - Openness - Raspberry Pi - Cases and Extension Boards – Developing on the Raspberry Pi - Some Notes on the Hardware - Openness	12
V	**Prototyping the Physical Design :** Preparation - Sketch, Iterate, and Explore - Nondigital Methods - Laser Cutting - Choosing a Laser Cutter - Software - Hinges and Joints - 3D Printing - Types of 3D Printing - Software - CNC Milling - Repurposing/Recycling	12
	Total	**60**

Text Book(s):

1. Adrian McEwen and Hakim Cassimally, **"Designing the Internet of Things"** JohnWiley and Sons, Ltd. 2014 Edition.

Reference book(s):

1. ArshdeepBahga, Vijay Madisetti, "Internet of Things:A Hands on Approach" 2014.
2. Marco Schwartz, "**Internet of Things with the ArduinoYún**" Packt Publishing, 2014
3. David Boswarthick, Olivier Hersent, , Omar Elloumi ,"**The Internet of Things: Key Applications and Protocols**", Wiley Publication, 2015
4. James Weaver, Stephen Chin ,"**Raspberry Pi with Java: Programming the Internet of Things (IoT)**" McGraw-Hill, 2015 .

Focus of Course: Employability

e-Resource/e-Content URL:

- **Vidya-Mitra Portal : http://vidyamitra.inflibnet.ac.in/**
- **NPTEL**

Course Designer: **Mrs.P.Shobana**
Assistant Professor, Dept. of CS, STC.

Mrs.D.Geetha, HOD, Dept of CS,
BoS, Chairman.

Course Outcomes (COs)

On successful completion of this course the students will be able to:

CO Number	Course Outcome (CO) Statement	Blooms Taxonomy Knowledge Level
CO1	Understand the concept of IoT	K1
CO2	Thinking and analyze Prototyping;	K2
CO3	Able to realize the revolution of Internet in Sensor Networks	K3
CO4	Understand the Communications done through internet	K3

Mapping Course Outcomes with Programme Outcomes and Programme Specific Outcomes:

COs/POs/ PSOs	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	M	L	L	L	L	M	L	S	M	L
CO2	L	M	M	M	M	M	L	S	L	S
CO3	M	M	M	L	M	L	M	S	S	S
CO4	M	M	S	S	M	S	M	S	M	L

S –Strong; L –Low; M –Medium

SEMESTER VI

Course Code	Type	Course Name	Category	Lecture (L)	Tutorial (T)	Practical (P)	Credit
19BCS6S10	SBC 4	Animation Techniques- Lab 2	Practical	-	5	45	2
Preamble: The course is designed to provide the applications of multimedia through 3D animation. Students will be able to develop basic aesthetic principles and concepts, and the production process.							
Prerequisite: Computer and graphics basics at UG Level							

SYLLABUS

Unit	Course contents	Instructional Hours
1	Create few Geometric Objects in 3ds Max.	4
2	Create a Petal using 3ds Max.	4
3	Create any Logo using 3ds Max.	4
4	Create Shadow effect in 3ds Max.	4
5	Create a multi-component 3D model of some sort of animal (real or fictitious) and animate the position of the object.	6
6	Design and implement a video clip in 3D Studio to depict two or more animals moving along a terrain.	6
7	Create a wall clock using 3ds Max.	6
8	Model a rubik's cube using 3ds Max.	4
9	Implement shape transformations using 3ds Max.	6
10	Create a Window and set a global illumination using 3ds Max.	6
	Total	**50**

Reference Book(s):

1. Jeffrey Harper – **"Mastering Autodesk 3ds Max 2013",** John Wiley and Sons Inc., 2013.

Recommended S/W : Autodesk/ 3Ds MAX

Focus of Course: Skill Development (Employability/Entrepreneurship/Skill Development)

Course Designer: **Dr.A.krishnakumar,**
Assistant Professor,
Dept. of Computer Science, STC.

Mrs.D.Geetha,
HOD, Dept. of Computer Science,
BoS, Chairmann

Course Outcomes (COs)		
On successful completion of this course the students will be able to:		
CO Number	**Course Outcome (CO) Statement**	**Blooms Taxonomy Knowledge Level**
CO1	Develop the basic 3D animation	**K1**
CO2	Plan models and movements for animation	**K2**
CO3	Construct a 3D surface texture map to apply to the object	**K3**
CO4	Use appropriate tools and techniques to produce multilateral objects with different complexity to use in games and animation media	**K4**
CO5	Apply motion analysis, render, direct and indirect illumination to the objects for specific viewports.	**K5**

Mapping Course Outcomes with Programme Outcomes and Programme Specific Outcomes:

COs/POs/ PSOs	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	M	M	M	M	M	M	M	L	M	M
CO2	M	M	M	M	S	M	M	S	M	S
CO3	L	M	M	S	M	S	M	S	M	M
CO4	L	M	M	M	M	M	M	M	S	M

S – Strong; L – Low; M – Medium

CURRICULUM STRUCTURE OF UG PROGRAMS
(2021- 22 Batch Onwards)

PART - I → a. Tamil Or b. Hindi Or c. Malayalam Or d. French

PART - II → English : English for Enrichment I & II

PART - III →
1. Core
2. Allied
3. Electives

PART - IV →
1. Environmental Studies, Value Education and Human Rights
2. Non – Major Electives
3. Skill Based Courses
4. **Extra Credit Course -** Professional English MOOC courses

PART - V → **Extension Activities**
1. NSS / Sports

EXAMINATIONS SYSTEM UNDER AUTONOMY

1. OBE ASSESSMENT COMPONENT MATRIX

Theory

Course Category	UG	UG/PG			UG	UG	PG
Assessment Components	Language	Concept	Application	Analysis	Skill Based Course	Value Based Course	IDC
Component -1 CIA – Test	30	30	30	30	15	45	50
Component -2 UG – Attendance / PG – Seminar	5	5	5	5	5	5	-
Component -3 Assignments	5	5	5	5	5	-	-
Component -4 Skill Based Task	10*	10*	10*	10*	5#	-	-
Total Marks	**50**	**50**	**50**	**50**	**30**	**50**	**50**

Note:
 # - Skill based task – 1 task
*** - Skill based tasks – 2 tasks for UG, – 3 tasks for PG**

Practical

Course Category	UG/PG		Skill Based
Assessment Components			
Component -1 CIA – Test	30	15	15
Component -2 Lab Performance	5	2.5	5
Component -3 Observation	5	2.5	5
Component -4 Skill Based Task	10*	5#	5#
Total Marks	**50**	**25**	**30**

Note:
 # - Skill based task – 1 task
*** - Skill based tasks – 2 tasks for UG, – 3 tasks for PG**

Project & Internship

Course Category	Project	Summer Internship	Project
Assessment Components			
Component -1 Review I	15	25	30
Component -2 Review II	15	25	30
Component -3 Report Submission	10	-	20
Component -4 Model Viva voce	10	-	20
Total Marks	**50**	**50**	**100**

Internship & Field Work for Psychology/Social Work

Course Category / Assessment Components	Internship
Component -1 Attendance	10
Component -2 Work Diary/IC	10
Component -3 Report/Record	10
Component -4 Prof. Knowledge& Initiatives/ Viva voce	20
Total Marks	**50**

SKILL BASED TASKS FOR THEORY / PRACTICAL COURSES:

- FLOWCHARTS
- MINIATURES
- DEMONSTRATION
- SNAP TALK
- VIVA VOCE
- CLASS PRESENTATION [ORAL/POSTER]
- BUSINESS PLAN
- GROUP DISCUSSION
- SIMULATION EXERCISE
- CASE STUDY
- GAMES
- PUZZLES
- MODELS
- PAPER PRESENTATION
- ARTICLE REVIEW
- DEBATE
- SEMINAR
- REPORTS
- PORTFOLIOS
- QUESTIONNAIRE
- PUBLICATION
- SURVEY
- MINI PROJECT [INDIVIDUAL / GROUP]
- USP COMPONENT [UNIQUE TO THE COURSE]

2. Mark Preparation Format

Sl.No.	Name	Reg.No.	Rubrics Evaluation				
			Component 1	Component 2	Component 3	Component 4	Total

3. Pattern of Examinations: The college follows semester pattern. Each academic year consists of two semesters and each semester ends with the End Semester Examinations. A student should have a minimum of 75% attendance out of 90 working days to become eligible to sit for the examinations.

4. Internal Examinations: The questions for every examination shall have equal representation from the units of syllabus covered. The question paper pattern and coverage of syllabus for each of the internal (CIA) tests for UG programs are as follows.

Internal Assessment Test

i. First Internal Assessment Test

Syllabus : First Two Units
Working Days : On completion of 30 working days, approximately
Duration : Two Hours
Max. Marks : 50

ii. Second Internal Assessment Test
Syllabus : Third and Fourth Units
Working Days : On completion of 65 working days, approximately
Duration : Two Hours
Max. Marks : 50

iii. Model Examinations
Syllabus : All Five Units
Working Days : On completion of 85 working days, approximately
Duration : Three Hours
Max. Marks : 100 (or) 75

CIA Assessment (for CIA-I and CIA-II) - UG

Bloom's Category Level	Sections	Marks			Description
K1= Remember	Section A 5 Questions * 1 Marks	5			Multi choice Questions
K1= Remember K2= Understand K3= Apply	Section B 3 Questions (out of 5 questions) * 5 Marks (Open choice type)	15			Open choice type Questions (250 words)
		K1	K2	K3	
		2	2	1	
K1= Remember K2= Understand K3= Apply	Sections C 3 Questions * 10 Marks (either or type)	30			Either or types Questions (500 words)
		K1	K2	K3	
		2	2	2	
	Total	**50**			

For the internal assessment test, the question paper pattern shall be as given below.

UG: CIA TEST – I & II

[FOR 2 UNITS - 2 HOURS – 50 MARKS]
[FOR CORE/ELECTIVE/ALLIED/SKILL BASED COURSES]

SECTION A

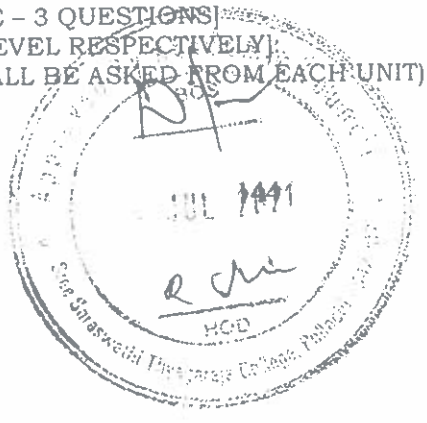
[05 MULTIPLE CHOICE QUESTIONS]
[ALL 5 FROM K1 LEVEL]: **05 x 01= 05 MARKS**
(MINIMUM TWO QUESTION SHALL BE ASKED FROM EACH UNIT)

SECTION B

[250 WORDS – OPEN CHOICE TYPE – 3 OUT OF 5 QUESTIONS]
[2 QUESTIONS FROM K1 LEVEL]
[2 QUESTIONS FROM K2 LEVEL]
[1 QUESTION FROM K3 LEVEL]: **03 x 05 = 15 MARKS**
(MINIMUM TWO QUESTION SHALL BE ASKED FROM EACH UNIT)

SECTION C

[500 WORDS – EITHER OR TYPE – 3 QUESTIONS]
[ALL 3 ARE FROM K1,K2& K3 LEVEL RESPECTIVELY]: **03 x 10 = 30 MARKS**
(MINIMUM TWO QUESTION SHALL BE ASKED FROM EACH UNIT)



Model & Semester ExaminationsAssessment - UG for 100 marks

Bloom's Category Level	Sections	Marks			Description
K1= Remember	Section A 10 Questions * 1 Marks	10			Multi choice Questions
K1= Remember K2= Understand K3= Apply	Section B 5 Questions (out of 7 questions)* 6 Marks (Open choice type)	30			Open choice type Questions (250 words)
		K1	K2	K3	
		2	3	2	
K1= Remember K2= Understand K3= Apply	Sections C 5 Questions * 12 Marks (either or type)	60			Either or types Questions (500 words)
		K1	K2	K3	
		4	4	2	
	Total	**100**			

Model & Semester ExaminationsAssessment - UG for 75 marks

Bloom's Category Level	Sections	Marks	Description
K1= Remember	Section A 10 Questions * 1 Marks	10	Multi choice Questions
K1= Remember K2= Understand K3= Apply	Section B 5 Questions (out of 7 questions)* 5 Marks (Open choice type)	25 K1 K2 K3 2 3 2	Open choice types Questions (250 words)
K1= Remember K2= Understand K3= Apply	Sections C 5 Questions * 8 Marks (either or type)	40 K1 K2 K3 4 4 2	Either or types Questions (500 words)
	Total	**75**	

UG: MODEL & SEMESTER EXAMINATIONS
[FOR CORE/ELECTIVE/ ALLIED COURSES]
[FOR 5 UNITS – 3 HOURS – 100 MARKS]

SECTION A

[10 MULTIPLE CHOICE QUESTIONS]
[ALL 10 FROM K1 LEVEL]: **10x01= 10 MARKS**
(Two each from all units)

SECTION B

[250 WORDS – OPEN CHOICE TYPE – 5 OUT OF 7 QUESTIONS]
[2 QUESTIONS FROM K1 LEVEL]
[3 QUESTIONS FROM K2 LEVEL]
[2 QUESTIONS FROM K3 LEVEL]: **05 x 06 = 30 MARKS**
(Minimum One question shall be asked from each unit)

SECTION C

[500 WORDS – EITHER OR TYPE – 5 QUESTIONS]
[2 QUESTIONS FROM K1 LEVEL]
[2 QUESTIONS FROM K2 LEVEL]
[1 QUESTION FROM K3 LEVEL]: **05 x 12 = 60 MARKS**
(Two each from all units)

UG: MODEL & END SEMESTER EXAMINATIONS
[FOR SKILL BASED COURSES / ALLIED & NME]
[FOR 5 UNITS – 3 HOURS – 75 MARKS]

SECTION A

[10 MULTIPLE CHOICE QUESTIONS]
[ALL 10 FROM K1 LEVEL]: **10x01= 10 MARKS**
(Two each from all units)

SECTION B

[250 WORDS – OPEN CHOICE TYPE – 5 OUT OF 7 QUESTIONS]
[2 QUESTIONS FROM K1 LEVEL]
[3 QUESTIONS FROM K2 LEVEL]
[2 QUESTIONS FROM K3 LEVEL]: **05 x 05 = 25 MARKS**
(Minimum One question shall be asked from each unit)

SECTION C

[500 WORDS – EITHER OR TYPE – 5 QUESTIONS]
[2 QUESTIONS FROM K1 LEVEL]
[2 QUESTIONS FROM K2 LEVEL]
[1 QUESTION FROM K3 LEVEL]:
(Two each from all units)

05 x 08 = 40 MARKS

Outcome Based Education Assessment Pattern (Internals)
2021-22 batch onwards

InternalsSetup : Theory – 50 marks (UG/PG)

Name of the Examinations	Examination Conduction Marks	Marks to convert as Final Mark
CIA Test – I	50	7.5
CIA Test – II	50	7.5
Model Examination	100	15
Assignment	5	5
Attendance	5	5
Skill Based Task	5	10
Total Marks		**50**

InternalsSetup : Theory – 30 marks (UG)

Name of the Examinations	Examination Conduction Marks	Marks to convert as Final Mark
CIA Test – I	50	3
CIA Test – II	50	3
Model Examination	100	9
Assignment	5	5
Attendance	5	5
Skill Based Task	5	5
Total Marks		**30**

InternalsSetup : Value Based Course – 50 marks (UG)

Name of the Examinations	Examination Conduction Marks	Marks to convert as Final Mark
CIA Test – I	50	10
CIA Test – II	50	10
Model Examination	100	25
Assignment	-	-
Attendance	5	5
Skill Based Task	-	-
Total Marks		**50**

InternalsSetup : *Practical – 50 marks*

Name of the Examinations	Examination Conduction Marks	Marks to convert as Final Mark
CIA Test – I	50	7.5
CIA Test – II	50	7.5
Model Examination	100	15
Lab Performance	5	5
Observation	5	5
Skill Based Task	10	10
Total Marks		**50**

InternalsSetup : *Practical – 25 marks*

Name of the Examinations	Examination Conduction Marks	Marks to convert as Final Mark
CIA Test – I	50	3.5
CIA Test – II	50	3.5
Model Examination	100	8
Lab Performance	2.5	2.5
Observation	2.5	2.5
Skill Based Task	5	5
Total Marks		**25**

InternalsSetup : *Practical – 30 marks*

Name of the Examinations	Examination Conduction Marks	Marks to convert as Final Mark
CIA Test – I	50	3
CIA Test – II	50	3
Model Examination	100	9
Lab Performance	5	5
Observation	5	5
Skill Based Task	5	5
Total Marks		**30**

InternalsSetup : *Project – 50 marks*

Name of the Examinations	Examination Conduction Marks	Marks to convert as Final Mark
Review – I	15	15
Review – II	15	15
Report Submission	10	10
Model Viva-voce	10	10
Total Marks		**50**

InternalsSetup : Summer *Internship – 50 marks*

Name of the Examinations	Examination Conduction Marks	Marks to convert as Final Mark
Review – I	25	25
Review – II	25	25
Total Marks		**50**

InternalsSetup : *Project– 100 marks*

Name of the Examinations	Examination Conduction Marks	Marks to convert as Final Mark
Review – I	30	30
Review – II	30	30
Report Submission	20	20
Model Viva-voce	20	20
Total Marks		**100**

InternalsSetup : *Internship and Field Work – 50 marks*

Name of the Examinations	Examination Conduction Marks	Marks to convert as Final Mark
Work diary/IC	10	10
Report/Record	10	10
Professional Knowledge & Initiatives / Viva-voce	20	20
Attendance	10	10
Total Marks		**50**

External Examinations:
The external examinations for theory courses will be conducted for 50% marks for all UG and PG degree programs, (In case of Total mark is 75, External will be 45 marks). The external theory examinations will be conducted only after the completion of 90 working days in each semester.
Normally, the external practical examinations will be conducted before the commencement of theory examinations. Under exceptional conditions these examinations may be conducted after theory examinations are over. The external evaluation will be for 50%(In case of Total mark is 75, External will be 45 marks) of each practical course.

The **External Assessment marks forPractical Examinations** are based on the following criteria. The assessment is for 50 % marks of each practical course.

Programmes (2*20) (Algorithm 10 marks, Key and execution10 marks)	40
Record	10
Total	**50**

The **External Assessment marks forSkill BasedPractical Examinations** are based on the following criteria. The assessment is for 45 marks of each practical course.

Programmes (2*20) (Algorithm 08 marks, Key and execution12 marks)	40
Record	05
Total	**45**

The **External Assessment marks forNon Major ElectivePractical Examinations** are based on the following criteria. The assessment is for 50 marks.

Programmes (2*21)		42
(Algorithm 7 marks, Key and execution 14 marks)		
Record		8
	Total	**50**

The **External Assessment marks for Project and Summer Internship [Inclusive of Psychology & Social Work]** are based on the following criteria. The assessment is for 50 marks.

a)Evaluation		30
b)Viva		20
	Total	**50**

The **External Assessment marks for Project** are based on the following criteria. The assessment is for 100 marks.

a)Evaluation		60
b)Viva		40
	Total	**100**

The external viva voce examinations for project works also will be conducted after completion of theory examinations. The external assessment is for 100 % marks of the project work.

The **External Assessment mark for project evaluation / summer internship [50 marks]** is based on the following criteria.

a)Assessment		30
b)Viva		20
	Total	**50**

The **External Assessment mark for project evaluation / summer internship [100 marks]** is based on the following criteria.

a)Assessment		60
b)Viva		40
	Total	**100**

End Semester Examinations Question Paper Pattern - I

Syllabus	: All Five Units
Working Days	: On completion of a minimum of 90 working days.
Duration	: Three Hours
Max. Marks	: 100

Question Paper Pattern

For the **End SemesterExternalTheoryExaminations for 100 marks** the question paper pattern shall be the same **for all UG & PG programmes.**

Section – A (10 X 1 = 10 Marks)

Answer the following questions

Multiple Choice questions

1 Unit I
2 Unit I
3 Unit II
4 Unit II
5 Unit III
6 Unit III
7 Unit IV
8 Unit IV
9 Unit V
10 Unit V

Section – B (5 X 6 = 30 Marks)
Answer any 5 out of 7 of the following questions
Answers should not exceed 250 words

11. Unit – I/II/III/IV/V
12. Unit –I/II/III/IV/V
13. Unit – I/II/III/IV/V
14. Unit – I/II/III/IV/V
15. Unit – I/II/III/IV/V
16. Unit – I/II/III/IV/V
17. Unit – I/II/III/IV/V

Section – C (5 X 12 = 60 Marks)
Answer either (a) or (b) from all questions
Answers should not exceed 500 words

18.	a)	Unit – I	Or
	b)	Unit – I	
19.	a)	Unit II	Or
	b)	Unit II	
20.	a)	Unit III	Or
	b)	Unit III	
21.	a)	Unit IV	Or
	b)	Unit IV	
22.	a)	Unit V	Or
	b)	Unit V	

End Semester Examinations Question Paper Pattern - II

Syllabus. : All Five Units
Working Days : On completion of a minimum of 90 working days.
Duration : Three Hours
Max. Marks : 75

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Question Paper Pattern

For the **End SemesterExternalTheoryExaminations (for 75 marks)**, the question paper pattern shall be the same **for all UG programmes [Skill Based Courses & NME].**

Section – A (10 X 1 = 10 Marks)

Answer the following questions
Multiple Choice questions

1 Unit I
2 Unit I
3 Unit II
4 Unit II
5 Unit III
6 Unit III
7 Unit IV
8 Unit IV
9 Unit V
10 Unit V

Section – B (5 X 5 = 25 Marks)

Answer any 5 out of 7 of the following questions

Answers should not exceed 250 words

11. Unit – I/II/III/IV/V
12. Unit –I/II/III/IV/V
13. Unit – I/II/III/IV/V
14. Unit – I/II/III/IV/V
15. Unit – I/II/III/IV/V
16. Unit – I/II/III/IV/V
17. Unit – I/II/III/IV/V

Section – C (5 X 8 = 40 Marks)

Answer either (a) or (b) from all questions

Answers should not exceed 500 words

16. a) Unit I Or
    b) Unit I
17. a) Unit II Or
    b) Unit II
18. a) Unit III Or
    b) Unit III
19. a) Unit IV Or
    b) Unit IV
20. a) Unit V Or
    b) Unit V

Essential conditions for the Award of Degree / Diploma / Certificates:

1. Pass in all components of the degree, i.e., Part–I, Part–II, Part–III, Part – IV and Part–V individually is essential for the award of degree.
2. First class with Distinction and above will be awarded for part III only. Ranking will be based on marks obtained in Part – III only.
3. GPA (Grade Point Average) will be calculated every semester separately. If a candidate has arrears in a course, then GPA for that particular course will not be calculated. The CGPA will be calculated for those candidates who have no arrears at all. The ranking also will be done for those candidates without arrears only.
4. The improvement marks will not be taken for calculating the rank. In the case of courses which lead to extra credits also, they will neither be considered essential for passing the degree nor will be included for computing ranking, GPA, CGPA etc.
5. The grading will be awarded for the total marks of each course.
6. Fees shall be paid for all arrears courses compulsorily.
7. There is provision for re-totaling, Xerox copy and revaluation for UG and PG Programmes on payment of prescribed fees.

Classification of Successful Candidates [Course-wise]

RANGE OF MARKS (In percent)	GRADE POINTS	GRADE	DESCRIPTION
90 - 100	9.0 - 10.0	O	OUTSTANDING
80 - 89	8.0 - 8.9	D+	EXCELLENT
75 - 79	7.5 - 7.9	D	DISTINCTION
70 – 74	7.0 - 7.4	A+	VERY GOOD
60 – 69	6.0 - 6.9	A	GOOD
50 – 59	5.0 - 5.9	B	AVERAGE
40 – 49 #	4.0 - 4.9	C	SATISFACTORY
00 – 39	0.0	U	RE-APPEAR
ABSENT	0.0	U	ABSENT

Reappearance is necessary for those who score below 50% Marks in PG **;

those who score below 40% Marks in UG*;

only applicable for UG programs

Individual Courses

C_i= Credits earned for course **"i"** in any semester
G_i= Grade Point obtained for course **"I"** in any semester
'**n**' refers to the semester in which such courses were credited.

GRADE POINT AVERAGE [GPA] = $\frac{\Sigma Ci\ G\ i}{\Sigma Ci}$

GPA = $\frac{\text{Sum of the multiplication of grade points by the credits of the courses}}{\text{Sum of the credits of the courses in a semester}}$

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Classification of Successful Candidates (Overall):

CGPA	GRADE	CLASSIFICATION OF FINAL RESULT
9.5 to 10.0	O+	First Class - Exemplary *
9.0 and above but below 9.5	O	
8.5 and above but below 9.0	D++	First Class with Distinction *
8.0 and above but below 8.5	D+	
7.5 and above but below 8.0	D	
7.0 and above but below 7.5	A++	First Class
6.5 and above but below 7.0	A+	
6.0 and above but below 6.5	A	
5.5 and above but below 6.0	B+	Second Class
5.0 and above but below 5.5	B	
4.5 and above but below 5.0	C+ #	Third Class
4.0 and above but below 4.5	C #	
0.0 and above but below 4.0	U	Re-appear

"*" The candidates who have passed in the first appearance and within the prescribed semester of the Programme (Major, Allied, Inter Departmental and Elective Course alone) are eligible.

"#" Only applicable to U.G. Programme

$$\textbf{CUMULATIVE GRADE POINT AVERAGE [CGPA]} = \frac{\Sigma n \Sigma_i Cn_i Gn_i}{\Sigma n \Sigma_i Cn_i}$$

$$\text{CGPA} = \frac{\text{Sum of the multiplication of grade points by the credits of entire program}}{\text{Sum of the credits of the Courses of the entire Program}}$$

In order to get through the examination, each student has to earn the minimum marks prescribed in the internal (wherever applicable) and external examinations in each of the theory course, practical course and project viva.

Normally, the ratio between internal and external marks is 50.50. There is no passing minimum for internal component. The following are the minimum percentage and marks for passing of each course, at UG and PG levels for external and aggregate is as follows:

S.No	Program	Passing Minimum in Percent	
		External (50)	Aggregate (100)
1	UG Degree	40% (20)	40% (40)
2	PG Degree	50% (25)	50% (50)

However, the passing minimum marks may vary depending up on the maximum marks of each course. The passing minimum at different levels of marks is given in the following table:

S.No	UG & PG Maximum Marks			Passing minimum for UG			Passing minimum for PG		
	Int.	Ext.	Total	Int.	Ext.	Agg. 40%	Int.	Ext.	Agg. 50%
1	50	50	100	-	20	40	-	25	50
2	30	45	75	-	18	30	-	-	-
3	50	-	50	20	-	20	25	-	25
4	25	25	50	-	10	20	-	13	13
5	-	50	50	-	20	20	-	25	25
6	100	100	200	-	40	80	-	50	100
7	-	100	100	-	40	40	-	50	50

Reappearance

The students having arrears shall appear in the subsequent semester (external) examinations compulsorily. The candidates may be allowed to write the examination in the same syllabus for 3 years only. Thereafter, the candidates shall be permitted to write the examination in the revised / current syllabus depending on various administrative factors. There is no re-examination for internals.

Criteria for Ranking of Students:

1. Marks secured in core, elective and Inter Disciplinary Course (Part III) courses will be considered for PG Programs and marks secured in Core, Elective, Inter Departmental and Allied Courses (Part-III) will be considered for UG programs, for ranking of students.
2. Candidate must have passed all courses prescribed chosen / opted in the first attempt itself.
3. Improvement marks will not be considered for ranking but will be considered for classification.

External Examination Grievances Committee:

Those students who have grievances in connection with examinations may represent their grievances, in writing, to the chairman of examination grievance committee in the prescribed Performa. The Principal will be chairman of this committee.

SREE SARASWATHI THYAGARAJA COLLEGE (AUTONOMOUS)
THIPPAMPATTI, POLLACHI - 642 107

Student Grievance Form

(Forms Available at Utility Stores)

Date:
Place:

From
Register No : .....,
Name : .....,
Class : .....,
SreeSaraswathiThyagarajaCollege,
Pollachi – 642 107

To
The Principal / Examination-in-charge,
SreeSaraswathiThyagarajaCollege,
Pollachi – 642 107

Through:

1. Head of the Department,
   Department of .....,
   SreeSaraswathiThyagaraja College,
   Pollachi – 642 107
2. Dean of the Department
   Faculty of .....,
   SreeSaraswathiThyagaraja College,
   Pollachi – 642 107

Respected Sir / Madam,

Sub: ..... - reg.

NATURE OF GRIEVANCE

.....
.....
.....

Thanking you,

Yours Truly,

Signature

Forwarded by:
HOD with comments / recommendation

.....

2. Dean with comments / recommendation

.....

3. Signature and Directions of the Principal

.....

4. Controller of Examinations:

.....