Proceedings of BOS Meeting.

Date: 25/10/2018

Time: 10:30 AM.

place: PG Block computer Laboratory.

Sl. No	Name of the member	Designation	Signature.
1	Ms. Maria Akshatha	Chairperson	
2	Dr. G. Hemantha Kumar	university Nominee	
3.	Dr. Suresha.	College Nominee	
4.	Dr. Basavanna. M	College Nominee	
5.	Ms. Apoorva. M.C	members	
6.	Ms. Sowmya	member.	

Agenda

1. To approve the syllabus and scheme of Teaching for two years - four semester Msc - course from the Academic year 2018 - 2019. And to revise syllabus of 2016 - 2017.
2. To prepare and approve the panel of Examiners for PG computer Science Examination of 2018 - 2019.

ST. PHILOMENA'S COLLEGE (AUTONOMOUS), MYSURU-570 015
CHOICE BASED CREDIT SYSTEM
M.SC COMPUTER SCIENCE COURSE STRUCTURE & SYLLABUS
DURATION OF THE COURSE: TWO YEARS

Sl. No	Code No	TITLE OF THE PAPERS	Type	L	T	P	Credits	Total Credits
		FIRST SEMESTER						
1.		Operating System	HC	4	0	0	4	20+4 (OE)
2.		Software Engineering	HC	3	1	0	4	
3.		Practical- C & C++	HC	0	0	4	4	
		Any two of the following SC to be Chosen						
4.		Data Structures with C	SC	4	0	0	4	
5.		Problem Solving in C++	SC	4	0	0	4	
6.		Data Communication	SC	4	0	0	4	
		SECOND SEMESTER						
7.		Database Management System	HC	4	0	0	4	16+4 (OE)
8.		Computer Networks	HC	4	0	0	4	
9.		Practical - DBMS and Networks	HC	0	0	4	4	
		Any one of the following SC to be Chosen						
10.		System Software	SC	4	0	0	4	
11.		Data Warehousing and Data Mining	SC	3	1	0	4	
12.		Computer Application in Business (Interdisciplinary)	SC	4	0	0	4	
		THIRD SEMESTER						
13.		Wireless Networking	HC	4	0	0	4	20
14.		Web Engineering	HC	4	0	0	4	
15.		Practical –internet and Python Programming	HC	0	0	4	4	
		Any two of the following SC to be Chosen						
16.		Python Programming	SC	4	0	0	4	
17.		Mobile Computing	SC	4	0	0	4	
18.		Cloud Computing	SC	3	1	0	4	
19.		Mathematical	SC	4	0	0	4	

		Computation(Interdisciplinary)						
FOURTH SEMESTER								
27.		Major Project	HC	0	4	6	10	18
28.		Internet of Things in The Cloud	HC	4	0	0	4	
Any one of the following SC to be Chosen								
30.		PHP Programming	SC	4	0	0	4	
31.		Network Security	SC	4	0	0	4	
32.		Big Data Analytics	SC	4	0	0	4	
Total Credits (HC:50+SC:24+ OE:8)								**82**
OE FOR OTHER DEPARTMENT								
	SEM							
33.	**I**	Internet Fundamentals	OE	4	0	0	4	
34.	**II**	Multimedia Technology	OE	4	0	0	4	
35.	**III**	Web Designing	OE	4	0	0	4	
HC= HARD CORE PAPER. SC= SOFT CORE PAPER. OE = OPEN ELECTIVE								

ST.PHILOMENA'S COLLEGE (AUTONOMOUS), MYSURU
Department of Computer Science (PG)
Board of Studies Meeting 2018

Subject: COMPUTER SCIENCE (PG)
Date: 25/10/2018
Time: 10.30am
Place: Computer Science Lab

AGENDA

1. To approve the syllabus and the scheme of teaching for two years-four semesters MSc course from the academic year 2018-2019.
2. To prepare and approve the panel of examiners for PG Computer Science examinations of 2018-2019.

Discussions

The BOS members were welcomed by the department & the Chairperson.

Syllabus was discussed by the BOS members & draft syllabus was approved

- preparation and approval of course structure from academic year 2018-2019 onwards - [Is attached].
- Approval of panel of BOE members for the Academic year 2018-19.
- Question paper pattern was revised.
- discussions about the interdisciplinary papers.
- Few corrections about alloting credits were discussed - For 2016-2017 scheme.
- discussions about the marks allotment.
- ~~about~~ & the major project. was approved.

For 2016-2017 & 2018-2019 syllabus.

Question paper pattern - [SAMPLE]

Part A — 5 X 2 = 10 marks

① a)

b)

c)

d)

e)

f)

Part B

unit 1

②

Or

③

unit 2

(4) 15 marks

a) 5 marks

b) 10 marks.

or.

(5) 15 marks

unit 3.

(6) 15 marks

or.

(7) 15 marks

a) 5 marks

b) 5 marks

c) 5 marks.

unit 4

(8) 15 marks

or

(9) 15 marks

Major project marks distribution and credit allotment for 4th sem 2017 batch

Total 200 marks.

- 60 marks ⟶ Internal ($C_1 + C_2$)
- 50 marks ⟶ Report.
- 50 marks ⟶ Coding and Implementation
- 20 marks ⟶ Viva ~~voce~~
- 20 marks ⟶ presentation.

→ Total credits for project alloted was — 8 credits. (2016-2017).
In ~~for~~ students ~~welfare~~ prespective. Credits was changed to 10.

→ And In old syllabus for 4th sem 3 subjects were alloted. pannel members sujested to Retain 2 subjects with 4 credits Each from same specialization.

ISE:

Major project.	HC	0:2:8	10
PHP programing.	SC	3:1:0	4
Internet of things in cloud.	SC	3:1:0	4.

SN	Type	*Existing*	Proposed	L	T	P	
			First Semester				
1	**HC**	*Operating System*	Operating System	4	0	0	
2	**HC**	*Software Engineering*	Data structures	3	0	1	
3	**HC**	*Practical – C and C++*	Computer Organization & Architecture	3	0	1	
	OE	From other department	From other department				
			Second Semester				
4	**HC**	*Database Management System*	Database Management System	3	0	1	
5	**HC**	*Computer Networks*	Computer Networks	3	0	1	
6	**HC**	*Practical – DBMS and Networks*	Software Engineering	0	0	4	
			Third Semester				
7	**HC**	*Wireless Networking*	Internet of things	4	0	0	
8	**HC**	*Web Engineering*	-	3	0	1	
9	**HC**	*Practical – Web and Python Programming*	Minor Project	0	0	4	
	OE	-	Swayam MOOC course				
			Fourth Semester				
10	**HC**	*Major Project*	Major Project	**4**	**4**	**0**	**8**
11	**HC**	*Internet of Things in The Cloud*	-				
			OE for other Departments				
12	**OE**	*Multimedia Technology*	Information Technology and Office Automation	**3**	**1**	**0**	**4**
13	**OE**	*Web Designing*	Web Designing	**3**	**1**	**0**	**4**

HARDCORE PAPERS

SL NO.	PAPER	L	T	P	Credits
1	Data Structures	3	0	1	4
2	Computer Organization & Architecture	4	0	0	4
3	Operating System	4	0	0	4
4	Database Management System	3	0	1	4
5	Computer Networks	4	0	0	4
6	Internet of Things	4	0	0	4
7	Software Engineering	4	0	0	4
8	Minor Project	0	0	4	4
9	Major Project	0	4	4	8

SOFTCORE PAPERS

SL NO.	PAPER	L	T	P	Credits
1	Dot Net with C#	3	0	1	4
2	Programming Language Pragmatics	4	0	0	4
3	Data Communication	4	0	0	4
4	Java Programming	3	0	1	4
5	Research Techniques & Analysis	4	0	0	4
6	Computer Graphics	3	0	1	4
7	Data Warehousing & Data Mining	3	1	0	4
8	Python Programming	3	0	1	4
9	Cryptography and Network Security	4	0	0	4
10	Finite Automata	3	0	1	4
11	Cloud Computing	4	0	0	4
12	PHP Programming	3	0	1	4
13	Wireless Networking	4	0	0	4
14	Big data Analytics	4	0	0	4
15	Advanced Databases	3	0	1	4
16	Software Testing & Quality Assurance	2	1	1	4
17	Mobile Computing	4	0	0	4
18	Web Engineering	3	0	1	4
19	Machine Learning & Data Science	2	1	1	4
20	Computer Application in Business	3	0	1	4
21	Mathematical Computation	3	0	1	4

Discussions.

→ The BOS members were welcomed by the department and chairperson

→ Syllabus was discussed by the BOS members and few corrections about credit allocation were suggested as follows.

* Hard core subject – min 40 credits.
* minor project – 4 credits.
* major project – 8 credits.

→ Panel suggested to make a list of hardcore and softcore subjects separately.

→ Introduction of new subject in 1st semester was specified and computer organization and architecture was suggested as hard core subject for the year 2020-21

→ members also gave suggestion for adapting Bridge course on computer language

→ The department put forward subject Revision in the current year 2019-20. and panel approved revision of 3rd sem syllabus by alloting java progeming as Hard core with – 4 credits.

→ java praticals has been introduced instead of web Engineering practicals.

→ Approval of BOS panel members of the year 2020-21

PROCEEDINGS OF BOS MEETING.

PG Department of Computer Science.

Date :- 23/11/2020.

Time : 12.00pm

PLACE :- PG conference hall.

AGENDA:

1. To Discuss and implement the changes of. In Carparating modifications in the proposed learning Outcome. Based Curriculum
2. To Reviews and approve the Regulations / Guidelines of M.Sc programme in Computer Science.
3. To Reviews and approve the parnel of Examiners for the year 2020-21.
4. To Reviews and approve the Question paper pattern for the new Civiculum for the year 2020-21
5. Any other matter with the permission of the Chair.

List of Board of members present.

Sl.NO	Name of the member	Designation	Signature.
2	Prof. Suresha.	Chairperson.	
3	Dr. H.N. Nagendraswamy	University Nominee	23/11/2020
4	Dr. Basavanna. M	College Nominee	(Online)
5	Ms. Soumya. N.	Member.	
6	Ms. Maria Akshatha.	Member.	
7	Mr. Mahesh D.M.	Member.	
8.	Ms. Arunodaya. K. Nambiar.	Member.	
9.	Mr. Lathish Sandesh	Industry relevant	(Online)

Changes in the Curriculum

Sl. No	Existing paper to be replaced	New Paper Proposed	Credits	Justification	Percentage of change
		First Semester			
1	**C and C++ Practical**	Computer Organization and Architecture	4	This new course paper explores how machine are designed, built and operate. Knowing what's inside and how it works will help the student to design, develop and implement applications better, faster, cheaper, more efficient and easier to use.	100
2	**Problem Solving in C++**	Dot Net with C#	4	To provide the knowledge on fundamentals of new framework this new course paper is introduced. C#.net is preferred in fast development environment and it offers a great career opportunity for students	100
3	-	Programming Language Pragmatics	2	In order to provide the knowledge on different language classes and their relationship this new course paper is introduced. It helps the students to choose the most appropriate language for a given task.	100
4	-	Research Techniques and Analysis	4	To provide student necessary training to undertake research projects this new course paper is introduced.	100
		Second Semester			
5	-	JAVA Programming	4	In order to train students in back-end development projects which includes big data and Android development this new course paper is introduced.	100
6	-	Computer Graphics	4	This new course paper provides students knowledge on the fundamentals of Graphics and Animation, which helps students to design applications in 2D & 3D graphics which includes engineering, medical imaging, art and entertainment applications.	100
7	-	Cryptography and Network Security	4	Cryptography plays a crucial role in encrypting modern day applications such as whatsapp, digital signature, etc. Thus this new course provides the knowledge on data encryption and data security.	100

Discussions

The BOS members were welcomed by the department and chairperson.

Curriculum was discussed by BOS members and few corrections regarding the credit pattern of few courses were suggested.

BOS members also suggested to add tutorial classes for the following courses

I sem	Operating system	3:1:0
III sem	IOT	3:1:0
IV sem	Wireless Network	3:1:0

Question paper pattern was revised for the year 2020-21.

Panel of Examiners for the year 2020-21 was discussed and approved

Third Semester					
8	-	Matlab Programming	2	It is a high-performance language for technical computing like deep learning, image processing, data analysis etc. This new course paper is introduced to train the students for the job market requirements.	100
9	-	Web Technology	2	In order to train students in creating effective web applications using latest web technologies this new course paper is introduced.	100
10	-	Advanced DBMS	4	In order to train students in advanced topics in DBMS to meet and fit the market requirements this new course paper is introduced.	100
Fourth Semester					
11	**Network Security**	Finite Automata	4	Finite automata are used in text processing, compilers, and hardware design. CFGs are used in programming languages and artificial intelligence. Thus this new course paper helps students to learn about basic compiler construction.	100
12	-	Software Testing	2	Testing is required for an effective performance of software application or product. Thus this new course paper helps students to learn different methods of identifying errors in software and removing it.	100
OVERALL PERCENTAGE OF CHANGE IN SYLLABUS = 40%					

Proceedings of BOS Meeting.

PG Department of Computer Science.

Subject : Computer Science
Date : 23/12/2023
Time : 11:30 AM.
Place : PG Conference hall

AGENDA:

To retain and Continue the existing curriculum for the academic year 2023 - 2024.

List of Board of members present.

Sl.NO	Name	Designation	Signature
1	Dr. Suresha S	University Nominee Chairperson.	
2	Ms. Namratha K.H	HOD of Dpt.	Namratha
3	Dr. Siddesha. S	College Nominee	23/12/23
4	Ms. Shobha. D	College Nominee	Shobha. D 23/12
5	Mr. Hanock. A	Member.	Hanock 23/12/23
6	Mr. Lokesh G.	Member CRelevant Industry.	ABSENT

Vidya
Date
Page

We discussed and approved the Syllabus of 2023 - 2024. We retained the Same Syllabus without any modification.

HoD
PG Dept. of Computer Science
St. Philomena's College
MYSORE-570 015

23/12/23

PG COMPUTER SCIENCE

ST. PHILOMENA'S COLLEGE (AUTONOMOUS), MYSORE

~~PROCEEDINGS~~

BOS MEETING : 08-10-2024

: 11.30 AM

With reference to the above, the BOS meeting was convened at 11.30AM on 08th October 2024 in the PG Department of Computer Science, St. Philomena's College (Autonomous) Mysore, to discuss the following agenda.

1) Review of the structure of existing programme, course syllabi & approved of the same for next academic year.

2) Approve the list of new subjects to be introduced which are on par with the latest trends & technologies

3) Any other approvals

The following members participated in the meeting:

1) Dr. Suresha
University Nominee
University of Mysore

Chairperson
BOS

2) Ms. Shobha. D
Asst. Professor
Pooja Bhagavat Mahajanay College
PG center, Mysore

Shobha. D.
College Nominee

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3) Dr. Siddesha .S
College Nominee

College Nominee

4) Mr. Shiva Kumar. C
Asst. Professor
PG Dept of computer Science
St. Philomenas College
Mysore

member

5) Mr. Hanock Jacob. A
Asst. Professor
PG Dept. of computer Science
St. Philomenas College
Mysore

member

CHANGES IN THE CURRICULUM

SEMESTER	NEW SUBJECT	CREDITS	JUSTIFICATION * CHANGE to do
2	Digital Image Processing	4	Students preferred Image Processing projects work
3	Artificial Intelligence & Machine Learning	4	Students preferred to use ML algorithms in project work
3	Data Analytics	4	As Requested by PG Dept. of Commerce
4	Information Technology & Office Automation	4	Combined two 2-credits courses ITOA-1 & ITOA-2
3	Web Designing	4	Combined two 2-credits courses W.D-1 & W.D-2

ST.PHILOMENA'S COLLEGE (AUTONOMOUS), MYSURU

(AFFILIATED TO UNIVERSITY OF MYSORE & REACCREDITED BY NAAC WITH B^{++} GRADE)

PROGRAMME: M.Sc in COMPUTER SCIENCE

CBCS with Learning Outcome Based Curriculum
Academic years: 2024-25

Shobha D.

HoD
PG Dept. of Computer Science
St. Philomena's College
MYSORE-570 015

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ST. PHILOMENA'S COLLEGE (AUTONOMOUS) MYSORE
(AFFILIATED TO UNIVERSITY OF MYSORE)
REACCREDITED BY NAAC
PROGRAMME: M.Sc COMPUTER SCIENCE
(For Candidates admitted during the Academic year 2024 onwards)

PREAMBLE

The M.Sc Computer Science Programme was started in the year 2014. The curriculum was revised regularly in the year 2016, 2018, 2019 and 2024. The present revision is the fourth one based on UGC guidelines 2018. It is designed to focus on outcome-based learning. It specifies Programme educational objectives (PEO's), Programme outcomes (PO's), Programme specific outcomes (PSO's), Course objectives (CO's) and Course learning outcomes (CLO's). The Programme specific outcomes are matched with Course learning outcomes and Cognitive domain levels. The innovation in teaching learning process with technology tools, active feedback of the course outcome from the stakeholders, continuous assessment evaluation rubrics, validity and reliability of evaluation makes the curriculum learners' centric.

The curriculum is designed with compulsory Hardcore courses and Skill enhancing, Interdisciplinary, Ability enhancing, Generic and Self-study as Soft-core electives. The students will acquire knowledge and skill to build learner competencies and become self-learners.

The students will have flexibility, academic mobility and maximum utilization of human and material resources.

The following modifications are incorporated in the revised syllabus from the academic year 2020-21 onwards

NEW COURSES INTRODUCED					
Sl.No	**Sem**	**Type**	**Classification**	**Title**	**Credits**
1	2	DSE	General Elective	Digital Image Processing	4
2	3	DSE	Ability Enhancement	Artificial Intelligence & Machine Learning	4

NEW SOFT-CORE INTERDISCIPLINARY COURSE OFFERED TO M.COM DEPT.

Sl.No	Semester	Title of the Paper	Type	Credits
1	~~First~~ Third	Data Analytics	SC-IC	4

MERGED TWO 2-CREDITS OPEN ELECTIVE COURSES TO A 4-CREDITS COURSE

Sl.No	Semester	Merged Courses	Title of the Paper	Type	Credits
1	Second	Information Technology and Office Automation – 1	Information Technology and Office Automation	SC-OE	4
		Information Technology and Office Automation – 2			
2	Third	Web Designing – 1	Web Designing	SC-OE	4
		Web Designing – 1			

COURSE CONTENT

Modules	Proposed Course Content	Duration
1.0	**DATA WAREHOUSING:** Overview, Definition, Data Warehousing Components, Building a Data Warehouse, Warehouse Database, Mapping the Data Warehouse to a Multiprocessor Architecture ***Keyword: Understanding data warehousing***	**08Hrs**
2.0	**ARCHITECTURE:** Difference between Database System and Data Warehouse, Multi Dimensional Data Model, Data Cubes, Stars, Snow Flakes, Fact Constellations, Concept hierarchy, Process Architecture, 3 Tier Architecture ***Keyword: Data warehousing Architecture***	**08Hrs**
3.0	**DATA WAREHOUSE PROCESS AND TECHNOLOGY:** Warehousing Strategy, Warehouse/management and Support Processes, Warehouse Planning and Implementation, Hardware and Operating Systems for Data Warehousing, Client/Server Computing Model & Data Warehousing. ***Keywords: Analyzing data warehouse process***	**08Hrs**
4.0	**PARALLEL PROCESSORS & CLUSTER SYSTEMS:** Distributed DBMS implementations, Warehousing Software, Warehouse Schema Design, Data Extraction, Cleanup& Transformation Tools, Warehouse Metadata ***Keyword: Analysing data warehousing methodologies***	**08Hrs**

Note: Course content involves Theory: 90% Problem: 10%

REFERENCES

Sl. No	Title of the book	Authors	Edition	Year of Publication
1	Data Warehousing, Data-Mining & OLAP"	Alex Berson, Stephen J. Smith	1st	2008
2	Data Warehousing: Architecture and Implementation	Mark Humphries, Michael W. Hawkins, Michelle C.	-	2006
3.	Data Mining: Introductory and Advanced Topics	Margaret H. Dunham, S Sridhar	3rd	2001

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Course Title	DATA ANALYTICS								
Course Type			Theory	48	64	Hours/Week	04	Credits	03+01
			Practical	16					
Course		Evaluation	Internal		C1+C2 = 15+15		30 Marks		100

Code			External	Duration	C3	03Hrs	70 Marks	

COURSE OBJECTIVES (COs)	
CO No.	**Course Objectives** On completion of the course the student will be able to
CO-1	**Understand the basic concepts and significance of Data Analytics**
CO-2	**Build databases using Excel sheets**
CO-3	**Apply the knowledge ofdata analytics on SQL tables**
CO-4	**Understand the basic operations used in Python for Data Analytics**

Mapping of CLOs with PSOs &CDLs			
CLOs No.	**Course Learning Outcomes (CLOs)** **On completion of the course the student will learn to**	**PSOs Addressed**	**CLDs**
CLO-1	Gain basic knowledge on Data Analytics, its types & its visualisation.	**PSO – 2,4**	**Understand**
CLO-2	Become familiar with Excel sheets & charts to analyse the database	**PSO -6, 9**	**Analyse**
CLO-3	Familiarize with the basics of SQL queries for efficient data analysis	**PSO – 2,3,6**	**Understand Analyse**
CLO-4	Familiarize with the basics of Python & its operators	**PSO – 3,4,7**	**Analyse Apply**

COURSE CONTENT

Modules	Proposed Course Content	Duration
1.0	Introduction to Data Analytics Data Analytics Overview, Importance of Data Analytics, Types of Data Analytics, Descriptive Analytics, Diagnostic Analytics, Predictive Analytics, Prescriptive Analytics, Benefits of Data Analytics, Data Visualization for Decision Making, Data Types, Graphical Techniques.	**12Hrs**
2.0	Excel: Basics to Advanced Tables, Conditions, Sorting, Filtering, Formulas. Data Exploration, Excel for Charts, Types of charts, Histogram,	**12Hrs**
3.0	SQL Basic SQL Query, SELECT operator, INSERT, DELETE, UPDATE statements, JOIN operator, Types of JOIN operators, AGGREGATE values, SET operators, Sub Queries.	**12Hrs**
4.0	Python Basics The print statement, Comments, Python Data Structures & Data Types, String Operations in Python, Simple Input & Output, Simple Output Formatting, Deep copy, Shallow copy, Operators in python.	**12Hrs**

2.0 DES

Symmetric ciphers-Block cipher principles; DES-Algorithm, strengths and weaknesses of DES, attacks on DES and defense, — **10Hrs**

Key words –understanding and implementing DES algorithm

2.1 multiple encryptions; Asymmetric ciphers-Essential mathematics, public key cryptography — **06Hrs**

Key words-understanding multiple encryptions and

3.0 RSA AND DIGITAL SIGNATURE — **16Hrs**

RSA, Diffie Hellman key exchange, random number generation, Data integrity and authentication Hash functions; MAC; Digital signatures;.

Key words-understanding RSA and digital signature

4.0 NETWORK SECURITY — **16Hrs**

Key management; Authentication, Web and system security, Web security; IP security; E mail security; System security-intruders, malicious software, firewalls

Key words-understanding network security

Note: Course content involves Theory:70%, Problems: 30%

REFERENCES

Sl. No	Title of the book	Authors	Edition	Year of publication
1	Cryptography and Network Security - Principles and Practice,	William Stallings, PEARSON	4th	2006
2	Cryptography and Network Security,	AtulKahate, Tata McGraw Hill	4th	2019

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FIRST YEAR - SEMESTER – II

Course Title	**DIGITAL IMAGE PROCESSING**								
Course Type	DSE		Theory	64	64	Hours/Week	04	Credits	04
			Practical						
Course Code		Evaluation	Internal		C1+C2 = 15+15			30 Marks	100
			External		Duration	C3	03Hrs	70 Marks	

COURSE OBJECTIVES (COs)

CO No.	**Course Objectives** On completion of the course the student will be able to
CO-1	**Understand the fundamentals of digital image processing**

CO-2	Learn the Image enhancement using spatial & frequency domains
CO-3	Understand the colour image & image compression models.
CO-4	Understanding Image segmentation, feature extraction & pattern classification.

Mapping of CLOs with PSOs &CDLs			
CLOs No.	**Course Learning Outcomes (CLOs) On completion of the course the student will learn to**	**PSOs Addressed**	**CLDs**
CLO-1	Understand the process, the needs & requirements of digital image processing	**PSO – 2,3**	**Understand**
CLO-2	Understand Image enhancement & filtering in time & frequency domains.	**PSO – 3,6**	**Understand**
CLO-3	Understand the technology behind colour images & image compression.	**PSO – 6,7**	**Analyse**
CLO-4	Understand the significance of feature extraction & image segmentation in the area of pattern classification.	**PSO – 4,10**	**Apply**

COURSE CONTENT

Modules	Proposed Course Content	Duration
1.0	**Introduction:** Introduction to Digital Image Processing, Examples ofFields that use Digital Image Processing, Fundamental steps in Digital Image Processing,Components of Image Processing System. **Digital Image Fundamentals**: Simple Image formation model, Image Sampling andQuantization, Some Basic Relationships Between Pixels.	**16Hrs**
2.0	**Intensity Transformation & Spatial Filtering:** Basics ofIntensity Transformation& Spatial filtering, Basic Transformation functions, Histogram Processing, Smoothing& Sharpening in Spatial domain. **Filtering in Frequency Domain**: Image Smoothing & Image Sharpening in frequency domain.	**16Hrs**
3.0	**Colour Image Processing**: Colour Fundamentals, Colour Models, Pseudo colour image processing. **Image Compression**: Types of Redundancies, Image Compression models, Image Formats, Containers & Compression standards.	**16Hrs**
4.0	**Image Segmentation**: Point, line & edge detection, Thresholding, Region based segmentation. **Feature Extraction**: Boundary preprocessing, Feature descriptors. **Image Pattern Classification:** Pattern classes, Pattern classification by Prototype matching.	**16Hrs**

REFERENCES

Sl. No	Title of the book	Authors	Publisher	Edition	Year of publication
1	Digital Image Processing	Rafel C. Gonzalez and Richard E. Woods	PearsonEducation	4th	2018

1	An Advanced Course in Database Systems2008.	Dietrich, Urban	Pearson	-	2008
2	Fundamentals of Database Systems	Elmarsi, Navathe, Somayajuu, Gupta,	Pearson Education	4th	2007
3	Database Systems, The complete book	Garcia, Ullman, Widom,	Pearson Education	-	2007.

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SECOND YEAR - SEMESTER – III

Course Title	ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING								
Course Type	DSE		Theory	64	64	Hours/Week	04	Credits	04
			Practical						
Course Code		Evaluation	Internal		C1+C2 = 15+15			30 Marks	100
			External		Duration	C3	03Hrs	70 Marks	

COURSE OBJECTIVES (COs)

CO No.	Course Objectives On completion of the course the student will be able to
CO-1	**Apply the knowledge of searching and reasoning techniques for different AI applications**
CO-2	**Have a good understanding of machine leaning and addressing the challenges of machine learning using linear regression methods**
CO-3	**Apply the knowledge of classification & clustering algorithms on various dataset and compare results**
CO-4	**Understand advanced algorithms & identifying the suitable algorithm for different problems**

Mapping of CLOs with PSOs &CDLs

CLOs No.	Course Learning Outcomes (CLOs) On completion of the course the student will learn to	PSOs Addressed	CLDs
CLO-1	Gain a historical perspective of AI and its foundations	**PSO – 2,4**	**Understand**
CLO-2	Become familiar with basic principles of AI toward problem solving	**PSO -6, 9**	**Analyse**
CLO-3	Familiarize with the basics of Machine Learning & Machine Learning methods	**PSO – 2,3,6**	**Understand Analyse**
CLO-4	Identify the Machine Learning method to be used in order to solve specific problems.	**PSO – 3,4,7**	**Analyse Apply**

COURSE CONTENT

Modules	Proposed Course Content	Duration
1.0	Introduction: What is AI? Foundations and History of AI Problem-solving: Problem-solving agents, Example problems, Searching for	**16Hrs**

Solutions, Uninformed & Informed Search Strategies

2.0 Introduction to Machine Learning:Introduction to Analytics & Machine learning, Framework for developing ML models. Linear Regression: Simple Linear Regression, Steps & process of building Simple Linear Regression model, Model diagnostics. **16Hrs**

3.0 Classification Problems: Binary Logistic Regression, Classification Tree. Clustering: How does clustering work, K-Means clustering, Hierarchical clustering **16Hrs**

4.0 Advanced Machine Learning: Advanced Regression models, Logistic Regression model, KNN Algorithm, Random Forest. **16Hrs**

REFERENCES

Sl. No	Title of the book	Authors	Edition	Year of publication
1	Artificial Intelligence	Stuart J. Russell and Peter Norvig, Pearson	3rd	2015
2	Machine Learning using Python	Manaranjan Pradhan, U Dinesh Kumar, Wiley India Pvt. Ltd	1st	2019
3	Artificial Intelligence	Elaine Rich, Kevin Knight, Tata McGraw Hill	3rd	2013
4	Machine Learning	Tom Mitchell, McGrawHill Publication	1st	1997

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SECOND YEAR - SEMESTER –III

Course Title	MATLAB PROGRAMMING							
Course Type	DSE		Total Hours	32	Hours/Week	02	Credits	02
Course Code		Evaluation	Internal	C1+C2 = 15+15			30 Marks	100
			External	Duration	C3	03Hrs	70 Marks	

COURSE OBJECTIVES (COs)

CO No.	Course Objectives On completion of the course the student will be able
CO-1	To understand fundamental concepts in graph theory, lattices, matrices and Boolean algebra;
CO-2	To introduce MATLAB programming with few examples.

Mapping of CLOs with PSOs &CDLs

CLOs No.	Course Learning Outcomes(CLOs) On completion of the course the student will learn to	PSOs Addressed	CLDs

FIRST YEAR – SEMESTER - II

Course Title	INFORMATION TECHNOLOGY AND OFFICE AUTOMATION – 1							
Course Type	DSE- GE		Total Hours	64	Hours/Week	04	Credits	04
Course Code		Evaluation	Internal	C1+C2 = 15+15			30 Marks	100
			External	Duration	C3	03Hrs	70 Marks	

COURSE OBJECTIVES (COs)

CO No.	Course Objectives On completion of the course the student will be able
CO-1	To understand the basic functionality of Computer.
CO-2	To understand the concept of Operating System
CO-3	To understand basic concept of data communication
CO-4	To craft professional word documents, excel spread sheets, power point presentations using the Microsoft suit of office tools.

Mapping of CLOs with PSOs &CDLs

CLOs No.	Course Learning Outcomes(CLOs) On completion of the course the student will learn to	PSOs Addressed	CLDs
CLO- 1	Understand basic components, its functionality and working of computer	**PSO-1**	**Understand**
CLO-2	Understand concept of OS and application	**PSO-4**	**Understand**
CLO-3	Understand concept of Data Communication	**PSO-8**	**Understand**
CLO-4	Working in Excel spread sheets	**PSO-4,5**	**Create**

COURSE CONTENT

Modules	Proposed Course Content	Duration
1.0	**INTRODUCTION TO COMPUTER:** Types of Computers, Block Diagram of elements of digital computer-their functions, CPU. ***Keywords:*** Understanding different components of computer	**08Hrs**

SECONDARY MEMORY DEVICES: Secondary storages, Magnetic Tape, Disk, CD-ROM. Other recent developments -Scanners, Digitizer, Plotters. **08Hrs**

Different I/O devices.

Keywords:Understanding secondary storage devices

2.0 **OPERATING SYSTEM:** **08Hrs**

Different Operating System, MS – DOS, Windows, UNIX, LINUX.

Keywords: Understanding concepts of Operating systems.

COMPUTER SOFTWAR: Different application software (MS Paint, Notepad) **08Hrs**

Keywords: Understanding basic application software.

3.0 **BASIC CONCEPT OF NETWORKING AND DATA COMMUNICATIONS:** **08Hrs**

Introduction to LAN, WAN, MAN and PAN, Introduction to data communication concepts.

Keywords: Understanding concept of data communication

INTERNET AND VIRUS: Introduction to internet, Concept of E-mail, Computer virus and its types, How to protect your computer from virus? **08 Hrs**

Keywords: Understanding Internet and Computer virus concept.

OFFICE APPLICATIONS: Introduction to MS OFFICE, Working with **08 Hrs**

4.0 MS-Word.

Keywords: Understanding MS office package tool.

OFFICE APPLICATION: MS – Excel, MS – Power point presentation. **08Hrs**

Keywords: Understanding MS Excel and power point applications.

Note: Course Content contains Theory: 70%, Practical: 30%

REFERENCES

Sl. No	Title of the book	Authors	Edition	Year of publication
1	Computers Today	Sanders	3rd	1990
2	Computers:	Trainor &Krasnewich	-	1989
3	Fundamentals of Computers	Rajaraman &NeeharikaAdabala	6th	2015

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SECOND YEAR – SEMESTER - III

Course Title	WEB DESIGNING

Course Type	DSE – GE		Total Hours	64	Hours/Week	04	Credits	04
Course Code		Evaluation	Internal	C1+C2 = 15+15			30 Marks	100
			External	Duration	C3	03Hrs	70 Marks	

COURSE OBJECTIVES (COs)

CO No.	Course Objectives On completion of the course the student will be able
CO-1	To have knowledge and skills to build creative, interactive and well-designed websites.
CO-2	To have knowledge and skills to build Tables & HTML Forms.
CO-3	To attempt to balance technical skills with artistic skills to create web pages that are visually pleasing using CSS.
CO-4	To attempt to balance technical skills with artistic skills to create web pages that are dynamic using JavaScript.

Mapping of CLOs with PSOs &CDLs

CLOs No.	Course Learning Outcomes(CLOs) On completion of the course the student will learn to	PSOs Addressed	CLDs
CLO- 1	Employ fundamental computer theory to basic programming techniques	**PSO-1**	**Understand**
CLO-2	Create and manipulate web media objects	**PSO-3**	**Create**
CLO-3	Select and apply markup languages	**PSO-6**	**Evaluate**
CLO-4	Embedding CSS with HTML	**PSO-7**	**Create**
CLO-5	Validation with JavaScript	**PSO-8**	**Create**

COURSE CONTENT

Modules	Proposed Course Content	Duration
1.0	**WEB PROGRAMMING INTRODUCTION:** Architecture of a website, Different technologies in making the website, Web Development Introduction. ***Keywords:*** Understanding web designing	**03Hrs**
.1.1	**HTML:** HTML fundamental tags: HTML document structure, Using paragraph tags, Aligning paragraphs, block-level and inline tags, Controlling line breaks and spaces, Formatting text with phrase element tags, Formatting text with font markup elements ***Keywords:*** Understanding different concepts in HTML	**05Hrs**
1.2	**FUNCTIONS:** Adding document structure with headings, Formatting quotations and quote marks, Preserving pre-formatted text, Selecting a typeface, Selecting a type size, using ordered and n-ordered lists, Using inline images, Flowing text around an image, Breaking lines around an image ***Keywords:*** Working with different functions available in HTML	**08Hrs**

lecture.

2.0 **WORKING WITH HYPERLINKS and TABLES:** Using relative URLs, Specifying a base URL , Linking within a page using fragments, Creating image links, table tags, Aligning images with tables, frame tags, Hiding frame borders .inserting Graphics. **08Hrs**

Keywords: Understanding and working with URLs and Tables

2.1 **HTML FORMS:** Introduction to HTML Forms, working with different HTML form attributes. **08Hrs**

Keywords: Creating a web form.

3.0 **INTRODUCTION TO CSS:** Benefits of CSS, CSS Versions History, CSS Syntax, Different style sheets. **08Hrs**

Keywords: Understanding CSS

3.1 **CSS with HTML:** Styling web pages using inline, embedded and external CSS **08Hrs**

Keywords: Creating web pages using CSS.

4.0 **INTRODUCTION TO JAVA SCRIPT:** Java Script, Client-side Java script, Advantage of Java script, limitation of java scripts, Java scripts development tool, Java script – syntax, Enabling, Variables and Operators. **08Hrs**

Keywords: Understanding JavaScript.

4.1 **VALIDATION:** Java script – Decision making, Looping, using JS for validating and computing using functions, exception handling. **08Hrs**

Keywords: Validating web forms using javascript.

Note: Course Content contains Theory: 80%, Practical: 20%

REFERENCES

Sl. No	Title of the book	Authors	Edition	Year of Publication
1	HTML programmers reference	Thomas a Powell / Dan Whitworth	2nd	2001
2	HTML Introduction to web page design & Development	David mercer	-	2001
3	Magic with HTML, DHTML & JavaScript	Dr.Ravinder Singh AmitGupta	1st	2009
4	HTML, XHTML, CSS and XML by Example A Practical Guide	TeodoruGugoiu	-	2007
5	Internet and its Applications with HTML & VB-Script	Prof. ShashiBanzal	1st	2009

3	a	Module 1	15 Marks
	b	Module 1	
	c	Module 1	
4	a	Module 2	15 Marks
	b	Module 2	
	c	Module 2	
		OR	
5	a	Module 2	15 Marks
	b	Module 2	
	c	Module 2	
6	a	Module 3	15 Marks
	b	Module 3	
	c	Module 3	
		OR	
7	a	Module 3	15 Marks
	b	Module 3	
	c	Module 3	
8	a	Module 4	15 Marks
	b	Module 4	
	c	Module 4	
		OR	
9	a	Module 4	15 Marks
	b	Module 4	
	c	Module 4	

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