



Estd.2001

# Sri Indu

College of Engineering & Technology

UGC Autonomous Institution

Recognized under 2(f) & 12(B) of UGC Act 1956,

NAAC, Approved by AICTE &

Permanently Affiliated to JNTUH



## NAAC

NATIONAL ASSESSMENT AND  
ACCREDITATION COUNCIL



# HANDOUT

## Third Year CSE- Semester I

DEPARTMENT OF COMPUTER SCIENCE &  
ENGINEERING

ACADEMIC YEAR 2022-23

DEPARTMENT OF COMPUTER SCIENCE AND  
ENGINEERING

## HANDOUT- INDEX

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**SRI INDU COLLEGE OF ENGINEERING &  
TECHNOLOGY**  
**B. TECH –COMPUTER SCIENCE AND ENGINEERING**

**INSTITUTION VISION**

To be a premier Institution in Engineering & Technology and Management with competency, values and social consciousness.

**INSTITUTION MISSION**

- IM<sub>1</sub>** Provide high quality academic programs, training activities and research facilities.
- IM<sub>2</sub>** Promote Continuous Industry - Institute interaction for employability, Entrepreneurship, leadership and research aptitude among stakeholders.
- IM<sub>3</sub>** Contribute to the economical and technological development of the region, state and nation.

**DEPARTMENT VISION**

To be a technologically adaptive centre for computing by grooming the students as top notch professionals.

**DEPARTMENT MISSION**

The Department has following Missions:

- DM<sub>1</sub>** To offer quality education in computing.
- DM<sub>2</sub>** To provide an environment that enables overall development of all the stakeholders.
- DM<sub>3</sub>** To impart training on emerging technologies like Data Analytics, Artificial Intelligence and Internet of things
- DM<sub>4</sub>** To encourage participation of stakeholders in research and development.

**PROGRAM EDUCATIONAL OBJECTIVES (PEOs)**

- PEO 1: Higher Degrees & Professional Employment:** Graduates with ability to pursue career in core industries or higher studies in reputed institution.
- PEO 2: Domain Knowledge:** Graduates with ability to apply professional knowledge/skills to design and develop product or process.
- PEO 3: Engineering Career:** Graduates with excellence in Electronics and Communication Engineering along with effective inter-personnel skills.
- PEO 4: Lifelong Learning:** Graduates equipped with skills in recent technologies and be receptive to attain professional competence through life-long learning.

## PROGRAM OUTCOMES (POs) & PROGRAM SPECIFIC OUTCOMES (PSOs)

PO	Description
PO 1	<b>Engineering Knowledge:</b> Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
PO 2	<b>Problem Analysis:</b> Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
PO 3	<b>Design / development of Solutions:</b> Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
PO 4	<b>Conduct investigations of complex problems:</b> Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
PO 5	<b>Modern tool usage:</b> Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.
PO 6	<b>The engineer and Society:</b> Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.
PO 7	<b>Environment and sustainability:</b> Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
PO 8	<b>Ethics:</b> Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice
PO 9	<b>Individual and team work:</b> Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
PO 10	<b>Communication:</b> Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
PO 11	<b>Project management and finance:</b> Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
PO 12	<b>Life-long learning:</b> Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological Change
Program Specific Outcomes	
PSO 1	<b>Basic Electronic and communications knowledge:</b> Apply basic knowledge related to electronic circuits, VLSI, communication systems, signal processing and embedded systems to solve engineering/societal problems.
PSO 2	<b>Design Methods:</b> Design, verify and authenticate electronic functional elements for different applications, with skills to interpret and communicate results.
PSO 3	<b>Experimentation &amp; Communications:</b> Engineering and management concepts are used to analyze specifications and prototype electronic experiments/projects either independently or in teams.



**Lr.No.SICET/AUTO/DAE/III B.Tech Academic Calendar/307/2022**

**Dt: 03.08.2022**

**Dr.G. SURESH,**  
Principal,

*Rak*

To,  
All the HODs.

**III B.TECH I SEM & II SEM ACADEMIC CALENDAR**  
**ACADEMIC YEAR : 2022-23**

Sir,

Sub: SICET (Autonomous) - Academic & Evaluation - Academic Calendar for  
**B.Tech – 3<sup>rd</sup> Year** - For the academic year **2022-23** – Reg.

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The approved Academic Calendar for **B.Tech – 3<sup>rd</sup> Year (I & II Sem)**  
for the academic year **2022-23** is given below:

**Academic Calendar for B.Tech – 3<sup>rd</sup> Year Students**  
**(2020 - 21 Batch), BR-20 Regulation.**

**I - Semester**

Commencement of I Semester class work	25.08.2022 (Thursday)	
I Spell of Instructions. (Including CRT and Dussehra Holidays).	25.08.2022	02.11.2022 - 10 Weeks
Dussehra Holidays.	03.10.2022	08.10.2022 - 1 Week
I Mid Examinations for III B.Tech I Sem Students.	03.11.2022	05.11.2022 - 3 Days
II Spell of Instructions.	07.11.2022	31.12.2022 - 8 Weeks
II Mid Examinations for III B.Tech I Sem Students.	02.01.2023	04.01.2023 - 3 Days
Preparation Holidays, Practical Lab Examinations and Remedial Mid Test (RMT).	05.01.2023	18.01.2023 - 2 Weeks
Sankranti Holidays	13.01.2023	16.01.2023 - 4 Days
III B.Tech I Semester End Examinations (Main) and Supplementary Examinations.	19.01.2023	01.02.2023 - 2 Weeks
<b>Commencement of class work of III B.Tech II Semester - 02.02.2023 (Thursday)</b>		

**II - Semester**

Commencement of II Semester class work	02.02.2023 (Thursday)	
I Spell of Instructions.	02.02.2023	29.03.2023 - 8 Weeks
I Mid Examinations for III B.Tech II Sem Students.	31.03.2023	03.04.2023 - 3 Days
II Spell of Instructions (Including Summer Vacation).	04.04.2023	12.06.2023 - 10 Weeks
Summer Vacation.	15.05.2023	27.05.2023 - 2 Weeks
II Mid Examinations for III B.Tech II Sem Students.	13.06.2023	15.06.2023 - 3 Days
Preparation Holidays, Practical Lab Examinations and Remedial Mid Test (RMT).	16.06.2023	25.06.2023 - 10 Days
III B.Tech II Semester End Examinations (Main) and Supplementary Examinations.	26.06.2023	08.07.2023 - 2 Weeks
<b>Commencement of class work of IV B.Tech I Semester - 10.07.2023 (Monday)</b>		

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*[Signature]*  
DIRECTOR

*[Signature]*  
PRINCIPAL

Copy to DAE,  
Copy to all the Heads of the Depts.  
**CONTROLLED OF EXAMINATIONS**  
Sri Indu College of Engineering & Technology  
(An Autonomous Institution under JNTUH)  
Sheriguda (V), Ibrahimpatnam, R.R. Dist-501510.

**DIRECTOR (Academic Audit)**  
Sri Indu College of Engineering & Technology  
Sheriguda, IBP, R.R. Dist-501510.

**PRINCIPAL**  
Sri Indu College of Engineering & Technology  
(An Autonomous Institution under JNTUH)  
Sheriguda (V), Ibrahimpatnam, R.R. Dist-501510.

*62* *[Signature]* *[Signature]*

**SRI INDU COLLEGE OF ENGINEERING AND TECHNOLOGY (AUTONOMOUS)**  
**DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING**  
**DEPARTMENT CALENDAR – 2022-2023 (SEMESTER-1)**

DA YS										JANUARY'23		FEBRUARY'23				
SUNDAY		AUGUST'22								1						
MONDAY	1									NOVEMBER'22	2	LABEXAM(IIIYR)				
TUESDAY	2								1		DECEMBER'22	3	LABEXAM(IIIYR)			
WEDNESDAY	3		SEPTEMBER'22						2		1	CLASS COMMITTEEM EETING- IIIYEAR	4	LABEXAM(IIIYR)	1	LAB EXTERNALEXAMS (IIYR)
THURSDAY	4			1					3	MID-I MARKSSUBMISSIO N(IIIYEAR)	2	CLASS COMMITTEEM EETING- IIYEAR	5	LABEXAM(IIIYR)	2	RMT(IIYR)
FRIDAY	5			2					4				6	LABEXAM(IIIYR)	3	RMT(IIYR)
SATURDAY	6			3			1		5	WEBINARON ENTERPRENEURS HIP	4	CODING COMPETITION	7	LABEXAM(IIIYR)	4	RMT(IIYR)
SUNDAY	7	HOLIDAY		4	HOLIDAY	2	HOLIDAY	6	HOLIDAY		5	HOLIDAY	8	HOLIDAY	5	HOLIDAY
MONDAY	8		TEACHERS DAYCELEBR ATIONS	5		3	DUSSEH RAHOLI DAY	7			6		9	RMT(IIIYR)	6	END EXAM(IIYR)
TUESDAY	9	MOHARAM		6		4	DUSSEH RAHOLI DAY	8	GURUNAKJAYAN THI	7			10	RMT(IIIYR)	7	END EXAM(IIYR)
WEDNESDAY	10			7	SUBMISSION OFHANDOUTS( IIIYR)	5	DUSSEH RAHOLI DAY	9		8			11	RMT(IIIYR)	8	END EXAM(IIYR)
THURSDAY	11			8		6	DUSSEHRA HOLIDAY	10		9			12		9	END EXAM(IIYR)
FRIDAY	12			9		7	PAC-I	11		10	SYLLABUS COMPELETI ONSTATUS- IV	13	SYLLABUS COMPELETI ONSTATUS( IIYR)	10	END EXAM(IIYR)	
SATURDAY	13			10	WEEKLYATTEND ACEUPDATE(IIY EAR)	8	GUEST LECTUREONC PROGRAMMI NG( IIYEAR)	12	INTER COLLEGEI DEATHON	11		14	WOKSHOPON PYTHONPRO GRAMMING (IIYEAR )	11	END EXAM(IIYR)	
SUNDAY	14	HOLIDAY		11	HOLIDAY	9	HOLIDAY	13	HOLIDAY	12	HOLIDAY	15	HOLIDAY	12	HOLIDAY	
MONDAY	15	INDEPENDENCED AY		12	DEPARTMENTMEET ING	10		14	CLASS COMMITTEEME EETING- II(IIIYEAR)	13			16	ENDEXAM (IIIYR)	13	END EXAM(IIYR)
TUESDAY	16			13		11		15	SYLLABUS COMPELETIONS TATUS(IIYR)	14			17	ENDEXAM (IIIYR)	14	END EXAM(IIYR)
WEDNESDAY	17			14		12		16		15			18	ENDEXAM (IIIYR)	15	END EXAM(IIYR)
THURSDAY	18			15		13		17		16			19	ENDEXAM (IIIYR)	16	END EXAM(IIYR)
FRIDAY	19			16	SYLLABU S COMPELE TION STATUS(IIIYR)	14		18		17			20	ENDEXAM (IIIYR)	17	END EXAM(IIYR)
SATURDAY	20	SRIKRISHNAASTA MI		17	ENGINEERS'DAY CELEBRATION	15	INTRACOLLE GE IDEATHON	19	DEPARTMENTLE VEL IDEATHON	18	ASSIGNMENTII SUBMISSION(III YR)	21	ENDEXAM (IIIYR)	18		
SUNDAY	21	HOLIDAY		18	HOLIDAY	16	HOLIDAY	20	HOLIDAY	19	HOLIDAY	22	HOLIDAY	19	HOLIDAY	
MONDAY	22			19	CLASS COMMITTEEME EETING-I(IIIYEAR)	17	CLASS COMMITTEEME EETING-I(IIYEAR)	21		20			23	END EXAM (III YR)&IIMID(IIY R)	20	
TUESDAY	23			20		18		22		21			24	END EXAM (III YR)&IIMID(IIY R)	21	
WEDNESDAY	24			21		19		23		22			25	END EXAM (III YR)&IIMID(IIY R)	22	
THURSDAY	25	COMMENCEMEN TOFCLASSES(III, IVYR)		22		20	SYLLABUS COMPELETIO NSTATUS-III	24		23	ATTENDANCE UPDATE(IIIYE AR)	26	END EXAM (III YR)&LABEXE RNALEXAMS(II YR)	23		
FRIDAY	26			23		21		25	SYLLABUS COMPELETIO NSTATUS-III	24			27	END EXAM (III YR)& LAB EXTERNALEXA MS(IIYR)	24	
SATURDAY	27			24	WORKSHOP ON DATASCIEN CE	22		26	INDUSTRIAL VISIT FORIII&IIYR	25		HOLIDAY	28	END EXAM (IIIYR)&LABEX TERNALEXAMS( IIYR)	25	
SUNDAY	28	HOLIDAY		25	HOLIDAY	23	HOLIDAY	27	HOLIDAY	26	HOLIDAY	29	HOLIDAY	26	HOLIDAY	
MONDAY	29			26	COMMENCEMEN T OFCLASSES(II YR)	24	DEEPAVALI	28	MID-I(II YR)	27			30	LAB EXTERNALE XAMS(IIYR)	27	

TUESDAY	30	WEEKLY ATTENDANCE UPDATE(IIIYEAR)	27		25	ASSIGNMENT - SUBMISSION	29	MID-I(IIYR)	28		31	LAB EXTERNAL EXAMS(IIYR)	28	
WEDNESDAY	31	VINAYAKA CHATHURTHI	28		26		30	MID-I(IIYR)	29	MID-II(IIYR)				
THURSDAY			29	SYLLABUS COMPLETION STATUS	27	MID-I(IIYR)			30	MID-II(IIYR)				
FRIDAY			30	CLASS TEST-MARKS SUBMISSION	28	MID-I(IIYR)			31	MID-II(IIYR)				
SATURDAY					29	MID-I(IIYR)								
SUNDAY					30	HOLIDAY								
MONDAY					31									

CALENDAR INCHARGE

HOD/CSE

PRINCIPAL

# **Business Economics and Financial Analysis**



### Course Articulation Matrix

<b>CO</b>	<b>PO1</b>	<b>PO2</b>	<b>PO3</b>	<b>PO4</b>	<b>PO5</b>	<b>PO6</b>	<b>PO7</b>	<b>PO8</b>	<b>PO9</b>	<b>PO10</b>	<b>PO11</b>	<b>PO12</b>	<b>PSO1</b>	<b>PSO2</b>	<b>PSO3</b>
<b>C4143.1</b>	2	3	3	-	-	-	-	3	3	-	-	3	3	3	3
<b>C4143.2</b>	3	3	2	-	-	3	-	-	3	-	-	3	3	2	3
<b>C4143.3</b>	3	-	-	-	-	3	-	-	-	-	3	3	3	3	3
<b>C4143.4</b>	2	-	3	-	-	-	-	-	3	-	-	2	3	3	3
<b>C4143.5</b>	3	<b>3</b>	-	-	-	3	-	-	-	-	3	3	3	3	3
<b>C4143.6</b>	3	3	3	-	-	-	-	-	2	-	-	3	3	3	3
<b>C4143</b>	<b>2.6</b>	<b>3</b>	<b>2.75</b>	-	-	<b>3</b>	-	<b>3</b>	<b>2.8</b>	-	<b>3</b>	<b>2.8</b>	<b>3</b>	<b>2.8</b>	<b>3</b>

**SRI INDU COLLEGE OF ENGINEERING & TECHNOLOGY**  
**(An Autonomous Institution under UGC, New Delhi)**  
**B.Tech. - III Year – I Semester**

**L T P C**  
**3 0 0 3**

**(R20MBA2201) Business Economics & Financial Analysis**

**Objectives:**

To enable the student to understand and appreciate, with a particular insight, the importance of certain basic issues governing the business operations namely; demand and supply, production function, cost analysis, markets, forms of business organizations, capital budgeting and financial accounting and financial analysis.

**Unit I**

**Introduction & Demand Analysis:** Definition, Nature and Scope of Managerial Economics.

**Demand Analysis:** Demand Determinants, Law of Demand and its exceptions. Elasticity of Demand: Definition, Types, Measurement and Significance of Elasticity of Demand.

**Demand Forecasting:** Factors governing demand forecasting, methods of demand forecasting.

**Unit II**

**Production & Cost Analysis:** Production Function - Isoquants and Isocosts, MRTS, Least Cost Combination of Inputs, Cobb-Douglas Production function, Laws of Returns, Internal and External Economies of Scale. Cost Analysis: Cost concepts. Break-even Analysis (BEA)-

Determination of Break-Even Point (simple problems) - Managerial Significance.

**Unit III**

**Markets & New Economic Environment:** Types of competition and Markets, Features of Perfect competition, Monopoly and Monopolistic Competition. Price-Output Determination

in case of Perfect Competition and Monopoly. Pricing: Objectives and Policies of Pricing.

Methods of Pricing. Business: Features and evaluation of different forms of Business

Organisation: Sole Proprietorship, Partnership, Joint Stock Company, Public Enterprises and

their types, New Economic Environment: Changing Business Environment in Postliberalization scenario.

**Unit IV**

**Capital Budgeting:** Capital and its significance, Types of Capital, Estimation of Fixed and Working capital requirements, Methods and sources of raising capital - Trading Forecast, Capital Budget, Cash Budget. Capital Budgeting: features of capital budgeting proposals, Methods of Capital Budgeting: Payback Method, Accounting Rate of return (ARR) and Net

Present Value Method (simple problems).

**Unit V**

**Introduction to Financial Accounting & Financial Analysis:** Accounting concepts and Conventions - Introduction IFRS - Double - Entry Book Keeping, Journal, Ledger, Trial Balance - Final Accounts (Tracing Account, Profit and Loss Account and Balance Sheet

With simple adjustments). Financial Analysis: Analysis and Interpretation of Liquidity Ratios, Activity Ratios, and Capital structure Ratios and Profitability ratios. Du Pont Chart.

**TEXT BOOKS:**

1. Varshney & Maheswari: Managerial Economics, Sultan Chand, 2009.
2. S.A. Siddiqui & A.S. Siddiqui, Managerial Economics and Financial Analysis, New Age international Publishers, Hyderabad 2013.
3. M. Kasi Reddy & Saraswathi, Managerial Economics and Financial Analysis, PHI New Delhi, 2012.

**REFERENCES:**

1. Ambrish Gupta, Financial Accounting for Management, Pearson Education, New Delhi, 2012.
2. H. Craig Peterson & W. Cris Lewis, Managerial Economics, Pearson, 2012.
3. Lipsey & Chrystel, Economics, Oxford University Press, 2012.
4. Domnick Salvatore: Managerial Economics In a Global Economy, Thomson, 2012.
5. Narayanaswamy: Financial Accounting - A Managerial Perspective, Pearson, 2012.
6. S.N. Maheswari & S.K. Maheswari, Financial Accounting, Vikas, 2012.
7. Truet and Truet: Managerial Economics: Analysis, Problems and Cases, Wiley, 2012.
8. Dwivedi: Managerial Economics, Vikas, 2012.
9. Shailaja & Usha: MEFA, University Press, 2012.
10. Aryasri: Managerial Economics and Financial Analysis, TMH, 2012.
11. Vijay Kumar & Appa Rao, Managerial Economics & Financial Analysis, Cengage 2011.
12. J.V. Prabhakar Rao & P.V. Rao, Managerial Economics & Financial Analysis, Maruthi Publishers, 2011.

**Outcomes:**

**At the end of the course, the student will**

- Understand the market dynamics namely, demand and supply, demand forecasting, elasticity of demand and supply, pricing methods and pricing in different market structures.
- Gain an insight into how production function is carried out to achieve least cost combination of inputs and cost analysis.
- Develop an understanding of
- Analyse how capital budgeting decisions are carried out.
- Understanding the framework for both manual and computerised accounting process
- Know how to analyse and interpret the financial statements through ratio analysis.

## LESSON PLAN

Unit/ Item No.	Topic (s)	Book Reference	Page (s)		Teaching Methodology	Proposed No. of Periods	21/9/2021	
			From	To				
		01	25/9/2021					
<b>I</b>	<b>INTRODUCTION TO BUSINESS ECONOMICS AND FINANCIAL ANALYSIS: Introduction and Demand Analysis</b>					<b>12</b>		
1.1	Definition	T1	2.1	2.1	Black board	01	CO-1/L2	
1.2	Nature and Scope of Managerial Economics	T1	2.2	2.2	Black board	01	CO-1/L2	
1.3	Demand Analysis	T1	2.2	2.2	Black board	02	CO-1/L2	
1.4	Demand Determinants	T1	3.3	3.3	Black board	01	CO-1/L2	
1.5	Law of Demand and its exceptions	T1	3.4	3.4	Black board	01	CO-1/L2	
1.6	Elasticity of Demand	T1	3.7	3.14	Black board	01	CO-1/L2	
1.7	Measurement	T1	3.15	3.17	PPT	01	CO-1/L2	
1.8	Definition, Types	T1	4.1	4.1	Black board	01	CO-1/L2	
1.9	Significance of Elasticity of Demand	T1	4.2	4.6	PPT	01	CO-1/L2	
1.10	Demand Forecasting	T1	4.16	4.17	Black board	01	CO-1/L2	
1.11	Factors governing demand forecasting	T1	4.16	4.17	Black board	01	CO-1/L2	
1.12	Methods of demand forecasting	T1	4.16	4.17	PPT	01	CO-1/L2	
	<b>Review</b>	<b>Signature of the HOD/Coordinator</b>						



**SRI INDU COLLEGE OF ENGG & TECH**

**LESSON PLAN**

(Regulation: R20)

**Department of Computer Science and Engineering**

**Sub. Code & Title**      **R20MBA2201 Business Economics & Financial Analysis**

**Academic Year: 2022-23**      **Year/Sem./Section**      **III/1/CSE**

**Faculty Name & Designation**      **K MAHA LAKSHMI I, Assistant Professor**

Unit/ Item No.	Topic (s)	Book Referenc e	Page (s)		Teaching Methodology	Proposed No. of Periods	CO/RBT
			From	To			
<b>II</b>	<b>Production &amp; Cost Analysis</b>						
2.1	Production Function	T1	5.3	5.5	Demonstration	02	CO-2/L1
2.2	Iso quants and Iso costs	T1	5.6	5.8	Black board	01	CO-2/L1
2.3	MRTS, Least Cost Combination of Inputs	T1	5.9	5.11	Black board	01	CO-2/L1
2.4	Cobb-Douglas Production function	T1	5.14	5.14	Demonstration	01	CO-2/L1
2.5	Laws of Returns	T1	5.15	5.15	PPT	02	CO-2,/L1
2.6	Internal and External Economies of Scale	T1	5.16	5.17	Black board	01	CO-2,/L1
2.7	Cost Analysis: Cost concepts	T1	6.1	6.17	Demonstration	01	CO-2/L1
2.8	Break-even Analysis (BEA)	T1	7.1	7.1	Demonstration	01	CO-2/L1
2.9	Determination of Break-Even Point (simple problems)	T1	7.2	7.6	Black board	01	CO-2/L1
2.10	Managerial Significance	T1	7.7	7.13	Black board	01	CO-2/L1
	<b>Review</b>	<b>Signature of the HOD/Coordinator</b>					



**SRI INDU COLLEGE OF ENGG & TECH**  
**LESSON PLAN**  
**(Regulation: R20)**

<b>Sub. Code &amp; Title</b>	<b>R20MBA2201 Business Economics &amp; Financial Analysis</b>		
<b>Academic Year: 2022-23</b>	<b>Year/Sem./Section</b>	<b>III/ 1</b>	
<b>Faculty Name &amp; Designation</b>	<b>K MAHA LAKSHMI I, Assistant Professor</b>		

Unit/ Item No.	Topic (s)	Book Reference	Page (s)		Teaching Methodology	Proposed No. of Periods	CO/RBT	
			From	To				
<b>III</b>	<b>Markets and New Economic Environment:</b>					<b>10</b>		
3.1	Types of competition and Markets	T2	8.5	8.7	Demonstration	01	CO-3/L4	
3.2	Features of Perfect competition,	T1	8.8	8.9	Demonstration	01	CO-3/L4	
3.3	Monopoly and Monopolistic Competition	T1	8.13	8.20	Black board	01	CO-3/L4	
3.4	Price-Output Determination in case of Perfect Competition and Monopoly	T1	8.10	8.13	Black board	01	CO-3/L4	
3.5	Pricing: Objectives and Policies of Pricing Methods of Pricing	T1	9.3	9.5	Black board	01	CO-3/L4	
3.6	Business: Features and evaluation of different forms of Business	T1	10.3	10.37	PPT	03	CO-3/L4	
3.7	Organisation: Sole Proprietorship, Partnership, Joint Stock Company	T1	10.5	10.25	Black board	02	CO-3/L4	
3.8	Public Enterprises and their types	T1	10.26	10.28	Black board	01	CO-3/L4	
3.9	New Economic Environment: Changing Business Environment	T1	12.1	12.17	Black board	01	CO-3/L4	
3.10	Post liberalization Scenario	T1	12.21	12.35	Black board	02	CO-3/L4	
	<b>Review</b>	<b>Signature of the HOD/Coordinator</b>						



**SRI INDU COLLEGE OF ENGG & TECH**  
**LESSON PLAN**  
**(Regulation: R20)**

<b>Sub. Code &amp; Title</b>	<b>R20MBA2201 Business Economics &amp; Financial Analysis</b>		
<b>Academic Year: 2021-22</b>	<b>Year/Sem./Section</b>	<b>III/1</b>	
<b>Faculty Name &amp; Designation</b>	<b>K MAHA LAKSHMI I, Assistant Professor</b>		

Unit/ Item No.	Topic (s)	Book Reference	Page (s)		Teaching Methodology	Proposed No. of Periods	CO/RBT
			From	To			

IV	<b>CAPITAL BUDGETING</b>					<b>10</b>		
4.1	<b>Capital and its significance,</b>	T1	16.3	16.4		01	CO-4/L6	
4.2	Types of Capital	T1	16.4	16.5		02	CO-4/L6	
4.3	Estimation of Fixed and Working capital requirements	T1	16.7	16.8	Black board	02	CO-4/L6	
4.4	Methods and sources of raising capital	T1	16.10	16.15	Black board	02	CO-/4L6	
4.5	Trading Forecast	T1	16.16	16.16	Presentation	02	CO-4,6	
4.7	Capital Budget, Cash Budget	T1	17.1	17.41	Presentation	02	CO-4,6	
4.8	Capital Budgeting: features of capital budgeting proposals	T1	17.5	17.11	Black board	02	CO-4,6	
4.9	Methods of Capital Budgeting: Payback Method	T1	17.13	17.21	Black board	03	CO-4,6	
4.10	Accounting Rate of return (ARR) and Net Present Value Method (Simple Problems)	T1	17.22	17.29	Black board	02	CO-4,6	
	<b>Review</b>	<b>Signature of the HOD/Coordinator</b>						



**SRI INDU COLLEGE OF ENGG & TECH**  
**LESSON PLAN**  
**(Regulation: R20)**

<b>Sub. Code &amp; Title</b>	<b>R20MBA2201 Business Economics &amp; Financial Analysis</b>		
<b>Academic Year: 2021-22</b>	<b>Year/Sem./Section</b>	<b>III/1/IT</b>	
<b>Faculty Name &amp; Designation</b>	<b>K MAHA LAKSHMI I, Assistant Professor</b>		

<b>V</b>	<b>INTRODUCTIN TO FINANCIAL ACCOUNTING &amp; FINANCIAL ANALYSIS</b>			<b>10</b>				
5.1	Accounting concepts and Conventions	T1	13.3	13.3	Presentation	01	CO-5/1	
5.2	Introduction IFRS	T1	13.4	13.5	Presentation	01	CO-5/1	
5.3	Double – Entry Book keeping	T1	13.13	13.14	Black board	01	CO-5/1	
5.4	Journal, Ledger, Trial Balance	T1	13.15	13.35	Black board	03	CO-5/1	
5.5	Final Accounts(Trading Account, Profit and Loss Account and Balance Sheet With simple problems)	T1	13.41	13.65	Black board	03	CO-5/1	
5.6	Financial Analysis: Analysis and Interpretation of Liquidity Ratios	T1	14.3	14.6	Presentation	03	CO-6/4	
5.7	Activity Ratios	T1	14.7	14.9	Black board	01	CO-6/4	
5.8	Capital Structure Ratios	T1	14.9	14.10	PPT	01	CO-6/4	
5.9	Profitability Ratios	T1	14.13	14.17	Black board	01	CO-6/4	
5.10	Du Pont Chart.	T1	14.18	14.19	Black board	01	CO-6/4	
	<b>Review</b>	<b>Signature of the HOD/Coordinator</b>						

**LIST OF TEXT BOOKS AND REFERENCES**

**Text Books:**

- T1.Varshney&Maheswari: Managerial Economics, Sultan Chand, 2009  
 T2. S A Siddiqui&A S Siddiqui, Managerial Economics and Financial Analysis, New age International Publishers, Hyderabad 2013  
 T3.M Kasi Reddy &Saraswathi, Managerial Economics and Financial Analysis, PHI, New Delhi, 2012.

**REFERENCES:**

1. Ambrish Gupta, Financial Accounting for Management, Pearson Education, New Delhi, 2012
2. H. Craig Peterson & W.Cris Lewis, Managerial Economics, Pearson, 2012
3. Lipsey & Chrystel, Economics, Oxford University Press, 2012
4. Domnick Salvatore: Managerial Economics In a Global Economy, Thomson, 2012
5. Narayanaswamy: Financial Accounting – A Managerial Perspective, Pearson, 2012
6. S.N. Maheswari & S.K. Maheswari Financial Accounting, Vikas, 2012
7. Truet and Truet: Managerial Economics: Analysis, Problems and Cases, Wiley

**Weblinks**

- w-1. <https://www.profit-forexsignals.com/>  
 w-2. <https://ocw.mit.edu/resources/res-6-008-digital-signal-processing-spring-2011/>  
 w-3. <https://www.journals.elsevier.com/digital-signal-processing/>



**CONTENT BEYOND THE SYLLABUS**

<b>S.No</b>	<b>Topics</b>	<b>Proposed Actions</b>	<b>Date</b>	<b>Resource Person/Mode</b>	<b>Pos</b>	<b>PSOs</b>
<b>1</b>	<b>HUMAN RESOURCE MANAGEMENT</b>	<b>PPT</b>	<b>25/09/2022</b>	<b>Krishna</b>	<b>PO8</b>	<b>PSO 2</b>
<b>2</b>	<b>PROJECT MANAGEMENT</b>	<b>LACTURE</b>	<b>20/11/2022</b>	<b>Dr.Gopinath</b>	<b>PO11</b>	<b>PSO3</b>
<b>3</b>	<b>SRATEGIC MANAGEMENT</b>	<b>PPT</b>	<b>28/12/2022</b>	<b>Dr. Anil</b>	<b>PO9</b>	<b>PSO2</b>



**SRI INDU COLLEGE OF ENGG & TECHLESSON PLAN**  
**(Regulation: R20)**  
**Department of Computer Science and Engineering**

<b>Sub. Code &amp; Title</b>	<b>R20MBA2201 Business Economics &amp; Financial Analysis</b>		
<b>Academic Year: 2022-23</b>	<b>Year/Sem./Section</b>	<b>III/1</b>	
<b>Faculty Name &amp; Designation</b>	<b>K MAHA LAKSHMI I, Assistant Professor</b>		

**UNIT-I Introduction and Demand Analysis**

<b>2MARKS QUESTIONS</b>		<b>BTLevel</b>	<b>Course Outcom</b>
1.	Define Managerial economics and nature?	1	CO1
2.	Explain how operation research, mathematics is related to economics?	1	CO1
3.	Nature of the product how it is related to elasticity of demand? Explain.	2	CO1
4..	How barometric techniques help in estimating the demand for a product?	2	CO1
5.	Explain about substitutes and complementariness along with the examples?	4	CO1
6.	Explain about Normative statement and prescriptive actions?	5	CO1
7.	Define price elasticity of demand? Explain its significance?	6	CO1
8	Explain about exponential smoothing method?	2	CO1
9	Explain how many methods available for calculate demand for a product?	1	CO1
10	Explain law of demand and its exceptions?	3	CO1
<b>10 MARKSQUESTIONS</b>			
1.	. Define Managerial Economics? Explain how managerial economics is linked with other academic disciplines?	1	CO1
2.	Define Managerial Economics? Explain its nature, scope& limitations?	2	CO1
3.	Is it necessary to accurately estimate the future demand for a product? How can you measure future demand for a product?	1	CO1
4.	What do you understand by elasticity of demand? Explain the factors governing it?	2	CO1 CO1

5.	Explain the concept of cross elasticity of demand. Illustrate your answer with suitable examples. How it is different from price elasticity of demand?	4	CO1
6.	Define demand explain the factors determining demand? How does the analysis of demand contribute to business in decision making?	6	CO1
7.	Define Elasticity of demand? Explain different types of elasticity of demand and its measurement.	2	CO1
8.	Define Demand estimation and explain marketing research approaches to demand Estimation?	4	CO1
9.	Managerial economics is multidisciplinary in nature'. Explain	4	CO1
10.	Define demand explain nature of the demand? Define Law of demand and explain various exceptions to law of demand?	2	

**Unit-II : Production and Cost analysisS**

**2 MARKSQUESTIONS**

1.	1. Define production and production function?	1	CO2
2.	Isoquants and their features?	1	CO2
3.	Cobb-douglas production function?	6	CO2
4.	4. Explain about returns to scale?	2	CO2
5.	Diseconomies of scale?	2	CO2
6.	Explain about returns to factors?	2	CO2
7.	Least combinations of input factors?	4	CO2
8.	Explain about types of isoquants ?	2	CO2
9.	Define cost and cost function?	2	CO2
10.	Explain the limitations of break even analysis?	2	CO2

**5 MARKSQUESTIONS**

1	1. Define production and explain the nature of production function?	2	CO2
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2.	(a) Explain Cobb-Douglas production function? (b) Explain about least combination of input factors.	2	CO2
3.	What are the two types of production functions classified depending upon time element?	6	CO2
4.	(a) Explain the Law of returns with appropriate examples? (b) Explain the determinants of cost with briefly.	4	CO2
5.	Explain production function with two variables inputs?	6	CO2
6.	(a) Define Isoquant? What are the different classifications of Isoquants?	2	CO2
7.	Define cost? Explain about cost concepts in detail.	5	CO2
8.	(a) Define Isocost and state how isocost are differently addressed? (b) Explain Law of returns to factor in the relation to output and input?	2	CO2
9.	What are scale economies and explain the internal and external economies of scale?	2	CO2
10.	Define break even analysis and explain its managerial significance and limitations?	1	CO2

**Unit–III: Markets and New Economic Environment**

**2 MARKS QUESTIONS**

1.	Define market and market structure?	1	CO3
2.	How many methods are there to fix the price for the product?	1	CO3
3.	Define business? Explain any five characteristics of business?	3	CO3
4.	What are the objectives of pricing?	2	CO3
5.	Explain about different types of companies?	4	CO3
6.	Explain about different forms of business organization?	1	CO3
7.	Discuss about contents Memorandum of association?	1	CO3
8.	Explain the features of perfect market? Meaning of price discrimination?	4	CO3
9.	Define prospectuses? Explain about contents of prospectus?	1	CO3
10.	Discuss about need of public enterprises? Define sole trader explain any three features?	1	CO3

**10 marks questions**

1.	Define Business? Explain the features, merits, demerits of partnership and joint stock companies?	2	CO3
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2.	Define market and explain the different types of market?	2	CO3
3.	Explain the determination of market price in perfect competition and what are the essential conditions of perfect competition?	5	CO3
4.	Is Government of India justified in concept withdrawing its investments in public enterprises? Justify your answer?	1	CO3
5.	Define pricing and explain different types of pricing?	1	CO3
6.	'Small is beautiful'. Do you think this is the reason for the survival of the sole trader form of business organization? Support your answer with suitable example	1	CO3
7.	Explain the need for public enterprise in India .Do you think public enterprise as a whole have fulfilled that need?	1	CO3
8.	Explain the different types of pricing strategies? Explain the price output determination in monopoly?	2	CO3
9.	(a)Explain the procedure how to start a joint stock company? (b)what are advantages & disadvantages of government companies?	3	CO3
10.	(a)What are scale economies and explain the internal and external economies of scale? (b) .Define break even analysis and explain its managerial significance and limitations?	1	CO3
<b>Unit-IV: Capital Budgeting</b>			
<b>2 MARKSQUESTIONS</b>			
1.	Definecapital?explain about need of capital?	3	CO4
2.	Explain about fixed capital and its features?	1	CO4
3.	Meaning of debentures and its types?	1	CO4
4.	Define share and explain its types?	1	CO4
5.	Define working capital and explain its components?	1	CO4
6.	Explain about debt factoring and credit factoring?	1	CO4
7.	What is the meaning of retained profits?	1	CO4
8	Explain any five factors determining requirements of working capital?	1	CO4
9	Explain about different sources of finance?	4	CO4
10	Explain about hire purchase v <sub>s</sub> leasing?	3	CO4
<b>5 marks questions</b>			
1.	Define capital budgeting and explain its features and Merits and demerits?	2	CO4
2.	Explain in how many ways capital budgeting is calculated?	5	CO4
3.	Explain the nature and importance of capital budgeting?	2	CO4
4.	Review the appropriateness of the following criteria of appraising investment. (a) pay-back period (b) net present value (c) profitability index	2	CO4
5.	5.Capital Budgeting is the process of evaluating the relative worth of long-term investment proposals based on their profitability? Explain this statement.	4	CO4

6.	<p>Consider the following particulars and calculate NPV &amp; ARR.  Year project x (in.lakhs) project y(in lakhs)</p> <table border="0"> <tr> <td>1</td> <td>3</td> <td>6</td> </tr> <tr> <td>2</td> <td>5</td> <td>4</td> </tr> <tr> <td>3</td> <td>6</td> <td>3</td> </tr> </table> <p>Capital :900000, cost of capital:12%</p>	1	3	6	2	5	4	3	6	3	5	CO4												
1	3	6																						
2	5	4																						
3	6	3																						
7.	Define capital? Explain need and sources of finance?	4	CO4																					
8	<p>ABC Co. ltd is proposing to mechanize their operation. twoproposal A and B in three form of quotations have been received from two different vendors. The proposal in each case cost Rs.5,00,000.Adiscount factor of 12% is used to compare the proposal .cash inflows are as follows</p> <p style="text-align: center;">Cash flows after taxes</p> <table border="1" data-bbox="180 783 505 1266"> <thead> <tr> <th>Y ea r</th> <th>Prop osal A</th> <th>Propos al B</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>1500 00</td> <td>50000</td> </tr> <tr> <td>2</td> <td>2000 00</td> <td>15000 0</td> </tr> <tr> <td>3</td> <td>2500 00</td> <td>20000 0</td> </tr> <tr> <td>4</td> <td>1500 00</td> <td>30000 0</td> </tr> <tr> <td>5</td> <td>1000 00</td> <td>20000 0</td> </tr> </tbody> </table> <p>Calculate Traditional &amp; Modern Methods.</p>	Y ea r	Prop osal A	Propos al B	1	1500 00	50000	2	2000 00	15000 0	3	2500 00	20000 0	4	1500 00	30000 0	5	1000 00	20000 0	2	CO4			
Y ea r	Prop osal A	Propos al B																						
1	1500 00	50000																						
2	2000 00	15000 0																						
3	2500 00	20000 0																						
4	1500 00	30000 0																						
5	1000 00	20000 0																						
9	<p>9.ABC company is considering the purchase of a machinery from the following.</p> <table border="1" data-bbox="180 1377 927 1717"> <thead> <tr> <th>Particulars</th> <th>Machine-I</th> <th>Machine-II</th> </tr> </thead> <tbody> <tr> <td>Life</td> <td>3years</td> <td>3years</td> </tr> <tr> <td>Initial investment</td> <td>10000</td> <td>10000</td> </tr> <tr> <td>Net earnings after tax</td> <td>Rs.</td> <td>Rs</td> </tr> <tr> <td>1<sup>st</sup> year</td> <td>8000</td> <td>2000</td> </tr> <tr> <td>2<sup>nd</sup> year</td> <td>6000</td> <td>7000</td> </tr> <tr> <td>3<sup>rd</sup> year</td> <td>4000</td> <td>10000</td> </tr> </tbody> </table> <p>You are required to suggest which machine should be preferred by using the following methods.  The cost capital is 10%. (a)pay back method (b)discounted cash flow method.</p>	Particulars	Machine-I	Machine-II	Life	3years	3years	Initial investment	10000	10000	Net earnings after tax	Rs.	Rs	1 <sup>st</sup> year	8000	2000	2 <sup>nd</sup> year	6000	7000	3 <sup>rd</sup> year	4000	10000	5	CO4
Particulars	Machine-I	Machine-II																						
Life	3years	3years																						
Initial investment	10000	10000																						
Net earnings after tax	Rs.	Rs																						
1 <sup>st</sup> year	8000	2000																						
2 <sup>nd</sup> year	6000	7000																						
3 <sup>rd</sup> year	4000	10000																						

**Unit-V:Introduction to Financial Accounting and Financial Analysis****2 MARKSQUESTIONS**

1.	Define accounting and explain its significance .	6	CO5
2.	Explain about different types of accounts and their rules?	1	CO5
3.	Definition of ratio analysis?	1	CO5
4.	4. A firm sold goods worth Rs.1,00,000 and its gross profit is 20% of sale value. The inventory at the beginning of the year was Rs.32000 and at the end of the year was 14,000.Compute inventory turnover ratio.	1	CO5
5.	5. Explain any five terminology of accounts?	4	CO5
6.	6. A firms sales during the year was Rs.400,000 of which 60% were on credit basis .The balance of debtors at the beginning and the end of the year were 25000 and 15000 respectively .calculate debtors turnover ratio of the firm?	1	CO5
7.	7.How many types of ratios are available?	1	CO5
8.	8. What is the meaning of provision of bad debts and how it is treated in final accounts?	1	CO5
9	What is the meaning of drawings and how it is treated in balance sheet?	5	CO5
10	Given that the number of shares is 10,000 and the net profit after taxes for a given accounting period is Rs.4,50,000.calculate EPS.	6	CO5

**5 MARKQUESTIONS**

1. Explain different phases that are involved in the accounting mechanism? 5 CO5

2. From the following Trial balance extracted from the books of MERCHANT for the period of 31<sup>st</sup> march2005. Prepare the final accounts? 4 CO5

<b>PARTICULARS</b>	<b>DEBIT BALANCE</b>	<b>CREDIT BALANCE</b>
Furniture	640	-
Building	6250	-
Plant and machinery	7500	-
Stock	3400	-
Purchases	6000	-
Advertising	1000	-
Cash	1200	-
Salaries	3000	-
Insurance	800	-
Debtors	2000	
Capital	—	12500
Sales	-	15000
Creditors	-	4290
<b>TOTAL</b>	<b>31790</b>	<b>31790</b>

**Adjustments**

closing stock Rs. 2000

depreciation on building @5%

salaries outstanding Rs.300

Insurance prepaid Rs. 100.

Interest on capital @5%

Bad debts Rs.100.

Capital	—	12500
Sales	-	15000
Creditors	-	4290
<b>TOTAL</b>	<b>31790</b>	<b>31790</b>

**Adjustments**

closing stock Rs. 2000

depreciation on building @5%

salaries outstanding Rs.300

Insurance prepaid Rs. 100.

Interest on capital @5%

Bad debts Rs.100.



3. From the trail balance of Mr. S, Prepare Final Accounts for the period 31<sup>st</sup> march 2007?

<b>PARTICULARS</b>	<b>DEBIT AMOUNT</b>	<b>PARTICULARS</b>	<b>CREDIT AMOUNT</b>
Plant and machinery	1,00,000	Sales	3,50,000
Good will	50,000	Returns outward	12,000
Patents	25,000	Discount received	8,000
Purchases	2,50,000	Commission received	12,000
Return inwards	5,000	Sundry creditors	20,000
Discount	4,000	Bank over draft	30,000
Wages	15,000	Capital	1,00,000
Insurance	8,000	Bills payable	20,000
Sundry debtors	25,000	-	-
Bad debts	3,000	--	-
Carriage inwards	3,000	-	-
Carriage outwards	2,000	-	-
Furniture	30,000	-	-
Office salaries	26,000	-	-
Audit fees	6,000	-	-
<b>TOTAL</b>	<b>5,52,000</b>	-	<b>5,52,000</b>

**Adjustment:**

- 1) Closing stock Rs90, 000
- 2) Depreciation on plant & machinery@10% & furniture@15%
- 3) Make a provision for doubtful debts @5% on sundry debtors

4. From the following data pass necessary Journal entries

Jan 1<sup>st</sup> 2005 business commenced with cash Rs. 10,000

Jan 3<sup>rd</sup> goods purchased from X Rs.5,000

Jan 4<sup>th</sup> goods sold to Mahesh Rs. 2,500

Jan 5<sup>th</sup> cash received from Raghu Rs. 3,000

Jan 6<sup>th</sup> cash paid to Shiva Rs. 4,000

Jan 7<sup>th</sup> cash sales Rs. 2,000

Jan 8<sup>th</sup> goods purchased from X Rs. 1,500 for cash

Jan 9<sup>th</sup> cash withdrawn from bank for personal use Rs. 1,000

Jan 10<sup>th</sup> rent paid Rs. 2,000

Jan 11<sup>th</sup> salaries paid Rs. 3,000

5. (a) Distinguish between Trail Balance and Balance Sheet?  
 (b) Distinguish between Profit and Loss account and balance sheet?  
 (c) What is accounting? What are its objectives, functions, Advantages and limitations?  
 (d) Explain accounting concepts and conventions?

6. What is Ratio Analysis? Explain its Classifications.

7. The following is the balance sheet of A limited as on 31.12.90

ABILITIES	AMOUNT	SETS	AMOUNT
Share capital(2000 shares of Rs 10 each, Rs 5 paid up)	0000	Land and Building	5000
Reserves and Surplus	000	Plant and Furniture	000
Debentures	0000	Stock	000
Creditors	000	Debtors	000
Bills Payable	00	Bills Receivable	00
		Cash at Bank	000
		Preliminary Expenses	00
	<b>0000</b>		<b>0000</b>

Net sales for the year Rs 600000. Calculate the following ratios.

Debt / Equity Ratio.

Proprietary Ratio.

Current Ratio.

Acid test ratio.

Stock turnover ratio.

Avg Collection period.

**III B.Tech I Semester (REGULAR) End Examinations March - 2021**  
**BUSINESS ECONOMICS AND FINANCIAL ANALYSIS**

09/03/2021

(Common to EEE, MECH, ECE, CSE, IT.)

Day- 1

Duration: 3 Hrs

Marks: 5Qx14M = 70M

Answer **FIVE** questions (Treat Q.No.11 as a single question).

**UNIT-I**

1. What is Elasticity of demand? Explain the broad classification of Elasticity of Demand.

(OR)

2. What is the nature and scope of business Economics?

**UNIT-II**

3. Elucidate the Cobb-Douglas production function.

(OR)

4. Explain the concept of cost-volume profit analysis.

**UNIT-III**

5. Explain the features of perfect competition.

(OR)

6. Elucidate the company form of Organization.

**UNIT-IV**

7. What are the characteristics of fixed capital and working capital?

(OR)

8. Suresh Krishna is evaluating a project whose expected cash flows are as follows:

YEAR	CASH FLOWS (Rs.)
0	10,00,000
1	1,00,000
2	2,00,000
3	3,00,000
4	6,00,000

What is the NPV of the project if the discounted rate is 12% for the entire period?

Note: PV: 1<sup>st</sup>Yr is 0.8928, 2<sup>nd</sup>Yr is 0.7972, 3<sup>rd</sup>Yr is 0.7117 & 4<sup>th</sup>Yr is 0.6355.

**P.T.O.**

9. From the following information make out a Balance sheet with as much details as possible:  
Current ratio 2.5  
Liquidity ratio 1.5  
Proprietary ratio 0.75 (Assets / Proprietary fund)  
Working capital Rs.60,000  
Bank Overdraft Rs.10,000  
Reserves and surplus Rs.40,000  
There is no long term or fictitious assets.

(OR)

10. Explain the importance of Ratio analysis as a technique for analyzing financial statements.

11. Answer any **THREE** questions from the following. (5M+5M+4M)

- a) Briefly explain the concept of “Elasticity”.
- b) Write short notes on the nature of Managerial economics.
- c) Write short notes on Partnership firm
- d) Differentiate between Current ratio and Quick ratio
- e) Write short notes on Break even analysis.

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# SRI INDU COLLEGE OF ENGINEERING & TECHNOLOGY

(An Autonomous Institution under UGC, New Delhi) Recognized under 2(f) and 12(B) of UGC Act 1956

**MBA I YEAR - I SEMESTER – END EXAMINATIONS (Regular) – January - 2020**

**R18MBA02 – BUSINESS ECONOMICS**

**Duration: 3 Hrs**

**24.01.2020 Max Marks: 70M**

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## Section - A

**Answer All the following questions**

**Marks: 5Qx4 = 20M**

1. Explain concept of time perspective.
2. What is measurement of elasticity?
3. Define isoquant and isocost concept.
4. Give a short note on product life cycle.
5. Write short notes on Monetary Policy.

## Section - B

**Answer any FIVE questions choosing at least one from each Unit**

**Marks: 5Qx10M = 50M**

### UNIT - I

6. Justify Business Economics relation with other disciplines.

**(OR)**

7. a) What do you understand about opportunity cost?  
b) Explain discounting principle with suitable example.

### UNIT - II

8. a) What are determinants of supply.  
b) Define law of supply with sketch.  
c) What is supply function?

**(OR)**

9. Explain in detail about demand forecasting methods.

### UNIT - III

10. Define production function. How can a producer find it useful? Illustrate.

**(OR)**

11. Explain law of returns with appropriate examples.

### UNIT - IV

12. a) Define break even analysis. How do you determine it? Show graphical presentation of BEA.  
b) State the assumptions in break – even analysis.

**(OR)**

13. What strategies do you recommend for the markets obsessed with stiff competition conditions?

### UNIT - V

14. Write the objectives and types of fiscal policy.

**(OR)**

15. Explain in detail about Macro Economic Analysis (PESTEL MODEL).

# SOFTWARE ENGINEERING

# SRI INDU COLLEGE OF ENGINEERING & TECHNOLOGY

(An Autonomous Institution under UGC, New Delhi)

B.Tech. - III Year – I Semester

L	T	P	C
3	0	0	3

## (R18CSE3102) Software Engineering

### Objectives:

- To understanding of software process models such as waterfall and evolutionary models.
- To understanding of software requirements and SRS document.
- To understanding of different software architectural styles.
- To understanding of software testing approaches such as unit testing and integration testing.
- To understanding on quality control and how to ensure good quality software.

### UNIT - I:

**Introduction to Software Engineering:** The evolving role of software, Changing Nature of Software, Legacy Software, Software myths.

**A Generic view of process:** Software engineering- A layered technology, a process framework, The Capability Maturity Model Integration (CMMI), Process patterns, process assessment, personal and team process models.

**Process models:** The waterfall model, Incremental process models, Evolutionary process models, The Unified process.

### UNIT - II:

**Software Requirements:** Functional and non-functional requirements, User requirements, System requirements, Interface specification, the software requirements document.

**Requirements engineering process:** Feasibility studies, Requirements elicitation and analysis, Requirements validation, Requirements management.

**System models :** Context Models, Behavioral models, Data models, Object models, structured methods.

### UNIT - III:

**Design Engineering:** Design process and Design quality, Design concepts, the design model, pattern based software design.

**Creating an architectural design:** software architecture, Data design, Architectural styles and patterns, Architectural Design, assessing alternative architectural designs, mapping data flow into a software architecture.

**Modeling component-level design :** Designing class-based components, conducting component-level design, Object constraint language, designing conventional components.

**Performing User interface design:** Golden rules, User interface analysis and design, interface analysis, interface design steps, Design evaluation.

### UNIT - IV:

**Testing Strategies:** A strategic approach to software testing, test strategies for conventional software, Black-Box and White-Box testing, Validation testing, System testing, the art of Debugging.

**Product metrics:** Software Quality, Frame work for Product metrics, Metrics for Analysis Model, Metrics for Design Model, Metrics for source code, Metrics for testing, Metrics for maintenance.

**Metrics for Process and Products:** Software Measurement, Metrics for software quality.

## UNIT - V:

**Risk Management:** Reactive vs Proactive Risk strategies, software risks, Risk identification, Risk projection, Risk refinement, RMMM, RMMM Plan.

**Quality Management:** Quality concepts, Software quality assurance, Software Reviews, Formal technical reviews, Statistical Software quality Assurance, Software reliability, The ISO 9000 quality standards.

### TEXT BOOKS :

1. Software Engineering A practitioner's Approach, Roger S Pressman, 6th edition. McGrawHill International Edition.
2. Software Engineering, Ian Sommerville, 7th edition, Pearson education.

### REFERENCE BOOKS :

1. Software Engineering, A Precise Approach, Pankaj Jalote, Wiley India, 2010.
2. Software Engineering: A Primer, Waman S Jawadekar, Tata McGraw-Hill, 2008
3. Fundamentals of Software Engineering, Rajib Mall, PHI, 2005
4. Software Engineering, Principles and Practices, Deepak Jain, Oxford University Press.
5. Software Engineering1: Abstraction and modelling, Diner Bjorner, Springer International edition, 2006.
6. Software Engineering2: Specification of systems and languages, Diner Bjorner, Springer International edition 2006.
7. Software Engineering Foundations, Yingux Wang, Auerbach Publications, 2008.
8. Software Engineering Principles and Practice, Hans Van Vliet, 3rd edition, John Wiley & Sons Ltd.
9. Software Engineering3: Domains, Requirements, and Software Design, D. Bjorner, Springer International Edition.
10. Introduction to Software Engineering, R. J. Leach, CRC Press.

### Outcomes:

- Analyze characteristics, nature and role of a software and process models that are used to build a professional software(analyze)
- Describe the requirements ,differentiate the functional and non-functional requirements, user and system requirements with respect to preparing the SRS document and perform feasibility study (understand)
- Illustrate various system models with respect to the nature of software to be developed (analyze)
- Create software architecture and design the components, interfaces of software process by using design engineering concepts (create)
- Measure the product metrics, develop and apply software testing strategies for software applications(evaluate)
- Evaluate quality control and ensures good quality software , risk management(evaluate)



## COs MAPPING WITH POs & PSOs

### SOFTWARE ENGINEERING (R20CSE2207)

At the end of the course student will be able to:

Course Outcomes	Statements
C313.1	Define the key software engineering tasks and software engineering process.
C313.2	explain requirement engineering process and design concepts
C313.3	describe object oriented design process and design evolution
C313.4	explain strategic approach to software testing
C313.5	explain risk strategies and refinement and quality concepts
C313.6	Evaluate Quality control and ensures good quality software , risk management(evaluate)

### Course Articulation Matrix:

CO	PO 1	PO 2	PO 3	PO4	PO 5	PO 6	PO 7	PO 8	PO 9	PO10	PO11	PO 12	PSO1	PSO2	PSO3
C311.1	2	3	3	-	3	-	-	-	-	-	-	2	3	3	3
C311.2	2	3	-	3	3	-	-	-	-	-	-	2	2	2	2
C311.3	2	3	3	2	3	-	-	-	-	-	-	2	3	3	3
C311.4	2	3	3	-	3	-	-	-	-	-	-	2	3	2	2
C311.5	2	3	3	2	3	-	-	-	-	-	-	2	3	3	3
C311.6	2	3	-	2	3	-	-	-	-	-	-	2	3	3	3
C311	2.0	3.0	3.0	2.33	3.0	--	-		-	-	-	2.0	2.8	2.6	2.6

## **JUSTIFICATION OF COS VS POS & PSOS MAPPING**

### **(Sub code: (R20CSE2207))- Software Engineering**

C313.1	Define the key software engineering tasks and software engineering process.
--------	---

#### **MappedPOs (PO1, PO2)**

PO1	Student able to Gain Knowledge of basic SW engineering methods and practices, and their appropriate application.
PO2	Student understand software engineering layered technology and Process frame work

C313.2	plain requirement engineering process and design concepts
--------	---

#### **Mapped POs (PO1, PO3, PO6, PO9, PO10)**

PO1	Student have an Understanding of software requirements and the SRS documents
PO3	Student able to Describe data models, object models, context models and behavioral models.
PO6	Student can able to differentiate the requirements
PO9	Understanding of the role of project management including planning, scheduling, risk management, etc.
PO10	Effective communication helps to discover requirements

C313.3	describe object oriented design process and design evolution
--------	--

#### **Mapped POs (PO1, PO3, PO6, PO9, PO10)**

PO1	Student gain knowledge about design process and quality
PO3	Understand of different software architectural styles and Process frame work.
PO6	Component level design by applying engineering practices
PO9	Student able To perform interface design multi disciplinary action needed
PO10	Effective communication produce a good design

C313.4	explain strategic approach to software testing
--------	--

#### **Mapped POs (PO1, PO2, PO4, PO5)**

PO1	Student gains Knowledge about testing strategies
PO2	Understand to verification and validation including static analysis, and reviews
PO4	Describe software measurement and software risks.
PO5	Use Metrics for Process and Products

C313.5	plain risk strategies and refinement and quality concepts
--------	---

**Mapped POs (PO1, PO4, PO5, PO6)**

PO1	Student has an Understanding on quality control and how to ensure good quality software.
PO4	Invest knowledge for risk identification
PO5	Understand the techniques to avoid risk
PO6	Use engineering standards for quality

**Faculty**



## SRI INDU COLLEGE OF ENGG & TECHLESSON PLAN

(Regulation: R20)

### Computer Science and Engineering

**Sub. Code & Title** (R20CSE2207)Software Engineering

**Academic Year: 2022-23** **Year/Sem./Section** III/I

**Faculty Name & Designation** G.Swaranalatha(Assistant Professor)  
K.Keerthi Reddy (Asst.prof)

# LESSON PLAN

(1. Remembering 2. Understanding 3. Applying 4. Analyzing 5. Evaluating 6.Creating)

Unit/ Item No.	Topic (s)	Book Reference	Page (s)		Teaching Methodology	Proposed No. of Periods	Actual Date of Handled	CO/RBT
			From	To				
<b>UNIT – I</b>								
<b>I</b>	<b>Introduction to Software Engineering and A Generic View of process</b>					<b>12</b>		
1.1	<b>Introduction to software engineering: The evolving role of software</b>	T1	11	13	Black board	01		CO1/K4
1.2	Changing nature of software	T1	14	16	Black board	01		CO1/K2
1.3	Software myths	T1	18	19	Black board	01		CO1/K1
1.5	<b>A Generic view of process : Software engineering- A layered technology</b>	T1	21	22	Black board	01		CO1/K2
1.6	A process framework	T1	24	25	Black board	01		CO1/K2
1.7	The Capability Maturity Model Integration (CMMI)	T1	27	29	Black board	01		CO1/K2
1.8	Process patterns, Process assessment	T2	30	31	Black board	01		CO1/K1
1.9	Personal and Team process models	T1	38	40	Presentation	01		CO1/K4
1.10	<b>Process models : The waterfall model</b>	T1	43	45	Presentation	02		CO1/K2
1.11	Incremental process models	T1	46	48	Presentation	02		CO1/K2
	<b>Review</b>	<b>Signature of the HOD/Coordinator</b>						
Unit/ Item No.	Topic (s)	Book Reference	Page (s)		Teaching Methodology	Proposed No. of Periods	Actual Date of Handled	CO/RBT
			from	To				

	<b>Review</b>	<b>Signature of the HOD/Coordinator</b>						
<b>UNIT-IV</b>								
<b>IV</b>	<b>Testing strategies Product Metrics</b>					<b>14</b>		
4.1	<b>Testing Strategies :</b> A strategic approach to software testing	T1	158	160	Black board	01		CO4/K2
4.2	Test strategies for conventional software	W5	175	189	Presentation	01		CO4/K4
4.3	Black-Box and White-Box testing	T1	200	201	Black board	01		CO4/K6
4.4	Validation testing, System testing, the art of Debugging.	T1	206	210	Black board	02		CO4/K2
4.5	<b>Product metrics :</b> Software Quality	T1	215	220	Presentation	02		CO4/K2
4.7	Metrics for Analysis Model, Metrics for Design Model	T1	225	230	Presentation	02		CO4/K2
4.8	Metrics for source code, Metrics for testing, Metrics for maintenance.	T1	245	248	Black board	01		CO4/K4
4.9	Revision class for entire unit-VI	T1	539	543	Black board	02		CO4/K2
4.10	<b>Metrics for Process and Products :</b> Software Measurement	T1	530	532	Black board	01		CO4/K2
4.11	Metrics for software quality	W6			Presentation	01		CO4/K4
	<b>Review</b>	<b>Signature of the HOD/Coordinator</b>						
<b>UNIT-V</b>								
<b>V</b>	<b>Risk Management Quality Management</b>					<b>11</b>		
5.1	<b>Risk management :</b> Reactive vs. Proactive Risk strategies	T1	737	741	Presentation	01		CO4/K2
5.2	Software risks, Risk identification	T1	737	741	Presentation	01		CO4/K2
5.3	Risk projection, Risk refinement	T1	743	790	Black board	01		CO4/K2
5.4	RMMM, RMMM Plan	T1	743	790	Black board	01		CO4/K1
5.5	<b>Quality Management :</b> Quality concepts	T1	743	790	Black board	01		CO4/K2
5.6	Software quality assurance, Software Reviews	T1	743	790	Presentation	01		CO4/K1

	standards								
5.9	<b>Risk management :</b> Reactive vs. Proactive Risk strategies	T1	876	891	Presentation	01		CO4/K2	
5.10	Software risks, Risk identification	T1	891	904	Presentation	01		CO4/K1	
5.11	Risk projection, Risk refinement	T1	907	921	Presentation	01		CO4/K1	
	<b>Review</b>	<b>Signature of the HOD/Coordinator</b>							

### **LIST OF TEXT BOOKS AND REFERENCES**

Software Engineering, A practitioner's Approach, Roger S Pressman, sixth edition. McGrawHill International Edition.

1. Software Engineering, Ian Sommerville, seventh edition, Pearson education.

#### **Reference Books:**

1. Software Engineering, A Precise Approach, Pankaj Jalote, Wiley India, 2010.
2. Software Engineering : A Primer, Waman S Jawadekar, Tata McGraw-Hill, 2008
3. Fundamentals of Software Engineering, Rajib Mall, PHI, 2005
4. Software Engineering, Principles and Practices, Deepak Jain, Oxford University Press.
5. Software Engineering1: Abstraction and modeling, Diner Bjorner, Springer International edition, 2006.
6. Software Engineering2: Specification of systems and languages, Diner Bjorner, Springer International edition , 2006.
7. Software Engineering Foundations, Yingxu Wang, Auerbach Publications, 2008.
8. Software Engineering Principles and Practice, Hans Van Vliet, 3rd edition, John Wiley & Sons Ltd.
9. Software Engineering 3: Domains, Requirements, and Software Design, D. Bjorner, Springer International Edition.
10. Introduction to Software Engineering, R.J. Leach, CRC Press.

### **WEB REFERENCES FOR SOFTWARE ENGINEERING**

W1: <https://nptel.ac.in/courses/106101061/2>

W2: [www.tutorialspoint.com/software\\_testing\\_dictionary/software\\_requirement\\_specification.htm](http://www.tutorialspoint.com/software_testing_dictionary/software_requirement_specification.htm)

W3: [https://elsmar.com/pdf\\_files/cmimi-overview05.pdf](https://elsmar.com/pdf_files/cmimi-overview05.pdf)

W4: [www.tutorialspoint.com/uml/uml\\_basic\\_notations.htm](http://www.tutorialspoint.com/uml/uml_basic_notations.htm)

## **QUESTION BANK WITH BLOOMS TAXONOMY LEVEL (BTL)**

(1. Remembering 2. Understanding 3. Applying 4. Analyzing 5. Evaluating 6. Creating)

<b>UNIT-1</b>			
<b>1 MARKS QUESTIONS</b>		<b>BT Level</b>	<b>Course Outcome</b>
1	What is software engineering? What is SDLC?	1	CO1
2	Define the term software List the drawbacks of waterfall model	1	CO1,CO4
3	What is legacy software? What are the advantages of incremental model?	1	CO1.CO3
4	Define CMMI. Define RAD(aug 2018)	1	CO3,CO6
5	What is process pattern?	1	CO2
6	Distinguish system and Application software.	4	CO1
7	Describe process assessment.	2	CO1
8	What is PSP&TSP?	1	CO4
9	What do you mean by the software process?	1	CO1
10	What is process model? List the phases of prototyping model(jun 2016)	1	CO3

### **10 MARKS QUESTIONS**

1	A.Explain software myths? B.Explain the classical life cycle model with real time scenario	2	CO1
2	List the applications of software engineering(july2017)	1	CO1
3	Define software. Explain various types of software available.	1	CO1
4	Explain various characteristics of software.	1	CO1
5	Elaborate on changing nature of software in detail.	6	CO1
6	A.Explain about Capability Maturity Model Integration. B.Distinguish prototyping and incremental model	2	CO3
7	Distinguish personal process model and team process model Explain in detail about spiral model?	4	CO3
8	What is a process pattern? Describe the template of a process pattern with an Example. Describe the process that are involved in unified approach for software development(Aug 2018)	1, 2	CO5
9	What is a process framework activity? Explain in detail.	2	CO4
10	Elaborate on related patterns. Illustrates RAD process model. with an example	6	CO5,CO3

UNIT-II			
1 MARKS QUESTIONS		BT Level	Course Outcome
1	What is requirement engineering?	1	CO2
2	List the functional requirements.	1	CO2
3	List the non-functional requirements.	1	CO2
4	What are the guidelines for user requirements?	1	CO2
5	Define feasibility study. (july 2015)	1	CO2
6	A.What is stake holder? B.List of system model	1	CO1
7	What is requirement elicitation? List the advantages of behavioral mode	1	CO2
8	Define requirement validation. Classify the object models.	1	CO2,CO3
9	Define requirement management. (Aug 2016)	1	CO2
10	What is system model? Give the drawbacks of structured model.	1	CO3

10 MARKS QUESTIONS			
1	A. Discuss the problem of using natural languages for defined user and system requirements.  B. hat are the goals of requirement engineering process?	6	CO2
2	Distinguish functional and non-functional requirements.	4	CO2
3	A. Define software requirements document. Explain the structure of it in detail.  B. With the help of neat diagram explain the requirement engineering process activities(june 2018)	2	CO2
4	Draw and explain the sequence diagram representing various consequences during withdraw from ATM system.)	6	CO4
5	What is non-functional requirement? Give any examples for it.	1	CO2
6	Explain about a)DFD B)State machine model	2	
7	A. Explain the context model with the context of an ATM system.  B. Explain the spiral model of requirement engineering process	5	CO3
8	A. Explain in detail object model.  B. Explain in detail requirement elicitation process(Aug 2018)	2	CO3
9	Explain in detail behavioral model.	2	CO3
10	A. Elaborate the structured method.(jun 2019) B. B. Elaborate requirement management process	6	CO2



**UNIT-II****1 MARKS QUESTIONS**

		<b>BT Level</b>	<b>Course Outcome</b>
1	What is requirement engineering?	1	CO2
2	List the functional requirements.	1	CO2
3	List the non-functional requirements.	1	CO2
4	What are the guidelines for user requirements?	1	CO2
5	Define feasibility study.	1	CO2
6	A.What is stake holder? B.List of system model	1	CO1
7	A. What is requirement elicitation? B.List the advantages of behavioral mode	1	CO2
8	A. Define requirement validation. B. Classify the object models.	1	CO2,CO3
9	Define requirement management.	1	CO2
10	A. What is system model? B. Give the drawbacks of structured model.	1	CO3

**10 MARKS QUESTIONS**

1	A. Discuss the problem of using natural languages for defined user and system requirements. B. What are the goals of requirement engineering process?	6	CO2
2	Distinguish functional and non-functional requirements.	4	CO2
3	A. Define software requirements document. Explain the structure of it in detail. B. With the help of neat diagram explain the requirement engineering process activities	2	CO2
4	Draw and explain the sequence diagram representing various consequences during withdraw from ATM system.	6	CO4
5	What is non-functional requirement? Give any examples for it.	1	CO2
6	Explain about a)DFD B)State machine model	2	
7	A. Explain the context model with the context of an ATM system. B. Explain the spiral model of requirement engineering process	5	CO3
8	A. Explain in detail object model. B. Explain in detail requirement elicitation process	2	CO3
9	Explain in detail behavioral model.	2	CO3
10	A. Elaborate the structured method. B. Elaborate requirement management process	6	CO2

<b>UNIT-III</b>			
<b>1 MARKS QUESTIONS</b>		<b>BT Level</b>	<b>Course Outcome</b>
1	What is design? (Remembering)	1	CO4
2	What is architectural design? (Remembering)	1	CO4
3	List the design concepts. (Remembering)	1	CO4
4	Define coupling. (Remembering)	1	CO1
5	Define cohesion. (Remembering)	1	CO1
6	What is software architecture? (Remembering)	1	CO4
7	Define the advantages of horizontal partitions. (Remembering)	1	CO1
8	List the guidelines for data design. (Remembering)	1	CO4
9	List the architectural styles. (Remembering)	1	CO4
10	Define transform mapping	1	CO1
<b>10 MARKS QUESTIONS</b>			
1	Explain design concepts in detail.	2	CO1
2	What is data design? Explain how it is done with example. (june2019)	5	CO4
3	What is software architecture? Explain about structured chart with an example.	5	CO4
4	What are the elements in data design? Give the guidelines for data design.(july 2019)	1	CO4
5	What are the commonly used architectural styles? Explain any one of them in detail.	1	CO4
6	Explain design process and design quality in detail.	2	CO6
7	Distinguish procedural and data abstraction.(Aug 2018)	4	CO1
8	What do you mean by architecture? Give the functioning of various architectural designs.	1	CO4
9	Distinguish coupling and cohesion. With an example.	4	CO1
10	Explain in details about transform mapping. (june 2018)	2	CO4

<b>UNIT-IV</b>			
<b>1 MARKS QUESTIONS</b>		<b>BT Level</b>	<b>Course Outcome</b>
1	What is testing?	1	CO5
2	A. What is the purpose of software testing? B. Define software measurement.	1	CO1
3	List the types of testing.	1	CO5
4	Describe few words about black box testing.	2	CO5
5	Why to perform white box testing?	1	CO5
6	Define alpha testing.(Nov 2018)	1	CO5
7	Define debugging?	1	CO5
8	What is software quality?	1	CO6
9	What is metric?	1	CO6

10	A.List the metrics for design model. B.List the software measurement	1	CO3
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10 MARKS QUESTIONS			
1	Demonstrate the test strategies for conventional software.	2	CO5
2	Explain in detail metrics for analysis model.	2	CO3
3	A.Explain in detail software quality. B.Explain in detail metrics for Software quality	2	CO6
4	Compare a) Direct metrics b) Indirect metrics.	4	CO1
5	Explain in detail metrics for design model.	2	CO3
6	Discuss the MOOD metric suit.(june 2019)	6	CO1
7	Explain in detail about validation testing and system testing.	2	CO5
8	Compare various types of testing's.	4	CO5
9	Explain in detail art of debugging process.	2	CO5
10	Describe integration testing.(nov 2018)	2	CO5

UNIT-V			
1 MARKS QUESTIONS		BT Level	Course Outcome
1	Define RMMM.	1	CO6
2	Define the advantages of function oriented metrics.	1	CO6
3	What is function oriented metric.	1	CO6
4	Define Risk management.	1	CO6
5	What is software Risk?(june 2016)	1	CO6
6	List the software Risks.	4	CO6
7	Define Risk identification.	1	CO6
8	Define Risk projection	1	CO6
9	Define Quality.	1	CO6
10	What is quality assurance?(july 2018)	1	CO6
10 MARKS QUESTIONS			
1	Explain in detail process metrics and software process improvement.	2	CO6
2	Explain in detail about software measurement.	2	CO6
3	Describe the metric for software quality.	2	CO6
4	Explain in detail software tools for project & product metrics.(june 2018)	2	CO6
5	Discus any four useful indicators for software quality.	6	CO6
6	Discus about Reactive vs. Proactive Risk strategies	6	CO6
7	Explain in detail about software Risk.	2	CO6
8	Explain in detail about Risk Identification.(Nov 2019)	2	CO6
9	Describe Risk Projection.	1	CO6
10	Explain in detail about RMMM and RMMM Plan.	2	CO6

HallTicket No.: \_\_\_\_\_

D4

# **SRI INDU COLLEGE OF ENGINEERING & TECHNOLOGY**

(An Autonomous Institution under UGC, New Delhi)

(Recognized under 2(f) and 12(B) of UGC Act 1956)

**III B.Tech - I Semester –End Examinations (Suppl.)**

**October/November-**

**2020**

**R16CSE1113- SOFTWARE ENGINEERING**

**(Common to CSE & IT)**

**Duration:2 Hrs**

**05.11.2020 (AN)**

**MaxMarks:70M**

**Section – A**

**Answer Any Three of the following questions.**

**Marks:**

**3Qx6M=18M**

1. Explain Evolutionary process model and its impact on Software Engineering.
2. Write the importance of Requirements Validation
3. What are Golden Rules in User Interface Design ?
4. List Metrics for Testing.
5. Write short notes Software Reliability.

## **UNIT-V**

14. a) Discuss ISO 9000 Quality Standards in detail.  
b) Why Risk Refinement is needed?

**(OR)**

15. a) Explain Statistical Software Quality Assurance.  
b) What do you mean by Risk Projection .

**\*\*\*\*\***

**SRI INDU COLLEGE OF ENGINEERING & TECHNOLOGY**

(An Autonomous Institution under UGC, New Delhi)

Recognized under 2(f) and 12(B) of UGC Act 1956

**III B.Tech - I Semester –End Examinations (Regular/Suppl.) November-2019****SOFTWARE ENGINEERING**

(Common to CSE and IT)

**Duration: 3 Hrs****09.11.2019****Max Marks: 70M****Section – A****Answer All the following questions****Marks: 5Qx4M = 20M**

1. Explain Team Process Models in Software Engineering (SE).
2. Analyze the role of Requirements Elicitation in Requirements Engineering.
3. How to conduct Component level Design?
4. Write Metrics for Maintenance.
5. Discuss the role of Risk Identification in Risk Management.

**Section – B****Answer any FIVE questions choosing at least one from each Unit****Marks: 5Qx10M = 50M****UNIT - I**

6. a) What is Layered Technology?  
b) Explain Incremental Process Model in detail.
- (OR)**
7. a) What is Legacy Software and its impacts in SE?  
b) Write about Capability Maturity Model Integration (CMMI).

**UNIT - II**

8. a) Differentiate between the functional mechanisms of Object Model and Structured Model in System Models.  
b) What are Functional Requirements in Software Requirements.
- (OR)**
9. a) Does Requirements Validation have an important role in Requirements Engineering Process?  
Explain in detail.
    - Analyze the role of various Requirements in Engineering Processes.

**UNIT - III**

10. a) Elucidate how to design Conventional Components.
  - Differentiate between Architectural Styles and Patterns.

**(OR)**

11. a) Explain Interface Design steps, sequentially, in detail.  
b) What measures do you suggest for Design Quality?

**UNIT - IV**

12. . a) Differentiate between Analysis and Design Models.

b) Examine Black-Box Testing in analysis mode.

**(OR)**

13.a) Write metrics for Source code and Design model

b) Explain Incremental Process Model in detail.

BR-16

SRI INDU COLLEGE OF ENGINEERING & TECHNOLOGY  
(An Autonomous Institution Under 2(f) and 12(B) of UGC Act 1956, New Delhi)

D4

III B.Tech - I Semester - II Mid Term Examinations

(R16CSE1113) SOFTWARE ENGINEERING - (Common to CSE, IT)

Duration: 90Mins

Date: 31.10.2019 FN

Max Marks: 25M

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Section – A

Answer All the questions

Marks: 5Qx1M = 5M

1. Define the advantages of horizontal partitions.
2. What do you mean by object constraint language?
3. Describe few words about black box testing.
4. What is software quality?
5. Define RMMM.

Section – B

Answer any FOUR questions

Marks: 4Qx5M = 20M

6. What is software architecture? Explain about structured chart with an example.
7. Explain designing conventional component.
8. Demonstrate the test strategies for conventional software.
9. Compare various types of testing.
10. Discuss any four useful indicators for software quality.
11. Explain in detail about software Risk.

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BR-16

SRI INDU COLLEGE OF ENGINEERING & TECHNOLOGY  
(An Autonomous Institution Under 2(f) and 12(B) of UGC Act 1956, New Delhi)

D4

III B.Tech - I Semester - II Mid Term Examinations

(R16CSE1113) SOFTWARE ENGINEERING - (Common to CSE, IT)

Duration: 90Mins

Date: 31.10.2019 FN

Max Marks: 25M

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Section – A

Answer All the questions

Marks: 5Qx1M = 5M

1. Define the advantages of horizontal partitions.
2. What do you mean by object constraint language?
3. Describe few words about black box testing.
4. What is software quality?
5. Define RMMM.

Section – B

Answer any FOUR questions

Marks: 4Qx5M = 20M

6. What is software architecture? Explain about structured chart with an example.
7. Explain designing conventional component.
8. Demonstrate the test strategies for conventional software.
9. Compare various types of testing.
10. Discuss any four useful indicators for software quality.



BR-16

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D4

III B.Tech - I Semester - I Mid Term Examinations

(R16CSE1113) SOFTWARE ENGINEERING - (Common to CSE, IT)

Duration: 90Mins

Date: 27.08.2019 FN

Max Marks: 25M

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Section – A

Answer All the questions

Marks: 5Qx1M = 5M

1. What is legacy software?
2. What is process pattern?
3. What is stake holder?
4. List of system model.
5. What is architectural design?

Section – B

Answer any FOUR questions

Marks: 4Qx5M = 20M

6. Distinguish personal process model and team process model.
7. What is a process framework activity? Explain in detail.
8. Explain in detail about spiral model.
9. Distinguish functional and non-functional requirements.
10. Explain in detail requirement elicitation process.
11. Explain design concepts in detail.

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D4

III B.Tech - I Semester - I Mid Term Examinations

(R16CSE1113) SOFTWARE ENGINEERING - (Common to CSE, IT)

Duration: 90Mins

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Section – A

Answer All the questions

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5. What is architectural design?

Section – B

Answer any FOUR questions

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8. Explain in detail about spiral model.
9. Distinguish functional and non-functional requirements.
10. Explain in detail requirement elicitation process.
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D4

III B.Tech - I Semester - II Mid Term Examinations

(R16CSE1113) SOFTWARE ENGINEERING - (Common to CSE, IT)

Duration: 90Mins

Date: 02.11.2018 FN

Max Marks: 25M

Section – A

Answer All the questions

Marks: 5Qx1M = 5M

1. What is component?
2. List the types of testing.
3. List the software measurement.
4. What is software Risk?
5. What is quality assurance?

Section – B

Answer any FOUR questions

Marks: 4Qx5M = 20M

6. Explain design concepts in detail.
7. Write the test strategies for conventional software.
8. Describe various types of testings.
9. Explain in detail art of debugging process.
10. Explain in detail about software Risk.
11. Explain with an example data collection for statistical software quality assurance.

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D4

III B.Tech - I Semester - II Mid Term Examinations

(R16CSE1113) SOFTWARE ENGINEERING - (Common to CSE, IT)

Duration: 90Mins

Date: 02.11.2018 FN

Max Marks: 25M

Section – A

Answer All the questions

Marks: 5Qx1M = 5M

1. What is component?
2. List the types of testing.
3. List the software measurement.
4. What is software Risk?
5. What is quality assurance?

Section – B

Answer any FOUR questions

Marks: 4Qx5M = 20M

6. Explain design concepts in detail.
7. Write the test strategies for conventional software.
8. Describe various types of testings.
9. Explain in detail art of debugging process.
10. Explain in detail about software Risk.
11. Explain with an example data collection for statistical software quality assurance.

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BR-16

SRI INDU COLLEGE OF ENGINEERING & TECHNOLOGY  
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D4

III B.Tech - I Semester - I Mid Term Examinations

(R16CSE1113) SOFTWARE ENGINEERING - (Common to CSE, IT)

Duration: 90Mins

Date: 28.08.2018 FN

Max Marks: 25M

Section – A

Answer All the questions

Marks: 5Qx1M = 5M

1. What is software engineering?
2. Give the phases of prototyping model.
3. What is stake holder?
4. What are the guidelines for user requirements?
5. What is architectural design?

Section – B

Answer any FOUR questions

Marks: 4Qx5M = 20M

6. Distinguish between personal process model and team process model.
7. Explain in detail about spiral model.
8. Describe the process that are involved in unified approach for software development.
9. Explain in detail object model.
10. With the help of neat diagram explain the requirement engineering process activities.
11. What is software architecture? Explain about structured chart with an example.

\*\*\*

BR-16

SRI INDU COLLEGE OF ENGINEERING & TECHNOLOGY  
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D4

III B.Tech - I Semester - I Mid Term Examinations

(R16CSE1113) SOFTWARE ENGINEERING - (Common to CSE, IT)

Duration: 90Mins

Date: 28.08.2018 FN

Max Marks: 25M

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Section – A

Answer All the questions

Marks: 5Qx1M = 5M

1. What is software engineering?
2. Give the phases of prototyping model.
3. What is stake holder?
4. What are the guidelines for user requirements?
5. What is architectural design?

Section – B

Answer any FOUR questions

Marks: 4Qx5M = 20M

6. Distinguish between personal process model and team process model.
7. Explain in detail about spiral model.
8. Describe the process that are involved in unified approach for software development.
9. Explain in detail object model.
10. With the help of neat diagram explain the requirement engineering process activities.
11. What is software architecture? Explain about structured chart with an example.

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## **Assignment Questions**

### **Assignment — Mid – I**

1. Explain software myths?
2. Explain about Capability Maturity Model Integration.
3. Give the differentiate between functional and non-functional requirements.
4. Explain in detail object model.
5. Explain design concepts in detail.

### **Assignment — Mid – II**

1. What are the commonly used architectural styles ? Explain any one of them in detail.
2. Describe various types of testing's .
3. Discuss the MOOD metric suit .
4. Discus about Reactive vs Proactive Risk strategies
5. Write short notes on a) Quality b) Quality control c) Review guidelines

# COMPUTER NETWORKS

## **COURSE OUTCOMES (CO's)**

**Academic Year:** 2022-23

**Class:** III YEAR-I SEM.

**Course Name:** Computer Networks (R20CSE3103)

At the end of the course, the student will be able to

<b>Course Outcomes (COs)</b>	
<b>C316.1</b>	Understand the terminology and concepts of the OSI reference model and the TCP-IP reference model.(Understand)
<b>C316.2</b>	Demonstrate the transmission media, design issues and determine the CRC codes.(Apply)
<b>C316.3</b>	Classify the various protocols of physical layer and MAC layer.(Analyse)
<b>C316.4</b>	Explain the design issues, switching and evaluate the routing algorithms of network layer.(Evaluate)
<b>C316.5</b>	Examine the various Internetworking and Internet Transport protocols.(Apply)
<b>C316.6</b>	Design a network based on a specified network layer protocols.(Create)

### **Mapping of Course Outcomes(CO's) with PO's:**


<b>CO</b>	<b>PO</b>											
	<b>PO1</b>	<b>PO2</b>	<b>PO3</b>	<b>PO4</b>	<b>PO5</b>	<b>PO6</b>	<b>PO7</b>	<b>PO8</b>	<b>PO9</b>	<b>PO10</b>	<b>PO11</b>	<b>PO12</b>
<b>C316.1</b>	3	1	2	3	-	-	-	-	-	-	3	-
<b>C316.2</b>	3	3	2	1	-	-	-	-	-	-	2	-
<b>C316.3</b>	2	3	2	2	-	-	-	-	-	-	2	-
<b>C316.4</b>	3	3	2	2	-	-	-	-	-	-	1	-
<b>C316.5</b>	3	3	2	2	-	-	-	-	-	-	1	-
<b>C316.6</b>	2	2	2	2							2	
<b>C316</b>	<b>2.6</b>	<b>2.5</b>	<b>2.0</b>	<b>2.0</b>	-	-	-	-	-	-	<b>1.8</b>	-

**3: High   2: Medium   1: Low**

**Mapping of Course Outcomes(CO's) with PSO's:**

<b>COs</b>	<b>PSO1</b>	<b>PSO2</b>	<b>PSO3</b>
<b>C316.1</b>	2	1	1
<b>C316.2</b>	2	1	1
<b>C316.3</b>	2	2	2
<b>C316.4</b>	2	2	2
<b>C316.5</b>	3	3	3
<b>C316.6</b>	3	3	3
<b>C316</b>	2.3	2	2



	<b>SRI INDU COLLEGE OF ENGG &amp; TECH</b>		
	<b>LESSON PLAN (Regulation :R20)</b>		
	<b>Department of Computer Science and Engineering</b>		
	<b>Sub. Code &amp; Title</b>	<b>(R20CSE3103) &amp; Computer Networks</b>	
<b>Academic Year: 2022-23</b>	<b>Year/Sem./Section</b>	<b>III/I</b>	
<b>Faculty Name &amp; Designation</b>	<b>B.Navya (Asst. Prof) Mahendhar(Asst. Prof)</b>		

### LESSON PLAN

Unit/ Item No.	Topic (s)	Book Reference	Page (s)		Teaching Methodology	Proposed No. of Periods	Actual Date of Handled	CO/RBT	
			From	To					
<b>UNIT – I</b>									
<b>I</b>	<b>Overview, Physical layer and Data link layer</b>					<b>12</b>			
1.1	Introduction, Protocols, layering scenario	T1	32	35	Black board	01		CO-1, L2	
1.2	TCP/IP suite	T1	35	43	Black board	01		CO-1	
1.3	OSI model	T1	44	46	Black board	01		CO-1,2	
1.5	OSI vs TCP	T1	45	47	Black board	01		CO1,2	
1.6	Guided transmission media	T1	187	192	Black board	01		CO-1	
1.7	Wireless transmission media	T1	197	201	Black board	01		CO-1	
1.8	Design issues of Datalink layer	T2	134	137	Black board	01		CO-1	
1.9	CRC code	T1	264	267	Presentation	01		CO-1	
1.10	Elementary datalink layer protocols	T1	299	303	Presentation	02		CO-1	
1.11	Sliding window protocols	T1	299	303	Presentation	02		CO-1	
	<b>Review</b>	<b>Signature of the HOD/Coordinator</b>							
Unit/ Item No.	Topic (s)	Book Reference	Page (s)		Teaching Methodology	Proposed No. of Periods	Actual Date of Handled	CO/RBT	
<b>UNIT –II</b>									
<b>II</b>	<b>MULTI ACCESS PROTOCOLS</b>					<b>09</b>			
2.1	ALOHA	T1	321	331	Black board	01		CO-3	
2.2	CSMA	T1	331	334	Black board	01		CO-3	
2.3	Collision free protocols	T2	193	195	Blackboard	01		CO-3	
2.4	Physical layer of Ethernet	T1	381	382	Presentation	01		CO-3	
2.5	MAC sublayer of Ethernet	T1	379	381	Presentation	02		CO-3	
2.6	Datalink layer switching, bridges	T1	494	502	Black board	01		CO-3	
2.7	Repeaters, Hub	T1	494	495	Demonstration	01		CO-2,3	
2.8	Switches, Routers	T1	495	501	Demonstration	01		CO-2,3	
2.9	Gateways	W1	495	501	Presentation	01		CO-2,3	

	Review	Signature of the HOD/Coordinator						
<b>UNIT- III</b>								
<b>III</b>	<b>NETWORK LAYER</b>					<b>09</b>		
3.1	Design issues	W2			Presentation	01		CO-2,3
3.2	Store and forward packet switching	T1	512	514	Presentation	01		CO-2,3
3.3	Connection oriented and Connection less networks	T1	516	522	Black board	01		CO-2,3
3.4	Optimality principle, Shortest path concept	W3			Presentation	01		CO-2,3
3.5	DVR, Flooding	T1	598	604	Black board	01		CO-2,3
3.6	Control to infinity problem				Black board	01		CO-2,3
3.7	Hierarchical routing	T1	635	638	Black board	01		CO-2,3
3.8	Congestion control	W4			Presentation	01		CO-2,3
3.9	Admission control	T1	1061	1062	Black board	01		CO-2,3
	Review	Signature of the HOD/Coordinator						
<b>UNIT-IV</b>								
<b>IV</b>	<b>INTERNETWORKING AND TRANSPORT LAYER</b>					<b>14</b>		
4.1	Tunneling	T1	683	684	Black board	01		CO-2,3
4.2	Internet routing	W5			Presentation	01		CO-2,3
4.3	Packet fragmentation	T1	567	572	Black board	01		CO-2,3
4.4	IPV4	T1	528		Black board	02		CO-2,3
4.5	IPV6	T1	674	678	Presentation	02		CO-2,3
4.7	CIDR, ICMP	T1	574		Presentation	02		CO-2,3
4.8	ARP, RARP	T1	245	248	Black board	01		CO-2,3
4.9	DHCP, Transport layer services	T1	539	543	Black board	02		CO-2,3
4.10	Addressing	T1	530	532	Black board	01		CO-2,3
4.11	Connection establishment, release, crash recovery	W6			Presentation	01		CO-2,3
	Review	Signature of the HOD/Coordinator						
<b>UNIT-V</b>								
<b>V</b>	<b>INTERNET TRANSPORT LAYER PROTOCOLS AND APPLICATION LAYER</b>					<b>11</b>		
5.1	UDP, RPC	T1	737	741	Presentation	01		CO-2,3
5.2	Real time transport protocols	T1	737	741	Presentation	01		CO-2,3
5.3	TCP service model, header	T1	743	790	Black board	01		CO-2,3
5.4	TCP connection establishment, release	T1	743	790	Black board	01		CO-2,3
5.5	TCP management modeling, Sliding window	T1	743	790	Black board	01		CO-2,3
5.6	Congestion control, The future of TCP	T1	743	790	Presentation	01		CO-2,3
5.7	Application layer services, paradigm	T1	819	822	Black board	01		CO-2,3
5.8	Client server model & application	T1	820	832	Presentation	01		CO-2,3
5.9	HTTP, FTP	T1	876	891	Presentation	01		CO-2,3
5.10	Email, TELNET	T1	891	904	Presentation	01		CO-2,3
5.11	DNS, SSH	T1	907	921	Presentation	01		CO-2,3
	Review	Signature of the HOD/Coordinator						

## QUESTION BANK WITH BLOOMS TAXONOMY LEVEL (BTL)

(1. Remembering 2. Understanding 3. Applying 4. Analyzing 5. Evaluating 5. Creating)

### UNIT-1

#### 2MARKS QUESTIONS

		BT Level	Course Outco me
1.	Define Protocol (R16-April/May-2018 & R13- December - 2018)	1	CO1
2.	What do you mean by Layering architecture (R16-April/May-2018)	1	CO1
3.	What is the role of IAB in Internet architecture (R13- Nov/Dec – 2018)	1	CO1
4.	Write the OSI layers (R13- Nov/Dec - 2018)	1	CO1
5.	In what layer, datagrams are converted into frames? (R13- December - 2018)	2	CO1
6.	Which layer is responsible for encryption? (R15- March - 2017)	2	CO1
7.	Compare TCP/IP & OSI models. (R15- March - 2017)	2	CO1
8.	What is the use of RJ-35 cable? (R15- March - 2017)	2	CO1
9.	Mention the range of propagation of WiFi. (R15- November - 2016)	1	CO1
10.	Give the purpose of layering (R15 – November-2017)	2	CO1
11.	What will be the maximum number of frames sent but unacknowledged for a sliding Window of size n-1(n is the sequence number)?	4	CO1

#### 10 MARKS QUESTIONS

1.	What is the difference between Port address, Logical address and Physical address (R16- April/May-2018)	2	CO1
2.	What are issues in Data link layer? (R13-Nov-Dec-2018)	2	CO1
3.	Draw the OSI architecture and explain the functionalities of every layers in detail. (R15- March - 2017)	2	CO1
4.	Explain the CRC mechanism with an example (R15- March - 2017)	3	CO1
5.	Discuss the framing technique used in HDLC. What is the effect of errors on this framing? (R15- March - 2017)	2	CO1
6.	Discuss briefly about Link level flow control (R15- March - 2017)	2	CO1
7.	Explain the Sliding window protocol in detail (R15- November - 2016)	2	CO1
8.	Explain the concepts of guided media. (R15- November - 2016)	2	CO1
9.	Explain the concepts of unguided media. (R15- November - 2016)	2	CO1

### Unit -II

#### 2 MARKS QUESTIONS

1.	Define sub-netting in MAC layer. (R16-April/May-2018)	2	CO2
2.	Draw the Ethernet frame format. (R16-Nov/Dec-2017)	2	CO2
3.	State the function of bridges. (R13- Nov/Dec - 2018)	1	CO2
4.	What do you understand by CSMA protocol? (R13- Nov/Dec - 2018)	1	CO2

5.	What is the average size of Ethernet frame? (R13- Nov/Dec - 2018)	2	CO2
6.	How is the minimum size of an Ethernet frame determined? (R13- Nov/Dec - 2018)	1	CO2
7.	List the main limitations of bridges. (R15- March - 2017)	2	CO2
8	What is CSMA/CD? (R15- March – 2017)	2	CO2
9	What are the functions of MAC?	1	CO2
10	How does router differ from bridge?	2	CO2
11	Define the term medium access control mechanism	1	CO2
<b>5 MARKS QUESTIONS</b>			
1	Draw and explain the Ethernet frame format. (R16- Nov-Dec-2018)	2	CO2
2.	Discuss the working of CSMA/CD protocol. (R16- Nov-Dec-2017)	1	CO2
3.	Explain the physical properties of Ethernet 802.3 with necessary diagram of Ethernet transceiver and adapter. (R16-April/May-2018)	2	CO2
4.	Write short notes on Ethernet and wireless LAN. (R13-Nov-Dec-2018)	2	CO2
5.	Discuss about physical properties, and medium access protocol of Ethernet. (R13-Nov-Dec-2018)	2	CO2
6.	Describe the working of Spanning tree bridges (R13-Nov-Dec-2018)	2	CO2
7.	Describe the process of ALOHA(R13-Nov-Dec-2018)	2	CO2
8	Describe the process of Slotted ALOHA (R13-Nov-Dec-2018)	2	CO2
9	Write short notes on Ethernet physical layer. (R15- March - 2017)	3	CO2
10	Write short notes on collision free protocols. (R15- March - 2017)	1	CO2
<b>Unit – III</b>			
<b>2 MARKS QUESTIONS</b>			
1.	What is meant by flooding? (R16-Nov/Dec-2018)	1	CO3
2.	What are the metrics used in determining the best path for a routing protocol? (R16-April/May-2018)	1	CO3
3	What is connection oriented service? (R15-December-2018)	1	CO3
4.	Name some routing algorithms. (R16-April/May-2018)	2	CO3
5	What is static routing? (R15-December-2018)	2	CO3
6.	What is dynamic routing? (R16-Nov/Dec-2018)	2	CO3
7	What is optimality principle? (R16-Nov/Dec-2017)	2	CO3
8.	What is Flooding? (R15-December-2018)	2	CO3
9.	Name some intra domain protocols.	2	CO3
10	Write the solutions to instability in DVR.	3	CO3
<b>5 MARK QUESTIONS</b>			
1.	Write a detailed note on hierarchical routing. (R16-Nov-Dec-2018)	2	CO3
2	Explain about store and forward packet switching. (R15-December-2018)	2	CO3
3.	Explain in detail about congestion control algorithms. (R16-April/May-2018)	2	CO3

4	Explain about admission control. (R15-December-2018)	3	CO3
5.	Explain Dijkstra algorithm in detail. (R16-April/May-2018)	3, 4	CO3
6	Explain distance vector routing with an example. (R15-December-2018)	3, 4	CO3
<b>Unit-IV</b>			
<b>2 MARKS QUESTIONS</b>			
1.	Draw the header format of IPV6. (R16-Nov/Dec-2018)	1	CO4
2.	What are responsibilities of transport layer? (R15- May-2018)	1	CO4
3.	What are the salient features of IPv6? (R15-May-2018)	2	CO4
4.	What is the need of Port numbers? (R16-Nov/Dec-2018)(R15-Nov/Dec-2017)	1	CO4
5.	Draw the header format of IPv4(R15-Nov/Dec-2017)	2	CO4
6.	What is DHCP? (R15-Nov/Dec-2017)	2	CO4
7.	What is the significance of fragmentation? (R13-Nov/Dec-2016)	1	CO4
8	What is classless inter domain routing? (R13-Nov/Dec-2016)	1	CO4
9	What are the services provided by transport layer? (R15- May-2018)	1	CO4
<b>5 MARK QUESTIONS</b>			
1.	Explain about tunneling (R16-Nov/Dec-2018)	2	CO4
2.	Explain about packet fragmentation (R16-Nov/Dec-2018)	3	CO4
3.	Explain about IPV4 (R15-May-2018)	2	CO4
4.	Explain about IPV6 (R15-May-2018)	1	CO4
5.	Explain about ICMP. (R15-May-2018)	1	CO4
6.	Explain about Dynamic Host Control Protocol. (R15-May-2018)	2	CO4
7.	Explain about ARP & RARP(R15-Nov/Dec-2017)	3	CO4
8	Discuss how a connection is established, released in transport layer. (R13-March-2017)	3	CO4
9	Explain how a crash is recovered in transport layer. (R13-March-2017)	1	CO4
<b>Unit-V</b>			
<b>2 MARKS QUESTIONS</b>			
1.	What is the function of SMTP? (R15-May-2018)	2	CO5
2.	Write short notes on FTP. (R15-May-2018)	1	CO5
3.	What are the types of messages in HTTP transactions? (R15-May-2018)	1	CO5
4.	What are the advantages of using UDP over TCP? (R15-May-2018)	1	CO5

5.	List the flags used in TCP header. (R15-Nov/Dec-2017)	2	CO5
6.	What are the functions of transport layer? (R15-Nov/Dec-2017)	2	CO5
7.	List some ways to deal with TCP congestion. (R15-Nov/Dec-2017)	2	CO5
8	Why TCP services are called stream delivery services? (R15-May-2018)	3	CO5
9	Define the two types of user agents in the electronic mail system (R15-May-2016)	1	CO5
10	What are the four main properties of HTTP? (R15-May-2017)	1	CO5
11	What do you mean by TELNET? (R15-Nov/Dec-2018)	1	CO5
12	What is remote control procedural call? (R15-Nov/Dec-2017)	1	CO5
<b>5 MARK QUESTIONS</b>			
1.	Explain the WWW in detail. (R15-May-2018)	1	CO5
2.	Explain in detail about E-Mail(R15-May-2018/Nov-Dec-2017)	2	CO5
3.	Explain in detail about TELNET. (R15-May-2018)	3	CO5
4	Explain in detail about DNS (R15-May-2018)	2	CO5
5.	What is the need for TCP connection establishment and connection release and explain clearly. (R15-May-2018)	2,3	CO5
6.	Explain in about TCP congestion control. (R15-May-2018)	1	CO5
7.	Sketch the TCP header and explain it. (R15-May-2018)	2	CO5
8	Explain about UDP. (R15-May-2018)	2	CO5

# SRI INDU COLLEGE OF ENGINEERING & TECHNOLOGY

(An Autonomous Institution under UGC, New Delhi)  
Recognized under 2(f) and 12(B) of UGC Act 1956

## III B.Tech - I Semester – End Examinations (Regular) 2020

### COMPUTER NETWORKS

(Computer Science & Engineering)

Duration: 3 Hrs

Max Marks: 70M

#### Section – A

Answer All the following questions

Marks: 5Qx4M = 20M

1. List out the differences between OSI model and TCP/IP model? (Remembering)
2. Discuss about switched Ethernet and learning bridge? (Understanding)
3. Discuss about the implementation of connectionless services provided by network layer? (Understanding)
4. State address resolution protocol? (Remembering)
5. Explain about DNS? (Understanding)

#### Section – B

Answer any FIVE questions choosing at least one from each Unit

Marks: 5Qx10M = 50M

6. Explain about CRC and find CRC for a frame of data word: 1101010101 and divisor  $G(x):10101$ ? (Understanding)  
(or)  
Explain about sliding window protocol? (Understanding)
7. Describe briefly about CSMA? (Understanding)  
(or)  
Illustrate how to detect and avoid collision in CSMA/CD and CSMA/CA? (Applying)
8. Describe about shortest path and its types? (Understanding)  
(or)  
Explain congestion control algorithm and explain its types? (Understanding)
9. Explain about IPv4 and IPv6 protocols? Understanding  
(or)  
Define and describe about ARP, RARP? (Understanding)
10. Define UDP - RPC? Explain about RTP and packet format for RTP. Explain each field? (Understanding)  
(or)  
State and explain client –server models? (Understanding)

# **WEB TECHNOLOGIES**



## COURSE OUTCOMES (CO's)

Academic Year: 2022-23

Class: III YEAR-I SEM.

Course Name: Web Technologies R20CSE3104

At the end of the course, the student will be able to

<b>C3104.1</b>	Describe PHP and PHP utilities for server side scripting. (Understand)
<b>C3104.2</b>	Implement the XML programme using PARSING METHODS. (Applying)
<b>C3104.3</b>	Justify Server side programming with Java SERVLET'S and JSP. (Evaluate)
<b>C3104.4</b>	Examine the database connectivity in JSP with an Example.(Analyze)
<b>C3104.5</b>	Discuss about java script with declaration of variables and functions.(Understand)
<b>C3104.6</b>	Developing a Library Management System using PHP, XML, Servlets, JSP and JavaScript's. (Create)

### Mapping of Course Outcomes(CO's) with PO's:

Course Outcome	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
C3104.1	3	3	-	-	-	-	-	-	-	-	-	2	3	3	3
C3104.2	3	3	3	-	-	-	-	-	-	-	-	-	3	2	2
C3104.3	3	2	3	2	3	-	-	-	-	-	-	2	3	3	3
C3104.4	3	-	3	3	-	-	-	-	-	-	-	2	3	3	3
C3104.5	3	-	-	-	-	-	-	-	-	-	-	2	3	2	2
C3104.6	3	-	-	-	-	-	-	-	-	-	-	-	3	3	3
<b>C3104</b>	<b>3</b>	<b>2.6</b>	<b>3</b>	<b>2.5</b>	<b>3</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>2</b>	<b>3</b>	<b>2.7</b>	<b>2.7</b>

**3: High    2: Medium    1: Low**

**Mapping of Course Outcomes(CO's) with PSO's:**

<b>COs</b>	<b>PSO1</b>	<b>PSO2</b>	<b>PSO3</b>
<b>C316.1</b>	2	2	2
<b>C316.2</b>	2	2	2
<b>C316.3</b>	2	3	2
<b>C316.4</b>	3	2	2
<b>C316.5</b>	3	3	3
<b>C316.6</b>	3	3	3
<b>C316</b>	2.5	2.5	2.3

# SRI INDU COLLEGE OF ENGINEERING & TECHNOLOGY

(An Autonomous Institution under UGC, New Delhi)

B.Tech. - III Year – I Semester

L	T	P	C
3	0	0	3

## (R20CSE3104) Web Technologies

### Objectives:

- To introduce PHP language for server side scripting
- To introduce XML and processing of XML Data with Java
- To Introduce Server Side Programming with Java Servlets and JSP
- To Introduce Client side scripting with JavaScript and AJAX

### UNIT – I

**Introduction to PHP :** Declaring Variables, data types, arrays, string operators, expressions, control structures, functions, Reading data from web from controls like text boxes, radio buttons, ,lists etc., Handling File Uploads, Connecting to database (MySQL as reference), executing simple queries, handling results, Handling sessions and cookies.

**File Handling in PHP:** File operations like opening, closing, reading, writing, appending, deleting etc. on text and binary files, listing directories.

### UNIT - II

**XML:** Introduction to XML, Defining XML tags, their attributes and values, Document Type Definition, XML Schemas, Document Object Model, XHTML **Parsing XML Data** – DOM and SAX in java.

### UNIT – III

**Introduction to Servlets:** Common Gateway Interface (CGI), Lifecycle of a servlet, deploying a servlet, The Servlet API, Reading Servlet parameters, Reading Initialization parameters, Handling Http Request & Responses, Using Cookies and Sessions, connecting to a database using JDBC.

### UNIT – IV

**Introduction to JSP:** The Anatomy of a JSP Page, JSP Processing, Declarations, Directives, Expressions, Code Snippets, Implicit objects, Using Beans in JSP pages, Using Cookies and Session for Session tracking, connecting to database in JSP.

### UNIT – V

**Client side Scripting:** Introduction to JavaScript: JavaScript Language – declaring variables, scope of variables, functions, evnt handlers (onclick, onsubmit etc.), Document Object Model, Form Validation, Simple AJAX application.

### TEXT BOOKS:

1. Web Technologies, Uttam K Roy, Oxford University Press
2. The Complete Reference PHP – Steven Holzner, Tata McGraw-Hill

### REFERENCE BOOKS:

1. Web Programming, building internet applications, Chris Bates 2<sup>nd</sup> Edition, Wiley Dreamtech.
2. Java Server Pages – Hans Bergsten, SPD O'Reilly
3. Java Script, D. Flanagan, O'Reilly, SPD
4. Beginning Web Programming- Jon Duckett WROX.
5. Programming world wide web, R.W. Sebesta, Fourth Edition, Pearson
6. Internet and World Wide Web – How to program, Dietel and Nieto, Pearson



**SRI INDU COLLEGE OF ENGG & TECH**  
**LESSON PLAN**  
 (Regulation :R20)  
 Department of Computer Science and Engineering

<b>Sub. Code &amp; Title</b>	<b>R20CSE3104 WEB TECHNOLOGIES</b>		
<b>Academic Year: 2022-23</b>	<b>Year/Sem./Section</b>	<b>III-I</b>	
<b>Faculty Name &amp; Designation</b>	<b>Manasa, Shirisha (Assistant Professor) Dr. Narasimha Chary</b>		

**LESSON PLAN**

Unit/ Item No.	Topic (s)	Book Reference	Page (s)		Teaching Methodology	Proposed No. of Periods	CO/RBT
			From	To			
1.1	<b>Introduction to PHP: Declaring Variables</b>	T2,R1	383	383	Black Board	1	CO1
1.2	Data Types	T2,R1	384	384	Black Board	1	CO1
1.3	Arrays, String Operators	T2,R1	385	393	Black Board	2	CO1
1.4	Expressions	T2,R1	396	399	Black Board	1	CO1
1.5	Control Structures	T2,R1	400	404	Black Board	1	CO1
1.6	Functions	T2,R1	405	406	Black Board	1	CO1
1.7	Reading data from web form controls like text boxes, radio buttons, lists etc.,	T2,R1	416	417	Black Board	1	CO1
1.8	Handling File Uploads	T2,R1	416	417	Black Board	1	CO1
1.9	Connecting to database (MySQL as reference)	T2,R1	411	413	Black Board	1	CO1
1.10	Executing Simple Queries	T2,R1	411	413	Black Board	1	CO1
1.11	Handling results	T2,R1	411	413	Black Board	1	CO1
1.12	Handling sessions and cookies	T2,R1	415	416	Black Board	1	CO1
1.13	<b>File Handling in PHP:</b> File operations like opening, closing, reading on text and binary files	T2,R1	411	415	Power Point Presentation	1	CO1
1.14	<b>File Handling in PHP:</b> File operations like writing, appending, deleting etc., on text and binary files	T2,R1	411	415	Power Point Presentation	1	CO1
1.15	Listing Directories	T2,R1	411	415	Power Point Presentation	1	CO1
2.1	<b>XML:</b> Introduction to XML	T1	163	170	Black Board	1	CO2
2.2	Defining XML tags, their attributes and values	T1	171	179	Black Board	2	CO2
2.3	Document Type Definition	T1	186	210	Black Board	1	CO2
2.4	XML Schemas	T1	216	221	Black Board	1	CO2
2.5	Document Object Model	T1	258	260	Power Point Presentation	1	CO2
2.6	XHTML Parsing XML Data - DOM in java	T1	261	270	Power Point Presentation	1	CO2

2.7	DOM and SAX in java	T1	271	283	Black Board	1	CO2
3.1	<b>Introduction to Servlets: CGI</b>	T1	593	593	Black Board	1	CO3
3.2	Common Gateway Interface (CGI)	T1	593	603	Black Board	1	CO3
3.3	Lifecycle of a servlet	T1	612	613	Power Point Presentation	1	CO3
3.4	Deploying a servlet	T1	613	613	Black Board	1	CO3
3.5	The Servlet API	T1	609	610	Black Board	1	CO3
3.6	Reading Servlet parameters	T1	618	618	Black Board	1	CO3
3.7	Reading Initialization Parameters	T1	615	618	Black Board	1	CO3
3.8	Handling Http Request & Responses	T1	548	549	Power Point Presentation	1	CO3
3.9	Using Cookies and Sessions	T1	623	624	Black Board	1	CO3
3.10	Connecting to a database using JDBC	T1	676	677	Black Board	1	CO3
4.1	<b>Introduction to JSP</b>	T1	631	631	Black Board	1	CO4
4.2	The Anatomy of a JSP Page	T1	639	639	Black Board	1	CO4
4.3	JSP Processing	T1	640	640	Black Board	1	CO4
4.4	Declarations	T1	647	647	Black Board	1	CO4
4.5	Directives	T1	640	643	Black Board	1	CO4
4.6	Expressions	T1	644	644	Black Board	1	CO4
4.7	Code Snippets	T1	645	645	Power Point Presentation	1	CO4
4.8	Implicit objects	T1	648	648	Black Board	1	CO4
4.9	Using Beans in JSP pages	T1	664	667	Power Point Presentation	1	CO4
4.10	Using Cookies and session for session tracking	T1	668	671	Black Board	1	CO4
4.11	Connecting to database in JSP	T1	676	676	Black Board	1	CO4
5.1	<b>Client side Scripting</b>	T1	383	383	Black Board	1	CO5
5.2	Introduction to JavaScript	T1	383	389	Black Board	1	CO5
5.3	JavaScript Language - declaring variables	T1	390	390	Black Board	1	CO5
5.4	Scope of Variables	T1	390	390	Black Board	1	CO5
5.5	Functions	T1	391	391	Black Board	1	CO5
5.6	Event handlers (onclick, insubmit etc..)	T1	463	477	Power Point Presentation	1	CO5
5.7	Document Object Model	T1	482	496	Power Point Presentation	1	CO5
5.8	Form Validation	T1	505	517	Black Board	1	CO5
5.9	Simple AJAX application	T1	542	550	Black Board	1	CO5

## LIST OF TEXT BOOKS AND REFERENCES

### Text Books:

- T1. Web Technologies, Uttam K Roy, Oxford University Press.  
T2. The Complete Reference PHP - Steven Holzner, Tata McGraw-Hill

### Reference Books:

- R1. Web Programming, building internet applications, Chris Bates 2<sup>nd</sup> Edition, Wiley Dreamtech  
R2. Java Server Pages - Hans Bergsten, SPD O'Reilly.  
R3. Java Script, D. Flanagan, O'Reilly, SPD.  
R4. Beginning Web Programming - Jon Duckett WROX.  
R5. Programming World Wide Web, R.W.Sebesta, Fourth Edition, Pearson.  
R6. Internet and World Wide Web - How to program, Dietel and Nieto, Pearson.

### Weblinks

- w-4. [https://www.tutorialspoint.com/internet\\_technologies/php.htm](https://www.tutorialspoint.com/internet_technologies/php.htm)  
w-5. [https://archive.uneca.org/sites/default/files/uploaded-documents/SROs/SA/GIS-SP2018/introduction\\_to\\_web\\_technology.pdf](https://archive.uneca.org/sites/default/files/uploaded-documents/SROs/SA/GIS-SP2018/introduction_to_web_technology.pdf)  
w-6. [https://www.tutorialspoint.com/jsp/jsp\\_overview.htm](https://www.tutorialspoint.com/jsp/jsp_overview.htm)  
w-7. <https://www.javatpoint.com/servlet-tutorial#:~:text=Servlet%20technology%20is%20used%20to,a%20server%20side%20programming%20language.>  
w-8. <https://docs.microsoft.com/en-us/dotnet/architecture/modern-web-apps-azure/common-client-side-web-technologies>

## CONTENT BEYOND THE SYLLABUS

S.No	Topics	Proposed Actions	Date	Resource Person/Mode	POs	PSOs
1	Basic HTML Tags, Lists, Images, Tables, Forms, Frames, CSS	To get Knowledge on front end application	07/10/2022	Dr.Guneshekarani	5	1
2	Introduction to World Wide Web	To get Knowledge on front end application	09/11/2022	Dr.T.Charan Singh	5	1

## ASSIGNMENT

S. No.	Assignment Questions	Course Outcome	Books to be Referred	Date of Announcement	Date of Submission
1	What is PHP? Define the data types in PHP?	CO1	T1	04/10/2022	16/10/2022
2	Explain the types of string operations?	CO1	T1	04/10/2022	16/10/2022
3	Differences between DTD and XSD (XML Schema Definition)?	CO2	R1	26/10/2022	02/11/2022
4	Explain about DOM and SAX parsers?	CO2	T1	26/10/2022	02/11/2022
5	What is a life cycle of Servlet?	CO3	T2	29/11/2022	01/12/2022
6	Differentiate between generic servlet and http servlet	CO3	T1	29/11/2022	01/12/2022
7	Explain about session and cookies?	CO3	T1	29/11/2022	01/12/2022
8	Explain about JSP scripting tags?	CO4	T1	13/12/2022	16/12/2022
9	Explain about JSP directive tags?	CO4	T1	13/12/2022	16/12/2022
10	What are the control statements in java script?	CO5	T1	27/12/2022	28/12/2022

<i>SELF STUDY TOPICS</i>			
<i>S. No.</i>	<i>Topics</i>	<i>Books &amp; Journals</i>	<i>Course Outcomes</i>
1	AJAX	AJAX - The Complete Reference	CO6
2	jQuery, J Son	Web Development with jQuery	CO6

**AJAX- The Complete Reference:** <https://inspirit.net.in/books/html,%20css%20and%20javascript/AJAX%20-%20The%20Complete%20Reference.pdf>

**Web Development with jQuery:** <https://www.teamwerx.org/wp-content/uploads/2017/10/Web-Development-with-jQuery.pdf>

**Json:** <https://api.jquery.com/jquery.parsejson/>

## **QUESTION BANK WITH BLOOMS TAXONOMY LEVEL (BTL)**

(1. Remembering 2. Understanding 3. Applying 4. Analyzing 5. Evaluating 6. Creating)

<b>Unit I</b>			
<b>S.No.</b>	<b>1 Marks Questions</b>	<b>BT Level</b>	<b>COs</b>
1	Differentiate \$name and \$\$name? (Analyzing)	4	CO1
2	Define PHP. With Syntax? (Remembering)	1	CO1
3	List out the advantages and disadvantages of PHP? (Remembering)	1	CO1
4	Differentiate PHP and JavaScript? (Analyzing)	4	CO1
5	Define PHP supported Data types? (Understand)	2	CO1
6	Describe String Operators in PHP with an example? (Understand)	2	CO1
7	Distinguish Get and Post methods? (Analyzing)	4	CO1
8	List out the file operations? (Remembering).	1	CO1
9	Define cookies and sessions in PHP? (Remembering)	1	CO1
10	What is the header() in PHP? (Remembering)	1	CO1
<b>10 MARKS QUESTIONS</b>			
1	Explain about arrays in PHP with an example? (Understanding)	2	CO1
2	Explain PHP form processing with an example? (Understanding)	2	CO1
3	Demonstrate the control structures in PHP with an example? (Applying)	3	CO1
4	Explain String functions in PHP? (Understanding)	2	CO1
5	Discuss different file modes in PHP with an example? (Understanding)	2	CO1
6	Explain handling file uploads with an example? (Understanding)	2	CO1
7	Describe the listing directories in PHP? (Understanding)	2	CO1
8	Explain various data types in PHP in details? (Understanding)	2	CO1
9	Design a PHP program to create, insert, update and delete a table using MySQL? (Creating)	6	CO1
10	Develop a PHP program to read content from one file and write them in another file? (Creating)	6	CO1
<b>UNIT II</b>			
<b>1 MARKS QUESTIONS</b>			
1	Define XML? (Remembering)	1	CO2
2	Write short notes on XHTML? (Applying)	3	CO2
3	Distinguish #PCDATA and #CDATA? (Analyzing)	4	CO2
4	Write about DOM parser? (Applying)	3	CO2
5	Explain the purpose of XML Schema? (Understand)	2	CO2
6	List out the advantages of schema over DTD? (Remembering )	1	CO2
7	Define rules for writing XML? (Remembering)	1	CO2
8	Describe the Namespace? (Understand)	2	CO2
9	Classify the XML parsers? (Understand )	2	CO2
10	Write about SAX parser? (Applying)	3	CO2
<b>10 MARKS QUESTIONS</b>			
1	Write about XML tags, attributes and values with an example? (Applying)	3	CO2



2	Explain about Document Object Model with an example? (Understanding)	2	CO2
3	Create a program for parsing XML data using DOM parser in java? (Creating)	6	CO2
4	Create a program for parsing XML data using SAX parser in java? (Creating)	6	CO2
5	Write a XML program for employee information using Document Type Definition (DTD)? (Applying)	3	CO2
6	Differentiate DOM and SAX parser? (Analyzing)	4	CO2
7	Write about building blocks of XML document? (Applying)	3	CO2
8	Explain the important features of XML over HTML? (Understanding)	2	CO2
9	Write a XML program for internal DTD and external DTD?(Applying)	3	CO2
10	Define targetNamespace? Explain XML schema and its elements and attributes? (Understanding)	2	CO2

### UNIT III

#### 1 MARK QUESTIONS

1	List out the Life Cycle methods of Servlet? (Remembering)	1	CO3
2	Discuss the drawback of CGI over Servlet? (Understanding )	2	CO3
3	Define the web application? (Remembering)	1	CO3
4	Differentiate Generic Servlet and HttpServlet? (Analyzing)	4	CO3
5	Explain how to override the Service() method of Servlet Interface? (Understanding)	2	CO3
6	Define about ServletContext object and ServletConfig object? (Remembering)	1	CO3
7	Define ServletRequest object and ServletResponse object? (Remembering)	1	CO3
8	List different types of statements in JDBC? (Remembering)	1	CO3
9	Write about MIME types? (Applying)	3	CO3

#### 10 MARKS QUESTION

1	Define Servlet? Explain Servlet Life Cycle with an example? (Understanding)	2	CO3
2	List out the steps for deploying Servlet in tomcat web server? (Remembering)	1	CO3
3	Explain about Servlet parameters in GenericServlet with an example? (Understanding)	2	CO3
4	Explain how Cookies are used for Session Tracking? (Understanding)	2	CO3
5	Define Session Tracking? Explain different Session Tracking mechanisms? (Understanding)	2	CO3
6	Explain the advantages of reading initialization parameters with an example? (Understanding)	2	CO3
7	Explain how to handling HttpRequest and HttpResponse with an example? (Understanding)	2	CO3
8	Create a program for inserting user credentials into database using Servlet through JDBC? (Creating)	6	CO3
9	Differentiate doGet() and doPost() methods in HttpServlet? (Analyzing)	4	CO3
10	Explain about Servlet API? (Understanding)	2	CO3

### UNIT IV

#### 1 MARK QUESTIONS

1	List out the JSP tags? (Remembering)	1	CO4
2	Define the Beans in JSP? (Remembering).	1	CO4
3	Describe page directive attributes in JSP? (Understanding)	2	CO4
4	Explain about scriptlet tag? (Understanding)	2	CO4

5	Describe Session Tracking? (Understanding)	2	CO4
6	Explain about various implicit object in JSP? (Understanding)	2	CO4
7	Explain about JSP expression tag? (Understanding)	2	CO4
8	Create a jsp page to display current date and time? (Creating)	6	CO4
9	Distinguish JSP and Servlets? (Analyzing)	4	CO4
10	Explain about JSP directive tags? (Understanding)	2	CO4
<b>10 MARKS QUESTIONS</b>			
1	Explain about Anatomy of JSP page? (Understanding)	2	CO4
2	Define JSP? Differentiate JSP and Servlet? (Understanding)	2	CO4
3	Explain JSP Processing? (Understanding)	2	CO4
4	Explain about JSP Scripting tags and Directive tags? (Understanding)	2	CO4
5	Explain the advantage of JavaBean component in JSP? (Understanding)	2	CO4
6	Explain JSP application design with MVC architecture? (Understanding)	2	CO4
7	Illustrate the usage of Cookies and Session for Session tracking? (Applying)	3	CO4
8	Develop a User validation web application using JSP? (Creating)	6	CO4
9	Write the steps to connecting to database in JSP? (Creating)	6	CO4
10	Discuss different Action Tags used in JSP in detail? (Understanding)	2	CO4
<b>UNIT V</b>			
<b>1 MARK QUESTIONS</b>			
1	List out the advantages of JavaScript? (Remembering)	1	CO5
2	Differentiate onclick and Onsubmit methods? (Analyzing)	4	CO5
3	Define how to create Date Object? (Remembering)	1	CO5
4	Explain how to embedded javascript code in HTML document? (Understanding)	2	CO5
5	Define Arrays in JavaScript? (Remembering)	1	CO5
6	Explain about string objects in JavaScript? (Understanding)	2	CO5
7	Define the Boolean operators supported by JavaScript? (Remembering)	1	CO5
8	Define control statements in JavaScript? (Remembering)	1	CO5
9	List out the window object methods? (Remembering)	1	CO5
10	Explain the advantages of AJAX? (Understanding)	2	CO5
<b>10 MARKS QUESTIONS</b>			
1	What is JavaScript? List out the features of JavaScript? (Remembering)	1	CO5
2	Explain the need of scripting languages in Web Applications. (Understanding)	2	CO5
3	Define an Event? How to handle events in JavaScript? (Remembering)	1	CO5
4	Design a JavaScript program for validation page to verify phone number and email id? (Creating)	6	CO5
5	Define a variable in JavaScript and explain the scope of variable with an example? (Understanding)	2	CO5
6	Explain different types of JavaScript objects? (Understanding)	2	CO5
7	a. Write about Document Object Model (DOM) in JavaScript? (Applying) b. Explain about getElementById(), getElementsByTagName()? (Understanding)	3,2	CO5
8	Explain different types of datatypes in JavaScript? (Understanding)	2	CO5
9	Explain various control statements in JavaScript? (Understanding)	2	CO5
10	Design a simple AJAX application using JavaScript? (Creating)	6	CO5

BR-14

Hall Ticket No.: \_\_\_\_\_

D4

# SRI INDU COLLEGE OF ENGINEERING & TECHNOLOGY

(An Autonomous Institution under UGC, New Delhi)(Recognized under 2(f) and 12(B) of UGC Act 1956)

**III B.Tech - II Semester - End Examinations (Suppl.) November-2019**

**R14CSE1119 - WEB TECHNOLOGIES**

(Common to CSE & IT)

**Duration: 3 Hrs**

**03.12.2019**

**Max Marks: 70M**

## Section - A

Answer All the following questions

Marks: 5Qx4M = 20M

1. How to read and write file in PHP? Explain with example.
2. What are the rules to be followed while naming XML elements and attributes.
3. What are the advantages of servlets over CGI.
4. Explain the JSP processing with neat sketch.
5. What are the advantages and disadvantages of client side scripting.

## Section - B

Answer any FIVE questions choosing at least one from each Unit. Marks: 5Qx10M = 50M

### UNIT - I

- 6 a. Write a PHP program to check the number is prime or not.  
b. Explain the PHP session and PHP cookie with an example.

(OR)

- 7 a. Write a PHP program to find whether the given number is a palindrome or not.  
b. Explain how PHP fits with MySQL.

### UNIT - II

- 8 a. Explain the Document Object Model with an example.  
b. Create XML document to store voter ID, voter name, address and date of birth details. Create a DTD to validate the document.

(OR)

- 9 a. Compare SAX parser with DOM parser.  
b. Write XML file to store book information like its name, author, publisher and price for at least two books and also gives the DTD for the same file.

### UNIT - III

- 10 a. Describe the lifecycle of a servlet.  
b. Write a servlet program to tracks the number of accesses and last access data of a particular web page

**(OR)**

- 11 a. Write a servlet program which displays current system date and time.  
b. Explain about the Session Tracking.

**UNIT - IV**

- 12 a. What are the drawbacks of servlet? How can a JSP overcome them?  
b. Develop a JSP to act as a simple search engine with the support of necessary database. Web page will accept the topic name and JSP will be activated by a submit button click. JSP will open relevant page with a set of relevant URLs for that topic.

**(OR)**

- 13 a. Explain about the anatomy of a JSP page.  
b. Develop a JSP to keep track number of users and display a message “you are n<sup>th</sup> visitor” where n is number of user.

**UNIT-V**

- 14 a. What is Java Script? How Client side validation is done by Java Script. Write a script program for pattern matching using string object.  
b. List seven mouse events in Java Script. Explain mouse move and mouse click with proper example.

**(OR)**

15. a. Write a java script to demonstrate mathematical functions in java script.  
b. What are the technologies used in AJAX.

**\*\*\***

BR-16

Hall Ticket No.: \_\_\_\_\_ D4

# SRI INDU COLLEGE OF ENGINEERING & TECHNOLOGY

(An Autonomous Institution under UGC, New Delhi)(Recognized under 2(f) and 12(B) of UGC Act 1956)

III B.Tech - II Semester - End Examinations (Regular/Suppl.) Nov/Dec-2020

**R16CSE1119 – WEB TECHNOLOGIES**

(Common to CSE & IT)

**Duration: 2 Hrs**

**02.12.2020 (AN)**

**Max**

**Marks: 70M**

**Section - A**

Answer any ***THREE*** the following questions

**Marks: 3Qx6M**

**= 18M**

1. What is PHP? What is the difference between \$name and \$\$name?
2. What is XML Schema? Explain the advantages of Schema over DTD?
3. What is servlet? Justify how “Servlet offer several advantages over CGI”?
4. Explain how cookies are used for session tracking?
5. Write about the following with reference to JavaScript.  
a) Functions b) Form Validation

**Section - B**

Answer ***FOUR*** questions from the following

**Marks: 4Qx13M**

**= 52M**

**UNIT- I**

6. a) With an example explain the casting of data types in PHP.  
b) Explain the process of reading data from web form controls like text boxes, radio buttons and lists.

**(OR)**

7. a) Discuss different types of Conditional statements in PHP.  
b) Write a PHP program to demonstrate the passing a variable by reference.

**UNIT-II**

8. a) Explain document structure description with example code in XML.  
b) Explain with an example, how can you check an XML document is both valid and well formed document.

**(OR)**

9. a) What is DOM? Draw the detailed DOM objects structure. Explain its usage.  
b) Explain SAX parser? Compare and contrast SAX and DOM in java?

**UNIT-III**

10. What are the requirements for CGI process? List and explain the web servers that support CGI programming.

**(OR)**

11. Write about Security Issues in Servlet. Build a Servlet that handles HTTP get Request.

**UNIT-IV**

1. What about the JSP processing? Explain the mechanism to include resources dynamically and to forward request to other JSPs.

**(OR)**

13. a) Provide an example for JSP expression.

b) Describe various steps that are needed for accessing a database from a JSP page.

**UNIT-V**

14. a) Explain the Simple AJAX application.

b) Discuss the event handlers in JavaScript.

**(OR)**

15. a) Justify the need of JavaScript in Web Technologies.

b) Build a Java Script to convert height from centimetres to inches and vice-versa.

\*\*\*

**BR-18**

Write Your Ht. No.

**D4**

Subject Code: R18CSE3104

**SRI INDU COLLEGE OF ENGINEERING & TECHNOLOGY**

(An Autonomous Institution under UGC, New Delhi)(Recognized under 2(f) and 12(B) of UGC Act 1956)

**III B.Tech - I Semester (REGULAR) - End Examinations March - 2021**

**WEB TECHNOLOGIES**

17/03/2021

(Computer Science Engineering)

Day -

4 (FN)

**Duration: 3 Hrs**

**Marks: 50x14M**

**= 70M**

**Answer FIVE questions (Treat Q.No.11 as a single question).**

**UNIT-I**

1. Classify and list the data types of PHP programming with suitable examples.

**(OR)**

2. What are 'cookies'? Describe the structure and arguments to the PHP function to set a cookie.

**UNIT-II**

3. State the objectives and limitations of XML schema and DTD. Create an XML schema to describe an employee record for an organization.

**(OR)**

4. How do the SAX methods and properties differ from that of DOM? Enumerate the types of nodes in a DOM document object and discuss in detail any three of them?

**UNIT-III**

5. What are states through which the Java servlets lifecycle undergo? Write an example Java code to create and invoke a servlet from a client's HTML page.

**(OR)**

6. Develop a simple JDBC application for storing and retrieving of information from a database of students of an educational Institution.

**UNIT-IV**

7. Classify and explain the elements of JSP with sample codes.

(OR)

8. What is the use of cookies in webpages? Illustrate the creation and reading of a cookie in JSP webpage.

UNIT-V

9. Explain the integration of JavaScript within an HTML webpage with an example code snippet that prompts the user to enter his/her mobile number and displays an alert message if the number of digits entered is not equal to 10.

(OR)

10. Write brief notes on AJAX and tree of objects in DOM for JavaScript.

11. Answer any **THREE** questions from the following.

(5M+5M+4M)

- What is meant by 'scope' of a variable? Enumerate its types with examples.
- Distinguish between CDATA and PCDATA.
- Enumerate the major tasks performed by servlets.
- List the types of JSP implicit objects and explain the syntax of any one of these.
- Compare and contrast between Java and JavaScript.

\*\*\*

BR-16  
D4

SRI INDU COLLEGE OF ENGINEERING & TECHNOLOGY

(An Autonomous Institution Under 2(f) and 12(B) of UGC Act 1956, New Delhi)

III B.Tech - II Semester - I MidTerm Examinations

(R16CSE1119) WEB TECHNOLOGIES

(Common to CSE, IT)

Duration: 90Mins

Date: 16.02.2019 AN

Max Marks:

25M

Section – A

Answer All the questions

Marks: 5Qx1M =

5M

- Define PHP supported Data types.
- List out the file operations.
- Describe the Namespace.
- Classify the XML parsers.
- Differentiate Generic Servlet and HttpServlet.

Section – B

Answer any FOUR questions

Marks: 4Qx5M =

20M

- Explain PHP form processing with an example.
- Design a PHP program to create, insert, update and delete a table using MySQL.
- Create a program for parsing XML data using DOM parser in java.
- Write a XML program for employee information using Document Type Definition (DTD).
- List out the steps for deploying Servlet in tomcat web server.
- Define Session Tracking. Explain different Session Tracking mechanisms.

\*\*\*

BR-16  
D4

**SRI INDU COLLEGE OF ENGINEERING & TECHNOLOGY**

(An Autonomous Institution Under 2(f) and 12(B) of UGC Act 1956, New Delhi)

**III B.Tech - II Semester - I MidTerm Examinations**

**(R16CSE1119) WEB TECHNOLOGIES**

(Common to CSE, IT)

**Duration: 90Mins**

**Date: 17.04.2019 AN**

**Max Marks:**

**25M**

**Section – A**

Answer All the questions

Marks: 5Qx1M =

**5M**

1. Define ServletRequest object and ServletResponse object.
2. List different types of statements in JDBC.
3. Define the Beans in JSP.
4. Explain about scriptlet tag.
5. Define Arrays in JavaScript.

**Section – B**

Answer any FOUR questions

Marks: 4Qx5M =

**20M**

6. Define Servlet? Explain Servlet Life Cycle with an example.
7. Define Session Tracking. Explain different Session Tracking mechanisms.
8. Explain about Anatomy of JSP page.
9. Explain about JSP Scripting tags and Directive tags.
10. Explain the need of scripting languages in Web Applications.
11. Design a JavaScript program for validation page to verify phone number and email id.

\*\*\*

BR-16

**SRI INDU COLLEGE OF ENGINEERING & TECHNOLOGY D4**

(An Autonomous Institution Under 2(f) and 12(B) of UGC Act 1956, New Delhi)

**III B.Tech - II Semester - I MidTerm Examinations**

**(R16CSE1119) WEB TECHNOLOGIES**

(Common to CSE, IT)

**Duration: 90Mins**

**Date: 05.02.2020 AN**

**Max Marks:**

**25M**

**Section – A**

Answer All the questions

Marks: 5Qx1M =5M

1. List out the advantages and disadvantages of PHP.
2. Describe String Operators in PHP with an example.



3. Explain the purpose of XML Schema.
4. Describe the Namespace.
5. Discuss the drawback of CGI over Servlet.

**Section – B**

**Answer any FOUR questions** Marks:

**4Qx5M= 20M**

6. Explain String functions in PHP.
7. Explain handling file uploads with an example.
8. Write about building blocks of XML document.
9. Write a XML program for internal DTD and external DTD.
10. Define Servlet? Explain Servlet Life Cycle with an example.
11. Explain about Servlet parameters in Generic Servlet with an example.

\*\*\*

# PRINCIPLES OF PROGRAMMING LANGUAGES

**COMPUTER SCIENCE AND ENGINEERING**  
**SRI INDU COLLEGE OF ENGINEERING & TECHNOLOGY**  
(An Autonomous Institution under UGC, New Delhi)

**B.Tech. - III Year – I Semester**

**L T P C**

**3 0 0 3**

**Professional Elective-I**  
**(R20CSE3113) Principles of Programming Languages**

**Objectives:**

- To briefly describe various programming paradigms.
- To provide conceptual understanding of High level language design and implementation.
- To introduce the power of scripting languages.

**UNIT I :**

**Preliminary Concepts:** Reasons for studying, concepts of programming languages, Programming domains, Language Evaluation Criteria, influences on Language design, Language categories, Programming Paradigms – Imperative, Object Oriented, functional Programming , Logic Programming. Programming Language Implementation – Compilation and Virtual Machines, programming environments. **Syntax and Semantics:** general Problem of describing Syntax and Semantics, formal methods of describing syntax - BNF, EBNF for common programming languages features, parse trees, ambiguous grammars, attribute grammars, denotational semantics and axiomatic semantics for common programming language features.

**UNIT II :**

**Data types:** Introduction, primitive, character, user defined, array, associative, record, union, pointer and reference types, design and implementation uses related to these types. Names, Variable, concept of binding, type checking, strong typing, type compatibility, named constants, variable initialization. **Expressions and Statements:** Arithmetic relational and Boolean expressions, Short circuit evaluation mixed mode assignment, Assignment Statements, Control Structures – Statement Level, Compound Statements, Selection, Iteration, Unconditional Statements, guarded commands.

**UNIT III :**

**Subprograms and Blocks:** Fundamentals of sub-programs, Scope of life time of variables, static and dynamic scope, design issues of subprograms and operations, local referencing environments, parameter passing methods, overloaded sub-programs, generic sub-programs, parameters that are sub-program names, design issues for functions user defined overloaded operators, co routines.

**UNIT IV :**

**Abstract Data types:** Abstractions and encapsulation, introductions to data abstraction, design issues, language examples, C++ parameterized ADT, object oriented programming in small talk, C++, Java, C#, Ada 95

**Concurrency:** Subprogram level concurrency, semaphores, monitors, message passing, Java threads, C# threads.

**Exception handling:** Exceptions, exception Propagation, Exception handler in Ada, C++ and Java.

**Logic Programming Language:** Introduction and overview of logic programming, basic elements of prolog, application of logic programming.

**UNIT V:**

**Functional Programming Languages:** Introduction, fundamentals of FPL, LISP, ML, Haskell, application of Functional Programming Languages and comparison of functional and imperative Languages.

**Scripting Language:** Pragmatics, Key Concepts, Case Study: Python- Values and Types, Variables, Storage and Control, Bindings and Scope, Procedural Abstraction, Separate Compilation, Module Library.

**TEXT BOOKS:**

1. Concepts of Programming Languages Robert .W. Sebesta 8/e, Pearson Education, 2008.
2. Programming Language Design Concepts, D. A. Watt, Wiley dreamtech, rp-2007.

**REFERENCE BOOKS:**

1. Programming Languages, 2nd Edition, A. B. Tucker, R. E. Noonan, TMH.
2. Programming Languages, K. C. Loudon, 2nd Edition, Thomson, 2003.
3. LISP Patric Henry Winston and Paul Horn Pearson Education.
4. Programming in Prolog, W. F. Clocksin & C. S. Mellish, 5th Edition, Springer.
5. Programming Python, M. Lutz, 3rd Edition, O'reilly, SPD, rp-2007.
6. Core Python Programming, Chun, II Edition, Pearson Education, 2007.
7. Guide to Programming with Python, Michel Dawson, Thomson, 2008

**Outcomes:**

- Ability to express syntax and semantics in formal notation.
- Ability to apply suitable programming paradigm for the application.
- Gain knowledge and comparison of the features programming languages.



**SRI INDU COLLEGE OF ENGG & TECH**  
**(Regulation :R20)**  
**Department of Computer Science and Engineering**

<b>Sub. Code &amp; Title</b>	<b>R20CSE3113 Principles Of Programming Languages</b>		
<b>Academic Year: 2022-23</b>	<b>Year/Sem./Section</b>	<b>III-I A,B,C,D</b>	
<b>Faculty Name &amp; Designation</b>	<b>A.Sandeep/M.SAMPOORNA,Assistant Professor</b>		

**COs MAPPING WITH POs & PSOs**

**PRINCIPLES OF PROGRAMMING LANGUAGE**

At the end of the course student will be able to:

<b>C311.1</b>	Define the syntax-related concepts including context-free grammars, parse trees, recursive-descent parsing, and interpretation(Remember)
<b>C311.2</b>	Illustrate the semantic issues associated with implementations, including variable binding, scoping rules, Expression and Assignment statement and control structures.(Apply)
<b>C311.3</b>	Justify the language abstraction constructs of functions, parameter passing and co-routines.(Evaluate)
<b>C311.4</b>	Classify the Abstract Data Types, concurrency and Exception handling in various programming languages.(Analyse)
<b>C311.5</b>	Describe the implementation of Functional programming languages and scripting languages.(Understand)
<b>C311.6</b>	Describe the implementation model of logic programming language..(Understand)

CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2	PSO 3
<b>C311.1</b>	2	3	3	-	3	-	-	-	-	-	-	2	3	3	3
<b>C311.2</b>	2	3	-	3	3	-	-	-	-	-	-	2	2	2	2
<b>C311.3</b>	2	3	3	2	3	-	-	-	-	-	-	2	3	3	3
<b>C311.4</b>	2	3	3	-	3	-	-	-	-	-	-	2	3	2	2
<b>C311.5</b>	2	3	3	2	3	-	-	-	-	-	-	2	3	3	3
<b>C311.6</b>	2	3	-	2	3	-	-	-	-	-	-	2	3	3	3
<b>C311</b>	<b>2.0</b>	<b>3.0</b>	<b>3.0</b>	<b>2.33</b>	<b>3.0</b>	<b>--</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>2.0</b>	<b>2.8</b>	<b>2.6</b>	<b>2.6</b>



**SRI INDU COLLEGE OF ENGG & TECH**  
**(Regulation :R20)**  
**Department of Computer Science and Engineering**

<b>Sub. Code &amp; Title</b>	<b>R20CSE3113 Principles Of Programming Languages</b>		
<b>Academic Year: 2022-23</b>	<b>Year/Sem./Section</b>	<b>III-I A,B,C,D</b>	
<b>Faculty Name &amp; Designation</b>	<b>A.Sandeep/M.SAMPOORNA,Assistant Professor</b>		

**LESSONPLAN**

(K1-Remembering K2-Underst, ding,K3-Applying,K4-Analyzing,K5-Evaluation,K6-Creating)

Unit/ Item No.	Topic (s)	Book Reference	Page (s)		Teaching Methodology	Proposed No. of Periods	Actual Date of Handled	CO/RBT
			From	To				
<b>UNIT-I</b>								
<b>I</b>	<b><u>Preliminary concepts</u></b>					<b>19</b>		
1.1	Reasons for studying concepts of programming languages	T1	1.2	1.5	Black board	03		CO1/K1
1.2	Programming domains	T1	1.5	1.7	Black board	01		CO1/K2
1.3	Language evaluation criteria	T1	1.7	1.19	Black board	02		CO1/K5
1.4	Influnces on language design	T1	1.19	1.22	Black Board	01		CO1/K2
1.5	Language categories	T1	1.22	1.24	Black board	01		CO1/K2
1.6	Programming Paradigms – Imperative	T1	2.4	2.12	Black board	02		CO2/K2
1.7	Object Oriented	T1	2.12	2.15	Black board	01		CO1/K2
1.8	Logic programming	T1	2.10	2.12	Black board	01		CO2/K2
1.9	Programming language Implementation- compilation and virtual machines	T1	2.15	2.22	Black board	01		CO2/K3
1.10	Programming environments	T1	1.32	1.33	Black board	01		CO2/K2
1.11	Syntax and Semantics:general problem of describing syntax and semantics	T1	3.32	3.5	Black board	03		CO2/K4
1.12	Formal methods of describing syntax-BNF	T1	3.5	3.9	Black board	02		CO2/K4
1.13	EBNF for common programming languages features	T1	3.18	3.20	Black board	02		CO2/K5
1.14	Parse trees	T1	3.9	3.10	Black board	01		CO1/K3
1.15	Ambiguous grammars	T1	3.10	3.11	Black board	01		CO1/K3
1.16	Attribute grammars	T1	3.20	3.27	Black board	01		CO2/K4



**SRI INDU COLLEGE OF ENGG & TECH**  
**(Regulation :R20)**  
**Department of Computer Science and Engineering**

<b>Sub. Code &amp; Title</b>	<b>R20CSE3113 PPL</b>		
<b>Academic Year: 2022-23</b>	<b>Year/Sem./Section</b>	<b>III-I A,B,C,D</b>	
<b>Faculty Name &amp; Designation</b>	<b>A.Sandeep/M.SAMPOORNA,Assistant Professor</b>		

Unit/Item No.	Review	Signature of the HOD/Coordinator					Proposed No. of Periods	Actual Date of Handled	CO/RBT
Unit/Item No.	Topic (s)	Book Reference	Page (s)		Teaching Methodology	Proposed No. of Periods	Actual Date of Handled	CO/RBT	
<b>UNIT -II</b>									
<b>II</b>						<b><u>Data Types</u></b>		<b>13</b>	
2.1	Introduction	T1	6.2	6.3	Black board Presentation	01		CO3/K1	

an

Unit/Item No.	Topic (s)	Book Reference	Page (s)		Teaching Methodology	Proposed No. of Periods	Actual Date of Handled	CO/RBT
			From	To				
2.2	Primitive data types	T1	6.42	6.7	Black board	01		CO 3/K2
2.3	Character string types	T1	6.8	6.13	Power point Presentation	01		CO 3/K2
2.2	User defined ordinal types	T1	6.13	6.17	Power point Presentation	01		CO 3/K2
2.3	Array types	T1	6.17	6.28	Black board	01		CO 3/K2
2.4	Associative arrays	T1	6.31	6.33	Black board	01		CO 3/K2
2.5	Record types	T1	6.36	6.40	Black board	01		CO 3/K2
2.6	Union types	T1	6.41	6.44	Black board	01		CO 3/K2
2.7	Pointer and reference types	T1	6.45	6.45	Black board	01		CO3/K2
2.8	Design and implementation uses related to these types	T1	6.45	6.58	Black board	01		CO3/K3
2.9	Names	T1	5.2	5.5	Black board	01		CO2/K1
2.10	Variables	T1	5.5	5.7	Black board	01		C01/K1
2.11	The concept of binding	T1	5.8	5.11	Black board	01		CO2/K1
2.12	Type checking	T1	6.58	6.59	Black board	01		CO4/K4



**SRI INDU COLLEGE OF ENGG & TECH**  
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**Department of Computer Science and Engineering**

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<b>Sub. Code &amp; Title</b>	<b>R18CSE3113 PPL</b>
<b>Academic Year: 2022-23</b>	<b>Year/Sem./Section III-I A,B,C,D</b>
<b>Faculty Name &amp; Designation</b>	<b>A.Sandeep/M.SAMPOORNA,Assistant Professor</b>

2.14	Type compatability	T1	6.60	6.63	Black board	01		CO1/K2
2.15	Named constants	T1	5.31	5.33	Black board	01		CO3/K1
2.16	Variable initialization	T1	5.5	5.6	Black board	01		CO3/K1
2.17	Expressions and statements: arithmetic relational and Boolean expressions	T1	7.2,7.3	7.17	Black board	01		CO3/K5
2.18	Short circuit evaluation mixed mode assignment	T1	7.19	7.21	Black board	01		CO2/K6
2.19	Assignment statements	T1	7.21	7.25	Black board	01		CO2/K2
2.20	Control structures –statement level	T1	8.2	8.3	Black board	01		CO3/K3
2.21	Compound statements	T1	8.2	8.3	Black board	01		CO3/K2
2.22	Selection statements	T1	8.4	8.16	Black board	01		CO3/K1
2.23	Iterative statements	T1	8.17	8.32	Black board	01		CO3/K1
2.24	Unconditional statements	T1	8.32	8.33	Black board	01		CO3/K1
2.25	Guarded statements	T1	8.33	8.35	Black board	01		CO3/K1

<b>Review</b>		<b>Signature of the HOD/Coordinator</b>						
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<b>III</b>	<b><u>Subprograms and blocks</u> UNIT- III</b>	<b>10</b>
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3.1	Fundamentals of sub programs	T1	9.2	9.13	Black board	01		CO4/K2
3.2	Scope of life time of variables	T1	5.28	5.29	Black board	01		CO4/K2
3.3	Static and dynamic scope	T1	5.19	5.27	Black board	01		CO4/K1
3.4	Design issues of sub programs and operations	T1	9.13	9.14	Power point Presentation	02		CO4/K2
3.5	Local referencing environments	T1	9.14	9.15	Black board	02		CO4/K2
3.6	Parameter passing methods	T1	9.15	9.16	Black board	01		CO4/K1





**SRI INDU COLLEGE OF ENGG & TECH**  
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**Department of Computer Science and Engineering**

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<b>Sub. Code &amp; Title</b>	<b>R20CSE3113 PPL</b>
<b>Academic Year: 2022-23</b>	<b>Year/Sem./Section III-I A,B,C,D</b>
<b>Faculty Name &amp; Designation</b>	<b>A.Sandeep/M.SAMPOORNA,Assistant Professor</b>

Unit/ Item No.	Topic (s)	Book Reference	Page (s)		Teaching Methodology	Proposed No. of Periods	Actual Date of Handled	CO/RBT	
			From	To					
3.8	Generic sub programs	T1	9.41	9.43	Black board	01		CO4/K2	
3.9	Parameters that are sub program names	T1	9.43	9.48	Black board	01		CO4/K2	
3.10	Design issues for functions user defined overloaded operators	T1	9.48	9.49	Black board	01		CO4/K1	
3.11	Co routines	T1	9.50	9.52	Black board	01		CO4/K2	
<b>Review</b>			<b>Signature of the HOD/Coordinator</b>						

**UNIT-IV**

<b>IV</b>	<b><u>Abstack datatypes</u></b>					<b>16</b>		
4.1	<b>Abstractions and encapsulation</b>	T1	10.2	10.3	Black board	01		CO5/K1
4.2	Introduction to data abstraction	T1	10.3	10.5	Black board	02		CO5/K1
4.3	Design issues	T1	10.6	10.6	Black board	02		CO5/K1
4.4	Language examples	T1	10.7	10.13	Black board	01		CO5/K1
4.5	C++ parameterized ADT	T1	10.14	10.24	Power point Presentation	02		CO5/K2
4.7	OOPS in small talk	T1	11.10	11.13	Black board	01		CO5/K2
4.8	C++	T1	11.13	11.24	Black board	01		CO5/K1
4.9	Java	T1	11.24	11.28	Black board	02		CO5/K1
4.10	C#	T1	11.28	11.30	Black board	02		CO5/K2
4.11	Ada 95	T1	11.30	11.35	Black board	01		CO5/K2
4.12	Concurrency :sub program level concurrency	T1	12.2	12.10	Black board	01		CO5/K2
4.13	Semaphores	T1	12.10	12.15	Black board	01		CO5/K2
4.14	Monitors	T1	12.15	12.17	Black board	01		CO5/K2
4.15	Message passing	T1	12.17	12.30	Black board	01		CO5/K1



**SRI INDU COLLEGE OF ENGG & TECH**  
**(Regulation :R20)**  
**Department of Computer Science and Engineering**

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<b>Sub. Code &amp; Title</b>	<b>R20CSE3113 PPL</b>
<b>Academic Year: 2022-23</b>	<b>Year/Sem./Section III-I A,B,C,D</b>
<b>Faculty Name &amp; Designation</b>	<b>A.Sandeep/M.SAMPOORNA,Assistant Professor</b>

4.17	C# threads	T1	12.38	12.40	Black board	01		CO5/K1
4.18	Exception handling:exceptions	T1	13.2	13.3	Black board	01		CO5/K1
4.19	Exception propogation	T1	13.3	13.8	Black board	01		CO5/K3
4.20	Exception handler in Ada	T1	13.8	13.15	Black board	01		CO5/K2
4.20	C++ and java	T1	13.15	13.29	Black board	01		CO5/K1
4.21	Logic programming language:introduction and overview of logic programming	T1	15.2	15.10	Black board	01		CO5/K3
4.21	Basic elements of prolog	T1	15.10	15.31	Black board	01		CO5/K1
4.22	Application of logic programming	T1	15.31	15.33	Black board	01		CO5/K1
<b>Review</b>		<b>Signature of the HOD/Coordinator</b>						

**UNIT-V**

<b>V</b>	<b><u>Functional programming languages</u></b>					<b>10</b>		
5.1	Introduction	T1	14.2	14.5	Black board	01		CO6/K1
5.2	Fundamentals of FPL	T1	14.5	14.6	Power point Presentation	01		CO6/K2

5.3	LISP	T1	14.7	14.10	Power point Presentation	02		CO6/K3
5.4	ML	T1	14.28	14.32	Black board	01		CO6/K3
5.5	HASKELL	T1	14.32	14.37	Black board	01		CO6/K3
5.6	Application of functional programming and comparison of functional and imperative languages	T1	14.37	14.40	Black board	01		CO6/K4
5.7	Scripting language-pragmatics	T1	16.1	16.5	Black board	02		CO6/K1
5.8	Key concepts	T1	16.5	16.9	Black board	01		CO6/K2
5.9	Case study:python-values and types	T1	16.9	16.12	Black board	01		CO6/K6
5.10	Variables	T1	16.12	16.14	Black board	01		CO6/K6
5.11	Storage and control	T1	16.12	16.18	Black board	01		CO6/K6
5.12	Binding and scope	T1	16.22	16.24	Black board	01		CO6/K6
5.13	Procedural abstraction	T1	16.18	16.20	Black board	01		CO6/K6

## QUESTION BANK

<b>UNIT-1 primilinary concepts</b>			
<b>1 MARK QUESTIONS</b>		<b>BT Level</b>	<b>Course Outcome</b>
1.	Write disadvantages of aliasing?	1	CO1
2.	Define the phases of compilation process?(	1	CO1
3.	List the language categories?	1	CO1
4.	Explain the reasons for studying principles of programming languages?(	1	CO1
5.	Define imperative languages?	1	CO1
6.	Define a Parse tree?	4	CO2
7.	Define a Token?	1	CO2
8	Define Syntheized Attributes?	1	CO2
9	Illustrate the example of Regular Expression?	1	CO2
10	Write about Grammar?	2	CO3
<b>10 MARKS QUESTIONS</b>			
1.	Explain the process of Compilation?? (April/May 2019)	5	CO1
2.	a) Explain EBNF along with an example. b) Explain various programming paradigms. (April/May2018)	2,5	CO1,CO2
3.	Explain the control structures along with examples. (April/May 2017)	2	CO1

4.	Explain about the factors that influence the language design? .(April/May2018)	2	CO1
5.	describe the reasons for studying the principles of programming languages? Explain? (understand)(April/May2018)	2,5	CO1,CO2
6.	Explain formal methods of BNF?	3	CO1
7.	Write the general problems of describing syntax?	1	CO2
8	Write the primary use of attribute grammars ?How is the order of evaluation of attributes determined for the trees of a given attribute grammar ? (applying)	2,1	CO1,CO2
9	Solve a parse tree and leftmost derivation for the statement: $A=(A+B)*C$ Given grammar is: $\langle \text{assign} \rangle \rightarrow \langle \text{id} \rangle = \langle \text{expr} \rangle$ $\langle \text{id} \rangle \rightarrow A/B/C$ $\langle \text{expr} \rangle \rightarrow \langle \text{expr} \rangle + \langle \text{term} \rangle / \langle \text{term} \rangle$ $\langle \text{term} \rangle \rightarrow \langle \text{term} \rangle * \langle \text{factor} \rangle / \langle \text{factor} \rangle$ $\langle \text{factor} \rangle \rightarrow (\langle \text{expr} \rangle) / \langle \text{id} \rangle$ (applying)	4	CO2
10	Describe the basic concept of denotational semantics? (Understand) (April/May 2017)	2,2	CO1,CO2

### Unit -II : data types

#### 1 MARK QUESTIONS

1	Write a data type and What are types?	1	CO3
2	Define a record & union? (May 2019)	3	CO3
3	Write about an enumeration datatype?	1	CO3
4	Define a pointer and with example?	1	CO3
5	Define Type Checking and Strong Typing? (May 2019)	3	CO3
6	Define expression? Give example?	6	CO3
7	Define operator precedence?	2	CO3
8	(May 2019)	1	CO3
9	Define mixed mode assignment statement?	1	CO3

**QUESTION BANK WITH BLOOMS TAXONOMY LEVEL (BTL)**

(1. Remembering 2. Understanding 3. Applying 4. Analyzing 5. Evaluating 6. Creating)

10	State the design issues of selection statements?	6	CO3
<b>10 MARKS QUESTIONS</b>			
1	Explain Named Constants? Compare the design issues related to constants in two programming languages? (April/May2018)	2	CO3
2.	Write the general problem with static scoping? How is a reference to a non local variable in a static scoped program connected to its definition? (April/May-2017)	2	CO3
3.	define type compatibility? Distinguish between name type compatibility and Structure type compatibility?	6,2	CO3
4.	Define data Type? Explain About Primitive and non-primitive data type?	3	CO3
5.	Explain about types of assignment statements? (May 2018)	6,4	CO3
6.	Discuss unconditional statement ?Give examples?	2	CO3
7.	Explain about relational and Boolean expressions? (May 2018)	2	CO3
8	scribe the design issues of multiple-selection statements and logically controlled loop statements? (April/May 2018)	5	CO3
9	Define the terms: coercion, type error, strong typing (May 2019)	2	CO3
10	Explain in detail Dijkstra's guarded commands with examples? (May 2019)	6	CO3
<b>Unit -III : subprograms and blocks</b>			
<b>1 MARK QUESTIONS</b>			

1.	Define sub program?	1	CO4
2.	Describe about block?	1	CO4
3	Define procedure? (May 2019)	1	CO4
4	Define function?	2	CO4
5	Define dynamic scope? (April/May 2017)	1	CO4
6	Discuss Extent? Give example?	1	CO4
7	Discuss Generic subprogram? (May 2018)	2	CO4
8	Define co routines (May 2018)	1	CO4
9	D Differentiate between pass-by-value and pass-by-reference?	2	CO4
10	Define pass-by-Name?	1	CO4

### 10 MARKS QUESTIONS

1.	Explain the characteristics of co-routine feature? List the languages which allow co-routines?	2	CO4
2	Define shallow and deep binding for referencing environment of subprograms that have been passed as parameters? (May 2018)	5,5	CO4
3.	discuss the design issues for subprograms and functions? (May 2019)	3	CO4
4	Write about overloaded subprograms?	2	CO4
5.	Discuss about actual parameters and positional parameters and keyword parameters?	2,6	CO4
6	Define static, fixed stack-dynamic, fixed heap-dynamic and heap-dynamic array. What are the advantages of each? (Remembering) (May 2019)	3	CO4
7.	explain causes a C++ template function to be instantiated? (May 2018)	2	CO4
8.	Discuss the issues that arise when subprogram names are parameters? (May 2018)	2	CO4
9.	explain causes a C++ template function to be instantiated	4	CO4

10.	Differentiate between sub program definition and sub program activation. List the two approaches that are concerned with the life time of the sub program environment?	2	CO4
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**Unit-IV : Abstract data types**

**1 MARK QUESTIONS**

1.	1. Define abstraction and encapsulation?	1	CO5
2.	Define abstract data type ?	1	CO5
3.	Define inheritance ? Give examples?	1	CO5
4.	Differentiate between java packages and c++ name spaces?	1	CO5
5.	Define Ada package? Give example?	1	CO5
6.	Define exception propagation?	1	CO5
7.	Define logic programming language?	1	CO5
8.	Write difference between C++ Throw and Java Throw?	2	CO5
9.	Define exception handling?	1	CO5
10.	Define unchecked exception?	2	CO5

**10 MARKS QUESTIONS**

1.	1. Discuss the Object oriented programming features supported in small talk? <b>(April/May 2017)</b>	3	CO5
2.	Discuss the relationship of monitors to Ada to tasks for competition synchronization?	2	CO5
3.	Explain the reason java doesn't have friend functions or friend classes? <b>(April/May 2017)</b>	5,5	CO5
4.	Illustrate the language design requirements for a language that supports abstract data types? <b>(April/May 2017) (May 2018)</b>	6	CO5
5.	Describe exception handler in Java?	6,2	CO5
6.	Write comparison of the Exception Handling capabilities of C++ and those of JAVA?	2, 1	CO5
7.	Discuss basic elements of Prolog?	6	CO5
8.	Explain syntactic forms and usage of fact and rule statements in Prolog?	3,2	CO5
9.	Explain the generate – and – test programming strategy in Prolog?	2,2	CO5
10.	Explain subprogram level concurrency?	4,4	CO5

**Unit-v functional programming languages and scripting languages**

1.	Define Atom?	1	CO6
2.	Write the list functions of LISP?	1	CO6
3.	Write about the Predicate functions of Lisp?	1	CO6
4.	Describe type inferencing in ML?	2	CO6
5.	Describe the scoping rules common in lisp.ml and Haskell?	4	CO6
6.	Define Haskell?	5	CO6
7.	Define Python?	4	CO6
8.	Write about Procedural Abstraction?	1	CO6
9.	Define Bindings and Scope?	1	CO6
10.	Define Separate Compilation?	2	CO6
1	Discuss briefly about expressions in meta language?		
2.	Explain main features of imperative languages?. <b>(May 2019)</b>	3,6	CO6
3.	Explain procedural abstraction in Python?	3	CO6
4	Differentiate functional and imperative languages. <b>(May 2019)</b>	6	CO6
5.	Explain about LISP	6	CO6
6.	Explain structures and arrays in ML give examples?	6,1	CO6
7.	Describe the syntax and semantics of COND and LET?	2,1	CO6
8	Write a Scheme function that removes the last element from a given list?	4,2	CO6
9	Define functional forms and referential transparency ? what data types were parts of the original LISP? (Remembering) <b>(May 2018)</b>	4	CO6
10	Discuss Various data types supported in Python.	3,2	CO6



**SRI INDU COLLEGE OF ENGINEERING & TECHNOLOGY**

(An Autonomous Institution under UGC, New Delhi) - Recognized under 2(f) and 12(B) of UGC Act 1956

**III B.Tech I Semester (SUPPL.) End Examinations March – 2021****PRINCIPLES OF PROGRAMMING LANGUAGES**

09/03/2021

(Computer Science Engineering)

Day- 1

Duration: 3 Hrs

Marks: 5Qx14M = 70M

**Answer *FIVE* questions (Treat Q.No.11 as a single question).****UNIT-I**

1. Explain BNF for common programming languages.

**(OR)**

2. Write short notes on.  
a) Parse trees.  
b) Virtual Machines.

**UNIT-II**

3. Describe about various Arithmetic relational expressions.

**(OR)**

4. Explain the control structures with an example.

**UNIT-III**

5. Write the design issues for functions user defined overloaded operators.

**(OR)**

6. Explain the local referencing environments.

**UNIT-IV**

7. Discuss about semaphores and monitors.

**(OR)**

8. Describe with an example of exception handling in JAVA.

**UNIT-V**

9. Give an account LISP and Haskell.

**(OR)**

10. Explain the procedural abstraction in Python.

11. Answer any *THREE* questions from the following.

(5M+5M+4M)

- b) List out the primitive data type
- c) Differentiate static and dynamic scope.
- d) Define data abstraction and encapsulation.
- e) Comparison of functional and imperative languages.



## SRI INDU COLLEGE OF ENGINEERING & TECHNOLOGY

(An Autonomous Institution under UGC, New Delhi) - Recognized under 2(f) and 12(B) of UGC Act 1956

### III B.Tech I Semester (REGULAR) End Examinations March - 2021 PRINCIPLES OF PROGRAMMING LANGUAGES

19/03/2021

(Common to CSE and IT)

Day- 5 (FN)

Duration: 3 Hrs

Marks: 50x14M = 70M

**Answer FIVE questions (Treat Q.No.11 as a single question).**

#### UNIT-I

1. Draw and explain the functioning of computer architecture.

(OR)

2. With the help of an example, explain the concept of language recognizers.

#### UNIT-II

3. How is a single-dimensional array implemented? How is it described in compile-time?

(OR)

4. Illustrate with an example a case where a sub operator in a programming language is not communicative.

#### UNIT-III

5. Write short notes on:
  - i) pass-by-value result.
  - ii) pass-by-reference.

(OR)

6. How is the parameter-passing method implemented?

#### UNIT-IV

7. Write a C program explaining the implementation of Stack.

(OR)

8. Explain the ways a client can reference a name from namespace in C++.

#### UNIT-V

9. Describe the Internal representation of two Lisp lists.

(OR)

10. What is a predicate function? Explain.

11. **Answer any THREE questions from the following. (5M+5M+4M)**

a) How does the point "Increased ability to learn new languages" support for Programming Languages? Elaborate.

b) Define static, fixed stack-dynamic, fixed heap-dynamic, and heap-dynamic arrays. What are the advantages of each?

c) What is subprogram definition?

d) Why are destructors rarely used in Java but essential in C++?

e) What does lambda expression specify?

BR-16

SRI INDU COLLEGE OF ENGINEERING & TECHNOLOGY

D4

(An Autonomous Institution Under 2(f) and 12(B) of UGC Act 1956, New Delhi)

III B.Tech - I Semester - II Mid Term Examinations

(R16CSE1110) PRINCIPLES OF PROGRAMMING LANGUAGES - (Computer Science & Engineering)

Duration: 90Mins

Date: 30.10.2019 FN

Max Marks: 25M

Section – A

Answer All the questions

Marks: 5Qx1M = 5M

1. Define pass-by-Name.
2. Write difference between C++ Throw and Java Throw.
3. Define exception handling.
4. Write the list functions of LISP.
5. Write about the Predicate functions of Lisp.

Section – B

Answer any FOUR questions

Marks: 4Qx5M = 20M

6. Write about overloaded subprograms.
7. Define static, fixed stack-dynamic, fixed heap-dynamic and heap-dynamic array. What are the advantages of each?
8. compare the Exception Handling capabilities of C++ and those of JAVA.
9. Explain the generate – and – test programming strategy in Prolog.
10. Explain main features of imperative languages.
11. Explain structures and arrays in ML give examples.

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BR-16

SRI INDU COLLEGE OF ENGINEERING & TECHNOLOGY

D4

(An Autonomous Institution Under 2(f) and 12(B) of UGC Act 1956, New Delhi)

III B.Tech - I Semester - II Mid Term Examinations

(R16CSE1110) PRINCIPLES OF PROGRAMMING LANGUAGES - (Computer Science & Engineering)

Duration: 90Mins

Date: 30.10.2019 FN

Max Marks: 25M

Section – A

Answer All the questions

Marks: 5Qx1M = 5M

1. Define pass-by-Name.
2. Write difference between C++ Throw and Java Throw.
3. Define exception handling.
4. Write the list functions of LISP.
5. Write about the Predicate functions of Lisp.

Section – B

Answer any FOUR questions

Marks: 4Qx5M = 20M

6. Write about overloaded subprograms.
7. Define static, fixed stack-dynamic, fixed heap-dynamic and heap-dynamic array. What are the advantages of each?
8. compare the Exception Handling capabilities of C++ and those of JAVA.
9. Explain the generate – and – test programming strategy in Prolog.
10. Explain main features of imperative languages.

BR-16

SRI INDU COLLEGE OF ENGINEERING & TECHNOLOGY  
(An Autonomous Institution Under 2(f) and 12(B) of UGC Act 1956, New Delhi)

D4

III B.Tech - I Semester - I Mid Term Examinations

(R16CSE1110) PRINCIPLES OF PROGRAMMING LANGUAGES - (Computer Science & Engineering)

Duration: 90Mins

Date: 26.08.2019 FN

Max Marks: 25M

Section – A

Answer All the questions

Marks: 5Qx1M = 5M

1. Define a Parse tree?
2. Define Syntheized Attributes
3. Define Type Checking and Strong Typing?
4. Define a record and union.
5. Describe about block.

Section – B

Answer any FOUR questions

Marks: 4Qx5M = 20M

6. Explain about the factors that influence the language design.
7. Explain formal methods of BNF.
8. Write the primary use of attribute grammars. How is the order of evaluation of attributes determined for the trees of a given attribute grammar?
9. Define type compatibility. Distinguish between name type compatibility and structure type compatibility.
10. Define data Type. Explain about Primitive and non-primitive data type.
11. Discuss about actual parameters and positional parameters and keyword parameters.

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BR-16

SRI INDU COLLEGE OF ENGINEERING & TECHNOLOGY  
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D4

III B.Tech - I Semester - I Mid Term Examinations

(R16CSE1110) PRINCIPLES OF PROGRAMMING LANGUAGES - (Computer Science & Engineering)

Duration: 90Mins

Date: 26.08.2019 FN

Max Marks: 25M

Section – A

Answer All the questions

Marks: 5Qx1M = 5M

1. Define a Parse tree?
2. Define Syntheized Attributes
3. Define Type Checking and Strong Typing?
4. Define a record and union.
5. Describe about block.

Section – B

Answer any FOUR questions

Marks: 4Qx5M = 20M

6. Explain about the factors that influence the language design.
7. Explain formal methods of BNF.
8. Write the primary use of attribute grammars. How is the order of evaluation of attributes determined for the trees of a given attribute grammar?
9. Define type compatibility. Distinguish between name type compatibility and structure type compatibility.
10. Define data Type. Explain about Primitive and non-primitive data type.
11. Discuss about actual parameters and positional parameters and keyword parameters.

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BR-16

**SRI INDU COLLEGE OF ENGINEERING & TECHNOLOGY**  
(An Autonomous Institution Under 2(f) and 12(B) of UGC Act 1956, New Delhi)  
**II B.Tech - II Semester - II Mid Term Examinations**  
**(R16CSE1110) PRINCIPLES OF PROGRAMMING LANGUAGES**  
(Information Technology)

D4

**Duration: 90Mins**

**Date: 15.04.2019 FN**

**Max Marks: 25M**

**Section – A**

Answer **All** the questions

**Marks: 5Qx1M = 5M**

1. Show an example for overloaded operators.
2. Define coroutines.
3. What is logic programming language?
4. What is exception handling?
5. Show an internal representation of two LISP lists. (ABCD) and (A(B C)D(E (F G)))

**Section – B**

Answer any **FOUR** questions

**Marks: 4Qx5M = 20M**

6. Develop a C code for pass by reference.
7. Show an example of user defined overloaded operators in C++. Explain.
8. Give an example on queue abstract data type in a language you know, including operations for enqueue, dequeue and empty.
9. Discuss basic elements of Prolog.
10. Explain main features of imperative languages.
11. Define functional forms and referential transparency. What data types were parts of the original LISP?

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BR-16

**SRI INDU COLLEGE OF ENGINEERING & TECHNOLOGY**  
(An Autonomous Institution Under 2(f) and 12(B) of UGC Act 1956, New Delhi)  
**II B.Tech - II Semester - II Mid Term Examinations**  
**(R16CSE1110) PRINCIPLES OF PROGRAMMING LANGUAGES**  
(Information Technology)

D4

**Duration: 90Mins**

**Date: 15.04.2019 FN**

**Max Marks: 25M**

**Section – A**

Answer **All** the questions

**Marks: 5Qx1M = 5M**

1. Show an example for overloaded operators.
2. Define coroutines.
3. What is logic programming language?
4. What is exception handling?
5. Show an internal representation of two LISP lists. (ABCD) and (A(B C)D(E (F G)))

**Section – B**

Answer any **FOUR** questions

**Marks: 4Qx5M = 20M**

6. Develop a C code for pass by reference.
7. Show an example of user defined overloaded operators in C++. Explain.
8. Give an example on queue abstract data type in a language you know, including operations for enqueue, dequeue and empty.
9. Discuss basic elements of Prolog.
10. Explain main features of imperative languages.
11. Define functional forms and referential transparency. What data types were parts of the original LISP?

\*\*\*

BR-16

SRI INDU COLLEGE OF ENGINEERING & TECHNOLOGY  
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D4

II B.Tech - II Semester - I Mid Term Examinations  
(R16CSE1110) PRINCIPLES OF PROGRAMMING LANGUAGES

(Information Technology)

Duration: 90Mins

Date: 14.02.2019 FN

Max Marks: 25M

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Section – A

Answer All the questions

Marks: 5Qx1M = 5M

1. Define imperative languages.
2. What is a synthesized attributes?
3. Classify different relational operators available in Ada,C, Fortran 95.
4. Define short circuit evaluation.
5. Compare formal and actual parameters.

Section – B

Answer any FOUR questions

Marks: 4Qx5M = 20M

6. Explain the process of compilation in each phase of a compiler.
7. Show a parse tree for the statement  $A=B*(A+C)$   
Given grammar is:  $\langle \text{assign} \rangle \rightarrow \langle \text{id} \rangle = \langle \text{expr} \rangle$   
 $\langle \text{id} \rangle \rightarrow A|B|C$   
 $\langle \text{expr} \rangle \rightarrow \langle \text{id} \rangle + \langle \text{expr} \rangle$   
 $\quad | \langle \text{id} \rangle * \langle \text{expr} \rangle$   
 $\quad | ( \langle \text{expr} \rangle )$   
 $\quad | \langle \text{id} \rangle$
8. Show an example to convert the BNF to EBNF. Explain.
9. Explain about primitive and non-primitive data type.
10. Compare the design issues related to constants in any two programming languages.
11. Discuss the issues related to variables that are defined within subprograms.

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## **ASSIGNMENT-1**

1. Explain the process of Compilation??
2. a) Explain EBNF along with an example.  
b) Explain various programming paradigms
3. Define data Type? Explain About Primitive and non-primitive data type?
4. Explain about types of assignment statements?
5. discuss the design issues for subprograms and functions





# ARTIFICIAL INTELLIGENCE



Sri Indu College of Engineering & Technology :: Sheriguda (V), R.R.Dist

Department of Computer Science & Engineering

Mapping of Course Outcomes(CO's) with PO's / PSO's:

**COURSE NAME : ARTIFICIAL INTELLIGENCE**

**Academic Year: 2022-23**

**Class: III YEAR-I SEM.**

**Course Name: ARTIFICIAL INTELLIGENCE (R20CSE3122)**

At the end of the course, the student will be able to

Course Outcomes (COs)	
<b>C2203.1</b>	Formulate an efficient problem space for a problem expressed in English.
<b>C2203.2</b>	Select a search algorithm for a problem and characterize its time and space complexities.
<b>C2203.3</b>	Build skill for representing knowledge using the appropriate technique.
<b>C2203.4</b>	Apply AI techniques to solve problems of Game Playing, Expert Systems, Machine Learning and Natural Language Processing.
<b>C2203.5</b>	Define machine learning paradigms.

**COURSE ARTICULATION MATRIX**

CO	PO												PSO1	PSO2	PSO3
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12			
<b>C2203.1</b>	3	2	3	-	-	-	-	-	-	-	-	2	2	3	2
<b>C2203.2</b>	3	3	-	2	-	-	-	-	-	-	-	-	3	3	2
<b>C2203.3</b>	3	3	-	2	-	-	-	-	-	-	-	-	3	3	2
<b>C2203.4</b>	3	2	-	-	-	-	-	-	-	-	-	-	3	2	1
<b>C2203</b>	<b>3</b>	<b>2.5</b>	<b>0.75</b>	<b>1</b>	-	-	-	-	-	-	-	<b>0.5</b>	<b>2.8</b>	<b>2.8</b>	<b>1.5</b>

3: High      2: Medium      1: Low

CLASS TIME TABLE :

**Sri Indu College of Engineering & Technology**  
(An Autonomous Institution under UGC)  
Sheriguda (V), Ibrahimpatnam (M), Ranga Reddy (Dist) – 501 510  
**Department of CSE**

ROOM NO: 204  
Class: III CSE-C (I SEM)

**Time - Table**

W.E.F: 25/08/2022

Time	9:40 -10:30	10:30 -11:20	11:20-12:10	12:10-1:00	1:00 To 1:30	1:30 - 2:20	2:20 - 3:10	3:10 - 4:00
Days	1	2	3	4	L	5	6	7
Monday	CN	SE	BEFA	COI	U	AI	PPL	WT
Tuesday	BEFA	PPL	SE	AI	N	CN	WT	TECH
Wednesday	AI	LIB	CN	WT	C	ACS LAB		
Thursday	SE LAB			PPL	H	CN	BEFA	SEM
Friday	PPL	PROG	AI	BEFA	CN&WT LAB			
Saturday	SE	PPL	COI	CN	COUN	SE	WT	

SUBJECT CODE	SUBJECT NAME	FACULTY NAME
BEFA	Business Economics & Financial Analysis	Mrs.I.Maha Lakshmi
SE	Software Engineering	Ms.G.Swarnalatha
CN	Computer Networks	Mr.R.Mahender
WT	Web Technologies	Mrs.G.Shrisha
PPL	Principles Of Programming Languages	Mrs.M.Sampoorna
AI	Artificial Intelligence	Mrs.V.Kiranmai
SE LAB	Software Engineering Lab	Ms.G.Swarnalatha / Mrs. K.Archana
CN&WT LAB	Computer Networks & Web Technologies Lab	Mr.R.Mahender /Mrs.G.Shrisha / /Mrs.Ch.Anusha/
ACS LAB	Advanced Communication Skills Lab	Mr.Sai Kumar
COUN	Counseling	Mrs.M.Sampoorna/ Ms.G.Swarnalatha
LIB	Library	Mrs.V.Kiranmai
COI	Constitution of India	Dr.K.Gopala krishana
SEM	Seminar	Ms.G.Swarnalatha
PRO KNW	Programming knowledge	Mrs.K. Archana
TECH VIDEO	Technical Videos	Mr.R.Mahender

Class Coordinator  
Mrs.V.Kiranmai

HOD

**Sri Indu College of Engineering & Technology**  
(An Autonomous Institution under UGC)  
Sheriguda (V), Ibrahimpatnam (M), Ranga Reddy (Dist) – 501 510  
**Department of CSE**

ROOM NO: 205  
Class: III CSE-D (I SEM)

**Time - Table**

W.E.F: 25/08/2022

Time	9:40 -10:30	10:30 -11:20	11:20-12:10	12:10-1:00	1:00 To 1:30	1:30 - 2:20	2:20 - 3:10	3:10 - 4:00
Days	1	2	3	4	L	5	6	7
Monday	AI	CN&WT LAB	SE	PROG	U	BEFA	LIB	COI
Tuesday	AI	BEFA	CN	PROG	N	WT	PPL	SE
Wednesday	AI	SE LAB	COI	SE	C	PPL	AI	CN
Thursday	BEFA	PPL	AI	TECH	H	COUN	CN	WT
Friday	WT	CN	AI	TECH	ACS LAB			
Saturday	PPL	SE	CN	AI	SEM	BEFA	WT	

SUBJECT CODE	SUBJECT NAME	FACULTY NAME
BEFA	Business Economics & Financial Analysis	Mrs.I.Maha Lakshmi
SE	Software Engineering	Ms.G.Swarnalatha
CN	Computer Networks	Mr.R.Mahender
WT	Web Technologies	Mrs.G.Manasa
PPL	Principles Of Programming Languages	Mrs.M.Sampoorna
AI	Artificial Intelligence	Mrs.V.Kiranmai
SE LAB	Software Engineering Lab	Ms.G.Swarnalatha / Mrs. K.Archana
CN&WT LAB	Computer Networks & Web Technologies Lab	Ms.G.Manasa / Mr.R.Mahender /Mrs.Ch.Anusha
ACS LAB	Advanced Communication Skills Lab	Mr.Sai Kumar
COUN	Counseling	Mr.R.Mahender/ Mrs.V.Kiranmai
LIB	Library	Mrs.V.Kiranmai
COI	Constitution of India	Dr.K.Gopala krishana
SEM	Seminar	Ms.G.Swarnalatha
PRO KNW	Programming knowledge	Mrs.K. Archana
TECH VIDEO	Technical Videos	Mr.R.Mahender

Class Coordinator  
Ms.G.Swarnalatha

HOD



Sri Indu College of Engineering & Technology :: Sheriguda (V), R.R.Dist

Department of Computer science and engineering

FACULTY TIME TABLE

Time	9:40 - 10:30	10:30- 11:20	11:20- 12:10	12:10 - 1:00	1:00 - 1:30	1:30 - 2:20	2:20 - 3:10	3:10 - 4:00
Days	1	2	3	4	<b>L U N C H</b>	5	6	7
Monday						AI(III -C)	LIB(III-D)	
Tuesday	AI(III - D)			AI(III - C)				
Wednesday	AI(III -C)	LIB(III-C)					AI(III - D)	
Thursday			AI(III - D)			CONCL(III -D)		
Friday	AI(III -C)		AI(III - C)					
Saturday				AI(III - D)				

Name of the Faculty:V.KIRANMAI AY:2022-2023

FACULTY SIGNATURE

HOD (CSE)



Edit with WPS Office

**Professional Elective -II**  
**(R20CSE3122) Artificial Intelligence**

**Objectives:**

- To learn the difference between optimal reasoning vs human like reasoning
- To understand the notions of state space representation, exhaustive search, heuristic search along with the time and space complexities.
- To learn different knowledge representation techniques.
- To understand the applications of AI: namely Game Playing, Theorem proving, Expert Systems, Machine Learning and Natural Language Processing

**UNIT – I**

**Introduction:** History, Intelligent Systems, Foundations of AI, Sub areas of AI, Applications Problem Solving – State – Space Search and Control Strategies: Introduction General Problem Solving, Characteristics of Problem, Exhaustive Searches, Heuristic Search Techniques, Iterative •Deepening A\*, Constraint Satisfaction.  
Game Playing, Bounded Look• ahead Strategy and use of Evaluation Functions, Alpha•Beta Pruning.

**UNIT – II**

**Login Concepts and Logic Programming:** Introduction, Propositional Calculus Propositional Logic, Natural Deduction System, Axiomatic System, Semantic Tableau System in Propositional Logic, Resolution Refutation in Propositions Logic, Predicate Logic, Login Programming.  
Knowledge Representation: Introduction, Approaches to Knowledge Representation, Knowledge Representation using Semantic Network Extended Semantic Networks for KR, Knowledge Representation using frames.

**UNIT – III**

**Expert System and Applications:** Introduction, Phases in Building Expert Systems, Expert, Application of Expert Systems, List of Sheets and Tools.  
Uncertainty Measure – Probability Theory: Introduction, Probability Theory Bayesian Belief Networks, Certainty Factor Theory, Dempster•Shafer Theory

**UNIT – IV**

**Machine•Learning Paradigms:** Introduction, Machine Learning Systems, Supervised and Unsupervised Learning Inductive Learning, Learning Decision Trees (Text Book 2) Deductive Learning Clustering, Support Vector Machines.  
**Artificial Neural Networks:** Introduction, Artificial Neural Networks, Single•Layer Feed – Forward Networks, Multi•Layer Feed – Forward Networks Radial•Basis Function Networks, Design Issues of Artificial Neural Networks, Recurrent Networks.

**UNIT – V**

**Advanced knowledge Representation Techniques:** Case Grammars Semantic Web.  
**Natural Language Processing:** Introduction, Sentence Analysis Phases, Grammars and Parsers, Types of Parsers, Semantic Analysis, Universal Networking knowledge.



**TEXT BOOKS:**

1. Saroj Koushik, Artificial Intelligence, Cengage Learning, 2011.
2. Russell, Novig, Artificial Intelligence, A Modern Approach, Pearson Education, Second Edition, 2004.

**REFERENCE BOOK:**

- 1) Rich Knight, Nair, Artificial Intelligence, Tata McGraw Hill, Third Edition, 2009

**Course Outcomes:**

At the end of the course student will be able to

- Formulate an efficient problem space for a problem expressed in English.(Creating)
- select a search algorithm for a problem and characterize its time and space complexities.(Apply)
- Build skill for representing knowledge using the appropriate technique. (Applying)
- apply AI techniques to solve problems of Game Playing, Expert Systems, Machine Learning and Natural Language Processing.(Applying)
- define machine learning paradigms(Remembering)
- show the knowledge of case grammars semantic web(Remembering)





**SRI INDU COLLEGE OF ENGG & TECH**  
**LESSON PLAN**  
**(Regulation :R20)**  
**DEPARTMENT OF COMPUTER SCIENCE &**  
**ENGINEERING**

**Prepared on**  
**Rev1:**  
**Page: 1 of 6**

<b>Sub. Code &amp; Title</b>	<b>R20CSE3122 &amp;ARTIFICIAL INTELLIGENCE</b>
<b>Academic Year: 2022-23</b>	<b>Year/Sem./Section</b> III/I/A,B,C,D
<b>Faculty Name &amp; Designation</b>	<b>V.KIRANMAI, ASST PROF.&amp;Dr KOTESWARAN,PROF</b>

Unit/ Item No.	Topic (s)	Book Reference	Page (s)		Teaching Methodology	Proposed No. of Periods	Actual Date of Handled	CO/RBT
			From	To				
<b>UNIT I</b>								
<b>I</b>	<b>INTRODUCTION TO ARTIFICIAL INTELLIGENCE</b>					<b>18</b>		
1.1	Introduction to Artificial Intelligence, History, Intelligent systems	T1,R1	1	3	Black board	01		CO2/L3
1.2	Foundation of AI, Sub areas of AI, Applications	T1,R1	3	7	Black board	01		CO2/L3
1.3	Problem solving- state-space search and control strategies, Introduction	T1,R1	23	25	Black board	03		CO2/L3
1.4	General problem solving, characteristics of problem	T1,R1	26	31	Black board	01		CO2/L3
1.5	Exhaustive searches	T1,R1	34	44	Black board	03		CO2/L3
1.6	Heuristic search technique	T1,R1	44	55	Black board	01		CO2/L3
1.7	Iterative –Deepening A*, Constraint Satisfaction	T1,R1	55	61	Black board	02		CO2/L3
1.8	Game playing	T1,R1	75	86	Black board	01		CO4/L3
1.9	Bounded look -ahead strategy and use of evaluation functions	T1,R1	87	92	Black board	03		CO4/L3
1.10	Alpha- Beta pruning	T1,R1	93	100	Black board	02		CO4/L3
<b>Review</b>		<b>Signature of the HOD/Coordinator</b>						
Unit/ Item No.	Topic (s)	Book Reference	Page (s)		Teaching Methodology	Proposed No. of Periods	Actual Date of Handled	CO/RBT
<b>UNIT-II</b>								
<b>II</b>	<b>LOGIC CONCEPTS AND LOGIC PROGRAMMING</b>					<b>16</b>		
2.1	Introduction	T1	102	103	Black board	01		CO1/L6
2.2	Propositional Calculus, Propositional Logic	T1	103	107	Black board	01		CO1/L6
2.3	Natural Deduction System	T1	107	109	Black board	01		CO1/L6
2.4	Axiomatic system	T1	109	111	Black board	01		CO1/L6
2.5	Semantic Tableau System in Propositional Logic	T1	111	117	Black board	02		CO1/L6
2.6	Resolution Refutation in Proposition Logic	T1	117	121	Presentation	01		CO1/L6
2.7	Predicate Logic, Login Programming	T1	121	136	Black board	02		CO1/L6







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<b>Faculty Name &amp; Designation</b>	<b>V.KIRANMAI, ASST PROF.&amp;Dr KOTESWARAN,PROF.</b>		

2.8	Approaches to knowledge representation using Semantic Network	T1	231	238	Black board	02		CO3/L3
2.9	Extended Semantic Networks for KR	T1	238	254	Black board	03		CO3/L3
2.10	Knowledge Representation using Frames	T1	254	263	Black board	02		CO3/L3

<b>Review</b>		<b>Signature of the HOD/Coordinator</b>						
Unit/ Item no	Topic(s)	Book Reference	Page (s)		Teaching Methodology	Proposed No. of Periods	Actual Date of Handled	CO/RBT
			From	To				

**UNIT III**


<b>III</b>	<b>EXPERT SYSTEM AND APPLICATIONS</b>					<b>15</b>		
3.1	Introduction, Phases in Building Expert System	T1	264	268	Black board	02		CO4/L3
3.2	Expert System Architecture	T1	269	274	Black board	02		CO4/L3
3.3	Applications of Expert Systems, List of Shells and tools	T1	296	301	Black board	02		CO4/L3
3.4	Uncertainty Measure, Probability Theory :Introduction	T1	303	308	Black board	02		CO4/L3
3.5	Bayes' Theorem	T1	308	320	Black board	02		CO4/L3
3.6	Bayesian belief networks	T2	320	328	Seminar, Black board	02		CO4/L3
3.7	Certainty Factor Theory, Dempster Shafer Theory	T1	328	340	Seminar, Black board	03		CO4/L3

<b>Review</b>		<b>Signature of the HOD/Coordinator</b>						
Unit/ Item no	Topic (s)	Book Reference	Page (s)		Teaching Methodology	Proposed No. of periods	Actual Date of Handled	CO/RBT
			From	To				

**UNIT IV**

<b>IV</b>	<b>MACHINE LEARNING PARADIGMS</b>					<b>15</b>		
4.1	Introduction	T1	410	415	Black board	01		CO4,CO5/L3
4.2	Supervised and Unsupervised Learning	T1	415	419	Black board	02		CO4,CO5/L3
4.3	Inductive Learning, Learning Decision Trees	T1,T2	419	422	Black board	02		CO4,CO5/L3
4.4	Deductive Learning Clustering Support Vector Machines	T1	422	432	Black board	02		CO4,CO5/L3



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4.5	Artificial Neural Networks: Introduction	T1	445	448	Black board	02		CO5/L1
4.7	Single-Layer Feed- Forward Networks	T1	448	452	Black board	02		CO5/L1
4.8	Multi-Layer Feed-Forward Networks Radial Basis Function Networks	T1	452	462	Black board	04		CO5/L1
4.9	Design issues of ANN, Recurrent Networks	T1	463	472	Black board	01		CO5/L1

<b>Review</b>	<b>Signature of the HOD/Coordinator</b>							
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Unit/ Item No.	Topic (s)	Book Reference	Page(s)		Teaching Methodology	Proposed No. of periods	Actual Date of Handled	CO/RBT
			From	To				

**UNIT V**

<b>V</b>	<b>ADVANCED KNOWLEDGE REPRESENTATION TECHNIQUE</b>					<b>12</b>		
5.1	Case Grammars Semantic Web	T1	565	574	Black board	01		CO6/L1
5.2	Natural Language Processing, Introduction	T1	580	580	Presentation	01		CO6/L1
5.3	Sentence Analysis Phases, Grammars And Parsers	T1	581	584	Black board	01		CO6/L1
5.4	Types of Parsers	T1	584	605	Black board	04		CO6/L1
5.5	Semantic Analysis	T1	605	619	Black board	03		CO6/L1
5.6	Universal Networking Knowledge	T1	619	625	Black board	02		CO6/L1

<b>Review</b>	<b>Signature of the HOD/Coordinator</b>							
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**LIST OF TEXT BOOKS AND REFERENCES TEXT BOOKS:**

T1. Saroj Koushik, Artificial Intelligence, Cengage Learning, 2011.

T2. Russell, Novig, Artificial Intelligence, A Modern Approach, Pearson Education, second Edition, 2004.

**REFERENCE BOOKS:**


R1: Rich Knight, Nair, Artificial Intelligence, Tata McGraw Hill, Third Edition,2009.

R2: Nils J. Nilsson, Artificial Intelligence, a New Synthesis.

R3: Puntambekar, Artificial Intelligence, A.M, Tech-Max Publication.

R4: Jones, M. , Artificial Intelligence ,2<sup>nd</sup> edition, Dreamtech Publication.



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	<b>Faculty Name &amp; Designation</b>	<b>V.KIRANMAI, ASST PROF.&amp;Dr KOTESWARAN,PROF.</b>	

**WEB LINK:**

- W1: <http://www.jntufastupdates.com>  
W2: <https://www.smartzworld.com>  
W3: <https://www.jntumaterials.co.in>  
W4: <https://mrcet.com>  
W5: <http://tutorialsduniya.com>  
W6: <http://examupdates.in>


**LIST OF POWER POINT PRESENTATION**

S No	Topic Name	No. Of Slides
1	Resolution in First Order Predicate Logic	27 Slides(PPT1)
2	Natural Language Processing	35 Slides(PPT2)

**CONTENT BEYOND THE SYLLABUS**

S.NO	Topics	Proposed Actions	Date	Resource Person/Mode	POs	PSOs
1	Truth Maintenance Systems	Class room (1 Periods)			PO1, PO2	PSO1, PSO2
2	Black board Systems	Class room (1 Periods)			PO1, PO2	PSO1, PSO2
3	Fuzzy logic	Class room (5 Periods)			PO1,PO4	PSO4



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**ASSIGNMENT QUESTIONS (MID-I & MID-II)**


S. No.	Assignment Questions	Course Outcomes	Books To be Referred	Date Of Announcement	Date Of Submission
1	What is Artificial Intelligence and Artificial Intelligence technique? Briefly explain how AI Technique can be represented and list outcome of the task domain of AI.	CO1	T1		
2	What is the production system? Explain it with an example. Discuss the characteristics of a production system.	CO1	TI		
3	Discuss how uncertainty is handled in Dampster Shafer Theory with example.(MAR-2021)	CO4	TI		
4	Explain syntax and semantics of first order predicate logic	CO2	TI		
	Define expert system architecture with Diagram	CO4	T1		
6	Explain the application of natural language processing in detail.	CO6	T1		
7	Construct augmented transition network for analyze English sentences	CO6	T1		
8	Explain support vector machine?	CO4	T1		
9	Write about single and multilayer artificial neural network?	CO4,CO5	T1		
10	Explain simple Bayesian Network with neat diagram? Explain advantages and disadvantages of Bayesian belief network?	CO4	T1		

**SELF STUDY TOPICS**

S. No.	Topics	Books & Journals	Course Outcomes
1	Machine-Learning Paradigms	Saroj Kaushik	CO4,CO5/L3
2	Deep Learning	Yoshua Bengio, and Aaron Courville	CO4,CO5/L3
3	Introduction to Artificial Intelligence	NPTEL	CO2/L3

Prepared by	Recommended and Approved by
<b>V.KIRANMAI/Dr KOTESWARAN</b>	<b>HOD/CSE</b>
( Signature & Name)	



	<b>SRI INDU COLLEGE OF ENGG &amp; TECH</b> (Regulation :R20) DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING GY		<b>Prepared on Rev1:</b> <b>Page: 1 of 6</b>
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	<b>Faculty Name &amp; Designation</b>	<b>V.KIRANMAI, ASST PROF.Dr KOTESWARAN,PROF.</b>	

**QUESTION BANK WITH BLOOMS TAXONOMY LEVEL (BTL)**  
 (1.Remembering 2.Understanding 3.Applying 4.Analyzing 5.Evaluating 5.Creating)

**UNIT-I: INTRODUCTION TO ARTIFICIAL INTELLIGENCE**

**1 MARKS QUESTIONS**

		BT Level	Course Outcomes
1	What is resolution?	1	CO1
2	What is propositional logic?	1	CO1
3	What is logic programming?	1	CO1
4	Types of resolution method?	3	CO1
5	LISP was created by?	1	CO1
6	What is turing test? How is it useful to measure the intelligence of a machine?(JAN-2020)	1	CO1
7	What is uniform cost search and hill climbing search	1	CO1
8	What are the advantages of Heuristic searching techniques?	1	CO1
9	How many types of Exhaustive searches?	1	CO1
10	Write the limitations of DFS and BFS strategies.	2	CO1

**5 MARKS QUESTIONS**

1	What is Artificial Intelligence and Artificial Intelligence technique? Briefly explain how AI Technique can be represented and list out some of the task domain of AI.	1	CO1
2	Enumerate classical “Water jug problem”. Describe the state space for the problem and also give the solution. (JAN -2020)	5	CO1
3	What is the production system? Explain it with an example. Discuss the characteristics of a production system.	6	CO1
4	How to define a problem as state space search? Discuss it with the help of an example.	2	CO1
5	Discuss the following search technique with the help of an example. Also discuss the benefits and shortcoming of each i) Breadth First Search ii) Depth First Search	6	CO1
6	Define the Heuristic search. Discuss benefits and short comings	2	CO1
7	Discuss any two from the following heuristic search techniques. Explain the algorithm with the help of an example i) hill climbing ii) best-first search iii) A* Algorithm iv) beam search	6	CO1



8	Explain how a constraint satisfaction problem (CSP) may be solved.(March - 2021)	5	CO1																		
9	Explain the adoption of Alpha-Beta pruning for a two player game in detail. (March – 2021)	5	CO1																		
10	Solve the Eight-Puzzle problem. Using heuristic value  START STATE <table style="margin-left: 40px;"> <tr><td>3</td><td>7</td><td>6</td></tr> <tr><td>5</td><td>1</td><td>2</td></tr> <tr><td>4</td><td></td><td>8</td></tr> </table> GOAL STATE <table style="margin-left: 40px; border-collapse: collapse;"> <tr><td style="border: 1px solid black; padding: 2px;">5</td><td style="border: 1px solid black; padding: 2px;">3</td><td style="border: 1px solid black; padding: 2px;">6</td></tr> <tr><td style="border: 1px solid black; padding: 2px;">7</td><td style="border: 1px solid black; padding: 2px;"></td><td style="border: 1px solid black; padding: 2px;">2</td></tr> <tr><td style="border: 1px solid black; padding: 2px;">4</td><td style="border: 1px solid black; padding: 2px;">1</td><td style="border: 1px solid black; padding: 2px;">8</td></tr> </table>	3	7	6	5	1	2	4		8	5	3	6	7		2	4	1	8	5	CO1
3	7	6																			
5	1	2																			
4		8																			
5	3	6																			
7		2																			
4	1	8																			

### UNIT-II: LOGIN AND LOGIC PROGRAMMING

#### 1MARKS QUESTIONS

1	What is resolution?	1	CO2
2	What is propositional logic?	1	CO2
3	What is logic programming?	1	CO2
4	Types of resolution method?	3	CO2
5	How many types of Inference mechanisms .What are they?	1	CO2
6	What is skolemization?	1	CO2
7	Write the syntax of propositional logic?	2	CO2
8	Compute the truth value of $(A \vee B) \wedge (\sim B \rightarrow A)$ using truth table approach.	5	CO2
9	Write any two Equivalence Laws?	2	CO2
10	What are the techniques to represent knowledge?	1	CO2

#### 5 MARKS QUESTIONS

1	Illustrate the use of first order logic for simple representations.	2	CO2
2	What is propositional logic? How knowledge is represented by propositional logic.	1	CO2
3	Illustrate a simple forward chaining algorithm with example.	2	CO2
4	Explain syntax and semantic of FOL.	4	CO2
5	Demonstrate a simple backward chaining algorithm.	2	CO2
6	What is resolution? Explain resolution with suitable examples.	4	CO2
7	Explain the syntax and semantics of propositional logic?	4	CO2
8	Write unification algorithm and explain resolution in predicate Logic.	3	CO2
9	What are Resolution Methods? Explain with examples.	4	CO2






3	Difference between Expert System and Traditional system. Explain the characteristics of Expert Systems.	6	CO3
4	Define Expert System Architecture? With diagram.	1	CO3
5	Explain application of Expert System? Explain advantages and disadvantages of Expert System?	1	CO3
6	Prove the following formula assuming that H is a hypothesis and $E_i, i=1, \dots, n$ are n evidences $P(H E1 \text{ and } E2)=P(E1 H \text{ and } E2)*P(H E2) /P(E1 E2)$	4	CO3
7	Prove the generalized form of Bayes' theorem?	2	CO3
8	Explain Simple Bayesian Network: Example. Explain advantages and disadvantages of Bayesian Belief Network?	1	CO3
9	For the Bayesian network given in Fig. 1 and the corresponding probabilities,generate the conditional probability table  <div style="text-align: center;"> <pre> graph TD     A((A)) --&gt; B((B))     A((A)) --&gt; C((C))     A((A)) --&gt; D((D))     C((C)) --&gt; D((D)) </pre> </div> <p>Figure.1 Bayesian Belief Network</p> <p> <math>P(A) = 0.4</math>  <math>P(B A) = 0.5</math>  <math>P(B \sim A) = 0.1</math>  <math>P(C A) = 0.6</math>  <math>P(C \sim A) = 0.3</math>  <math>P(D A,B) = 0.8</math>  <math>P(D A,\sim B) = 0.3</math>  <math>P(D \sim A,B) = 0.3</math>  <math>P(D \sim A,\sim B) = 0.05</math> </p> <p>Also, compute the following probabilities:  i) Joint probability <math>P(A,B,C,D)</math>  ii) <math>P(A B)</math>   iii) <math>P(A C)</math>   iv) <math>P(A B,C)</math></p>	3	CO3
10	Explain Certainty Factor Theory. Suppose by observing $E1$ and $E2$ , we confirm our belief in H with $MB[H,E1]=0.6$ and $MD[H,E1]=0.2$ , $MD[H,E2]=0.0$ , $MB[H,E2]=0.3$ . Then compute the following: i) $CF[H,E1 \text{ and } E2]$ ii) $MB[H,E1 \text{ and } E2]$ iii) $MD[H,E1 \text{ and } E2]$ iv) $CF[H,E1 \text{ and } E2]$	5	CO3
<b>UNIT-IV MACHINE LEARNING PARADIGM</b>			
<b>1 MARKS QUESTIONS</b>			
1	Explain Delta rule?	1	CO4
2	Explain multilayer feed forward networks?	2	CO4






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<b>Faculty Name &amp; Designation</b>	<b>V.KIRANMAI, ASST PROF.Dr KOTESWARAN,PROF.</b>			
3	Explain design issues of ANN?	5	CO4	
4	Explain radial basis function network?	2	CO4	
5	Explain support vector machine?	2	CO4	
6	Explain unsupervised learning?	2	CO4	
7	Explain supervised learning?	2	CO4	
8	Define Inductive Bias.	1	CO4	
9	Explain Rote learning?	2	CO4	
10	Define clustering?	1	CO4	
<b>5 MARKS QUESTIONS</b>				
1	What is Inductive learning? What is the importance of inductive bias? Describe the framework of inductive learning.	2	CO4	
2	What is clustering? Describe the main algorithm used for clustering?	1	CO4	
3	Cluster the following 8 data points with (x, y) representing locations into 3 clusters A1(2,10), A2(2,5), A3(8,4), A4(5,8), A5(7,5), A6(6,4), A7(1,2), A8(4,9). Initial cluster centers are: A1(2,10), A4(5,8) and A7(1,2). The distance function between two points a=(x1, y1) and b=(x2, y2) is defined as $P(a, b) =  x2-x1  +  y2-y1 $ . Use K-Means algorithm to the three cluster centers after second iteration.	5	CO4	
4	Briefly explain about machine learning systems? What are the difference between supervised and unsupervised learning?	2	CO4	
5	Explain about supervised and unsupervised learning? Explain deductive learning?	2	CO4	
6	Explain Support vector machines?	2	CO4	
7	Explain Reinforcement learning and applications of reinforcement learning?	2	CO4	
8	What is the difference between Neural Network Based Learning and support vector machine?	2	CO4	
9	Write about single and Multilayer artificial neural network (JAN 2020)	2	CO4	
10	What is CBR? Give a step by step overview of learning process of CBR Frame work? Describe various methods for case retrieval.	1	CO4	
<b>UNIT-V: ADVANCED KNOWLEDGE REPRESENTATION TECHNIQUES</b>				
<b>1 MARKS QUESTIONS</b>				
1	List the types of Parsers.	1	CO5	
2	What are Grammars?	1	CO5	
3	Define NLP.	1	CO5	
4	Write the phases of Sentence analysis?	2	CO5	
5	What is DCG formalism?	1	CO5	
6	What is Web Ontology Language?	2	CO5	
7	Define Simple Transition Network.	2	CO5	



8	Define Conceptual Parsing.	2	CO5
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	<b>SRI INDU COLLEGE OF ENGG &amp; TECH</b> (Regulation :R20) DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING		<b>Prepared on Rev1:</b> <b>Page: 6 of 6</b>	
	Sub. Code & Title	R20CSE3122 & ARTIFICIAL INTELLIGENCE		
	Academic Year: 2022-23	Year/Sem.	III/I/A,B,C,D	
	Faculty Name & Designation	V.KIRANMAI, ASST PROF.Dr KOTESWARAN, PROF.		
9	Define UNL.		2	CO5
10	List the Grammars.		1	CO5
<b>5 MARKS QUESTIONS</b>				
1	What is Parsing? Explain in detail Bottom-up Parsing and Top-down Parsing?		4	CO5
2	Discuss the differences between Simple Transition Networks and Recursive Transition Networks.		4	CO5
3	Explain in detail about the following networks a) Recursive Transition Networks. B) Augmented Transition Network.		2	CO5
4	Explain Definite Clause Grammar?		2	CO5
5	Construct a Verb Lexicon for case grammar.		3	CO5
6	What is parsing? Explain in detail two parsing methods.		2	CO5
7	Implement simple system for generating case frame structure For English sentences using language of your choice.		5	CO5
8	Draw parse tree structures for the following sentences: a) The boy goes to the market b) Cute girl eats an ice-cream with spoon c) Bad man killed innocent people in the train d) John went to doctor for treatment in the hospital.		4	CO5
9	Construct Augmented Transition Network for analyze English sentences.(JAN-2020)		4	CO5
10	Explain the applications of natural language processing in detail.(MAR-2021)		2	CO5



**SRI INDU COLLEGE OF ENGINEERING & TECHNOLOGY**

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**M.TECH I YEAR - I SEMESTER – END EXAMINATIONS(Regular/Suppl.)–January-2020  
R18CSE1504 – ARTIFICIAL INTELLIGENCE (Common to CSE & CS)****Duration: 3 Hrs****29.01.2020****Max Marks: 70M****Section - A****Answer All the following questions****Marks: 5Qx4 = 20M**

1. What is Turing Test? How is it useful to measure the intelligence of a machine?
2. Differentiate procedural and declarative knowledge.
3. How does Bayesian statistics provide reasoning under various kinds of uncertainty?
4. Draw a Conceptual dependency graphs for the following statements:
  - i) John gave a coin to the beggar.
  - ii) Paul cut down the tree with an axe.
5. Construct Augmented Transition Network for analyze English sentences.

**Section - B****Answer any FIVE questions choosing at least one from each Unit****Marks: 5Qx10M = 50M****UNIT - I**

6. Determine the start state, goal state and legal moves and draw the state space diagram for the well - known water jug problem listed below:  
Given two water jugs of 4 liters and 3 liters' capabilities, neither have any measuring marks on it. There is a pump that can be used to fill the jugs. How can you get exactly the two liters of water into 4-liter jug?

**(OR)**

7. Solve the 8 – puzzle using hill climbing and determine heuristic function that makes this work. Specify the limitations of hill climbing.

**UNIT - II**

8. By using the resolution principle prove that whether "Marcus hated Caesar" or not?  
Given: i) Marcus was man.
  - ii) Marcus was a Pompeian.
  - iii) All Pompeians were Romans.

**P.T.O**

Caesar was a ruler.

- iv) All Romans were either loyal to Caesar or hated him.
- v) Everyone is loyal to someone.
- vi) People only try to assassinate rulers they are not loyal to.
- vii) Marcus tried to assassinate Caesar.

(OR)

9. What is matching? Describe different matching techniques with example.

UNIT - III

10. What is symbolic reasoning? How to implement symbolic reasoning with Justification Truth Maintenance System (JTMS).

(OR)

11. What is partitioned semantic network? Represent each of the following pieces of knowledge by a partitioned semantic net:

i) Every batter hit a ball

ii) All persons in the party loved every child.

UNIT - IV

12. Describe the various components of script and develop script for restaurant problem.

(OR)

13. What is planning? Consider the following block world problem and solve it using goal stack planning

Initial state: ON (C, A) □ ON – TABLE (A) □ ON – TABLE (B).

Goal state : ON (A, B) □ ON (B, C)

UNIT - V

14. Explain discourse integration and pragmatic processing in detail.

(OR)

15. Write about single and multi-layer artificial neural network.

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III B.Tech I Semester (REGULAR) End Examinations March - 2021

## ARTIFICIAL INTELLIGENCE

22/03/2021

Day- 6 (FN)

Duration: 3 Hrs

Marks: 5Qx14M = 70M

Answer FIVE questions (Treat Q.No.11 as a single question).

### UNIT-I

- a) Explain constraint satisfaction problem with an example.
- b) Explain the importance of search algorithms in AI.

(OR)

Explain the adoption of Alpha-Beta pruning for a two player game in detail.

### UNIT-II

1. a) Write expressions in first-order predicate logic to represent the following statements:
  - i) All computer science students love artificial intelligence.
  - ii) Everyone who knows programming loves artificial intelligence.
  - iii) Therefore, all computer science students know programming.
  - iv) Prove whether the conclusion follows from the premises or not.
- b) Discuss different kinds of knowledge that need to be represented in AI.

(OR)

2. Explain the concepts of semantic network and frames with an example.

### UNIT-III

3. a) Two factories A and B manufacture spectacles. A customer received a defective spectacle and the manager at factory B would like to know if it came from her factory. Use the table below to determine the probability that the spectacle came from factory B.

Factory	% of Production	Probability of Defective Spectacle
A	0.55	0.20 P(D/A)
B	0.45	0.014 P(D/B)

- b) Explain the phases of building a expert system in detail

4. Discuss how uncertainty is handled in Dempster Shafer Theory with example.

#### UNIT-IV

5. Construct a decision tree for the data given below (10M)

Shape	Color	Odour	Cost
C	B	1	YES
D	B	1	YES
D	W	1	YES
D	W	2	YES
C	B	2	YES
D	B	2	NO
D	G	2	NO
C	U	2	NO
C	B	3	NO
C	W	3	NO
D	W	3	NO

6. a) Cluster the following eight points (with (x, y) representing locations) into three clusters: A1(2, 10), A2(2, 5), A3(8, 4), A4(5, 8), A5(7, 5), A6(6, 4), A7(1, 2), A8(4, 9) Initial cluster centers are: A1(2, 10), A4(5, 8) and A7(1, 2). The distance function between two points  $a = (x_1, y_1)$  and  $b = (x_2, y_2)$  is defined as-  $P(a, b) = |x_2 - x_1| + |y_2 - y_1|$ . Use K-Means Algorithm to find the three cluster centers after the second iteration.
- b) Explain support vector machine classifier in detail.
7. a) Discuss the components of semantic web in detail.  
b) Explain how semantic analysis of text can be extracted in detail.
8. Describe different preprocessing techniques required for natural language processing in detail.
- Discuss the applications of Artificial Intelligence in retail business.
  - Explain Resolution in Propositional Logic.
  - What is uncertainty and how to deal with it?
  - Discuss the design issues of ANN in detail.
  - Explain the applications of natural language processing in detail.

