



S J P N Trust's  
**Hirasugar Institute of Technology, Nidasoshi.**

*Inculcating Values, Promoting Prosperity*

Approved by AICTE, Recognized by Govt. of Karnataka and Affiliated to VTU Belagavi.

Accredited at 'A' Grade by NAAC

Programmes Accredited by NBA: CSE, ECE, EEE & ME

CSE

NBA

FCAR

2020-21  
(EVEN)

## FACULTY COURSE ASSESSEMENT REPORT (FCAR)

**Course Coordinator:** Dr. K. B. Manwade **Class Strength:** 34  
**Semester:** VIII **Subject:** User Interface Design **Code:** 17CS832

### I. Program Outcomes (POs): Engineering Graduates will be able to:

- Engineering knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
- Problem analysis:** Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
- Design/development of solutions:** Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
- Conduct investigations of complex problems:** Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
- Modern tool usage:** Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.
- The engineer and society:** Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.
- Environment and sustainability:** Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
- Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
- Individual and team work:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
- Communication:** Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
- Project management and finance:** Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
- Life-long learning:** 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.

### II. Program Specific Outcomes (PSOs):

PSO1:	Understand, design and analyze computer programs in the areas related to Algorithms, System Software, Web design, Bigdata Analytics and Networking.
PSO2:	Make use of modern computer tools for creating innovative career paths to be an entrepreneur and desire for higher studies.



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**III. Course outcomes (COs):** The student, after successful completion of the course, will be able to:

CO	Description	Cognitive Level	Mapped POs
C418.1	Explain principles, importance, characteristics of good interface design.	L2	1,2,3,5,12
C418.2	Explain the user interface design process, characteristics, and standards of design process.	L2	1,2,3,5,12
C418.3	Explain various aspects of system menus and its navigation.	L2	1,2,3,5,12
C418.4	Explain different aspects of windows like its characteristics, components, presentation, control and working.	L2	1,2,3,5,12
C418.5	Explain types of screen based controls.	L2	1,2,3,5,12

**IV. Mapping of Course Outcomes (COs) to Program Outcomes (Pos):**

POs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
<b>COs</b>												
<b>C418.1</b>	2	2	2	--	--	--	--	1	--	2	--	1
<b>C418.2</b>	2	2	2	--	--	--	--	1	--	2	--	1
<b>C418.3</b>	2	2	2	--	--	--	--	1	--	2	--	1
<b>C418.4</b>	2	2	2	--	--	--	--	1	--	2	--	1
<b>C418.5</b>	2	2	2	--	--	--	--	1	--	2	--	1
<b>Average</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>1</b>	<b>--</b>	<b>2</b>	<b>--</b>	<b>1</b>

**V. Mapping of Course Outcomes (COs) to Program Specific Outcomes (PSOs):**

PSOs	PSO 1	PSO 2
<b>COs</b>		
<b>C418.1</b>	2	1
<b>C418.2</b>	2	1
<b>C418.3</b>	2	1
<b>C418.4</b>	2	1
<b>C418.5</b>	2	1
<b>Average</b>	<b>2</b>	<b>1</b>



## VI. Justification of CO-PO Mapping:

Mapping	Justification
C418.1-PO1	A medium correlation since explaining the principles of good interface design which require knowledge of engineering sciences.
C418.2-PO1	A medium correlation since explaining the user interface design process which require knowledge of engineering sciences.
C418.3-PO1	A medium correlation since explaining the various aspects of system menus design which require knowledge of engineering sciences.
C418.4-PO1	A medium correlation since explaining the aspects of windows like its characteristics which require knowledge of engineering sciences.
C418.5-PO1	A medium correlation since explaining the Explain types of screen based controls which require knowledge of engineering sciences.
C418.1-PO2	The CO contributes moderately to problem analysis by explaining importance and characteristics of good interface design.
C418.2-PO2	The CO contributes moderately to problem analysis by Explain the user interface design process, characteristics.
C418.3-PO2	The CO contributes moderately for problem analysis by Explain various aspects of system menus and its navigation.
C418.4-PO2	The CO contributes moderately for problem analysis by Explain components, presentation, control and it's working.
C418.5-PO2	The CO contributes moderately for problem analysis by various Explain types of screen based controls.
C418.1-PO3	The CO maps moderately to design and development by explaining characteristics of good user interface design.
C418.2-PO3	The CO maps moderately to design and development by explaining the standards of design process.
C418.3-PO3	The CO maps moderately to design and development by explaining various aspects of system menus and its navigation design.
C418.4-PO3	The CO maps moderately to design and development by explaining the components an presentation window module.
C418.5-PO3	The CO maps moderately to design and development by explaining various types of designs for screen based controls.
C418.1-PO8	The CO explains only principles, importance, characteristics user interface, so contributes weakly to professional ethics and responsibilities.
C418.2-PO8	The CO explains various standards for designing user interface, thus contributes weakly to professional ethics and responsibilities.
C418.3-PO8	The CO explains only requirements for implementation of system menus and its navigation. so contributes weakly to professional ethics and responsibilities.
C418.4-PO8	The CO explains only requirements not ethical principle for implementing window components and its presentation.
C418.5-PO8	The CO explains only types of screen based controls for different types of devices, so contributes weakly to professional ethics and responsibilities.
C418.1-PO10	The CO explain concept, characteristics and importance of user interface and contributes moderately for communication.
C418.2-PO10	The CO contributes moderately for communication as it explains user interface design process and its characteristics and standards.
C418.3-PO10	The CO explains menu and its types and thus contributes moderately for communication.
C418.4-PO10	The CO contributes moderately for communication by explaining windows based controls.



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C418.5-PO10	The CO contributes moderately for communication by explaining screen based controls.
C418.1-PO12	The CO explains importance of good interface design and motivates for lifelong learning.
C418.2-PO12	The CO explains standards of user interface design process and motivates for lifelong learning.
C418.3-PO12	The CO explains advantages of menus and types of navigations in the menu and motivates for lifelong learning.
C418.4-PO12	The CO explains types and aspects of windows based systems and motivates for lifelong learning.
C418.5-PO12	The CO explains modern screen based controls and requirement for designing good interface which motivates for lifelong learning.

## VII. Justification of CO-PSO Mapping:

Mapping	Justification
C418.1-PSO1	A medium correlation since CO gives introduction about user interface design which is required for implementation of different software products.
C418.2-PSO1	The required design process for implementation of user interface is explained by CO, so medium correlation between CO and the corresponding PO.
C418.3-PSO1	For GUI based software product the important component is menus and its navigation which explained by the CO, therefore medium correlation.
C418.4-PSO1	A medium correlation since CO explains windows based system and its implementation.
C418.5-PSO1	As per types of devices user interface need to be developed, the CO explains various screen based interfaces therefore medium correlation.
C418.1-PSO2	The CO indicates low correlation to higher studies and for innovative career paths as it guides about characteristics and importance of user interface.
C418.2-PSO2	The CO indicates low correlation to higher studies and for innovative career paths as it explains the design process for different types of devices.
C418.3-PSO2	The CO indicates low correlation to higher studies and for innovative career paths and explains theoretical aspects of different types of menus and navigation of menus.
C418.4-PSO2	The CO indicates low correlation to higher studies and for innovative career paths as it explains windows systems, their presentation, characteristics and their components.
C418.5-PSO2	The CO indicates low correlation to higher studies and for innovative career paths as it explains only types of screen based controls.

## VIII. Bench Mark Setting

The syllabus of course User Interface Design (17CS832) is same as compared with the previous scheme syllabus of the University curriculum. The previous set target value 1.5 is achieved by 2.87. Therefore **set target value for academic year 2020-21 the CO attainment is 2.87.**



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## IX. DIRECT ASSESSMENT OF COs, POs & PSO ATTAINMENT

### Teaching Methodology:

- Lecture by Teacher
- PPT or Online demo etc.

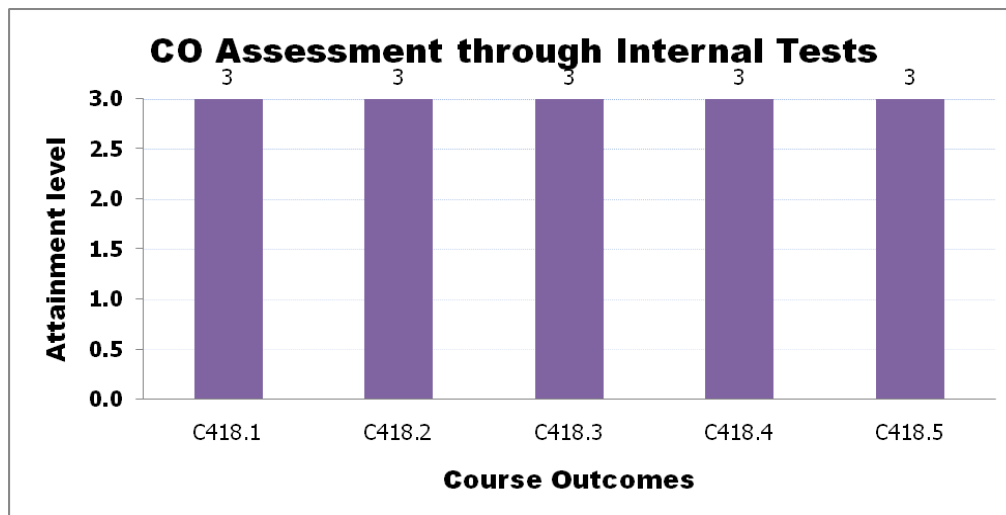
### Assessment Tools:

- Continuous assessment
- Laboratory experiments
- End semester exam

### I. Assessment through Assignment:

**A: Appeared    R: Reached    Low =1 (50-60 %)    Medium =2 (61-70 %)    High =3 (above 70 %)**

COs	Assignment-1		Assignment-2		Assignment-3		Assignment-4		Assignment-5		Attainment level of CO in Percentage	Attainment level of CO	Mapped PO	Mapped PSO
	A	R	A	R	A	R	A	R	A	R				
C418.1	34	34									100.00	3	1,2,3,8,10,12	1,2
C418.2			34	34							100.00	3	1,2,3,8,10,12	1,2
C418.3					34	34					100.00	3	1,2,3,8,10,12	1,2
C418.4							34	34			100.00	3	1,2,3,8,10,12	1,2
C418.5									34	34	100.00	3	1,2,3,8,10,12	1,2





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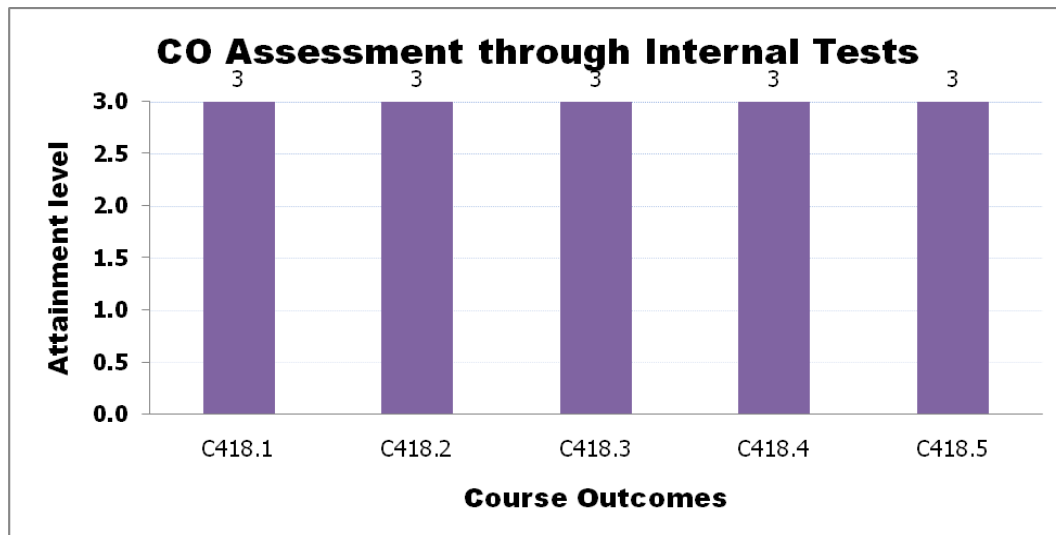
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## II. Assessment through Internal Marks:

**A: Appeared R: Reached Low =1 (50-60 %) Medium =2 (61-70 %) High =3 (above 70 %)**

COs	IA - 1				IA - 2				IA - 3				Attainment level of CO	Mapped PO	Mapped PSO
	Q.No.1 OR Q. No. 2		Q.No.3 OR Q. No. 4		Q.No.1 OR Q. No. 2		Q.No.3 OR Q. No. 4		Q.No.1 OR Q. No. 2		Q.No.3 OR Q. No. 4				
	A	R	A	R	A	R	A	R	A	R	A	R			
	C418.1	34	34												
C418.2			34	34									2	1,2,3,8,10,12	1,2
C418.3					34	34							2	1,2,3,8,10,12	1,2
C418.4							34	34					3	1,2,3,8,10,12	1,2
C418.5									34	33	34	34	2	1,2,3,8,10,12	1,2



## III. Semester End Exam Assessment Based on VTU Exam Results:

COs Attainment Levels:

FCD: S+, S, & A = 3;

FC (B) = 2;

Pass: C, D, & E = 1;

Fail = 0

Total no. of Students Appeared	49	
Class/Grade	Total Number of Students	Course (COs) Attainment Through Semester End Exams
FCD/S+, S, A	23	69
FC/B	10	20
PASS/C,D,E	1	1
Total Percentage of Passing	100.00%	2.65



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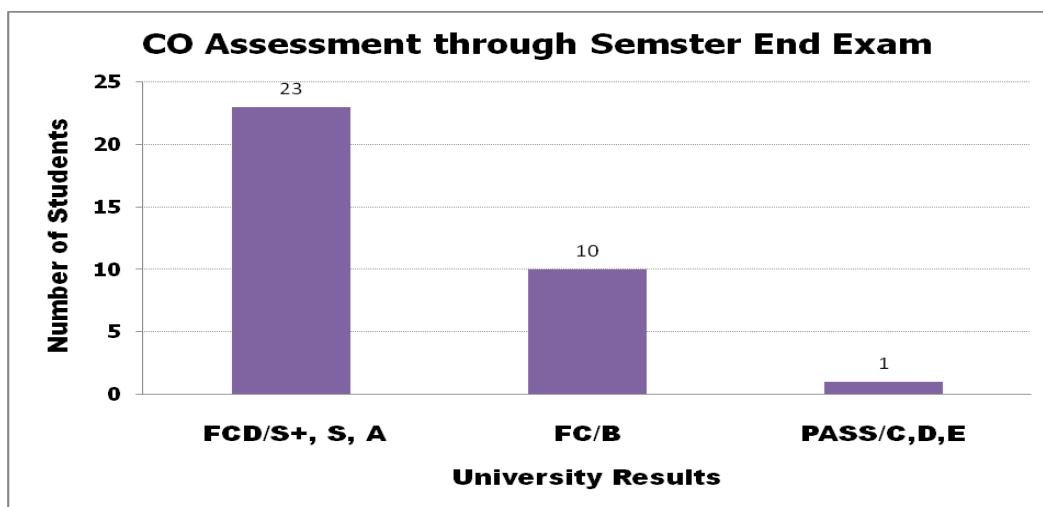
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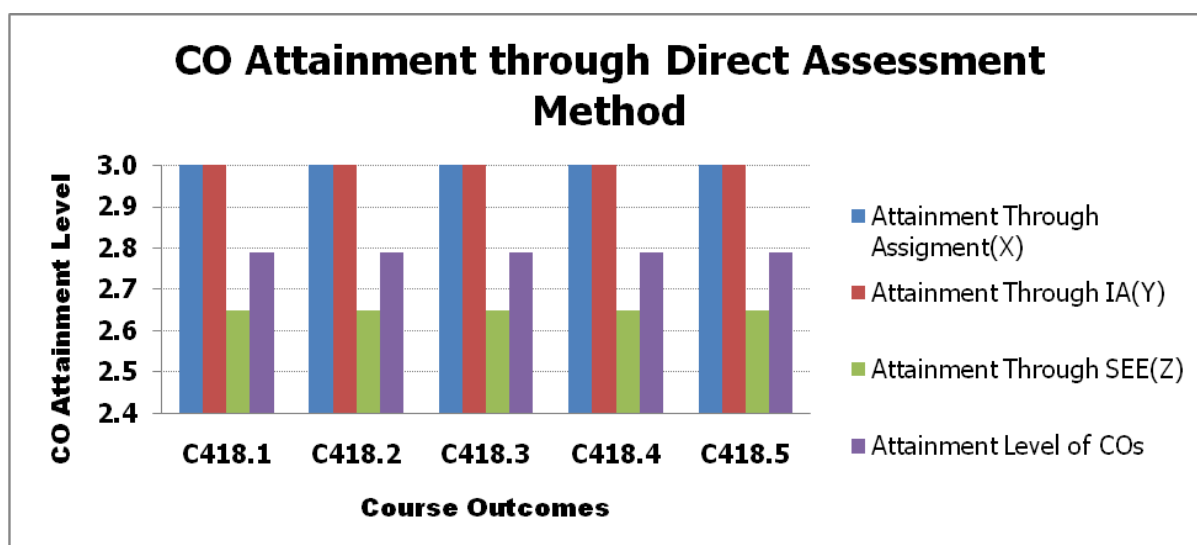
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**IV. CO Attainment:**

COs	Attainment Through Assignment (X)	Attainment Through IA Test(Y)	Attainment Through Semester End Exam(Z)	Attainment level of CO	Mapped POs	Mapped PSOs
				$[0.2(X+Y)/2]+0.8Z$		
C418.1	3	3	2.65	2.79	1,2,3,8,10,12	1,2
C418.2	3	3	2.65	2.79	1,2,3,8,10,12	1,2
C418.3	3	3	2.65	2.79	1,2,3,8,10,12	1,2
C418.4	3	3	2.65	2.79	1,2,3,8,10,12	1,2
C418.5	3	3	2.65	2.79	1,2,3,8,10,12	1,2
<b>CO Attainment through Direct Assessment Method</b>				2.79		





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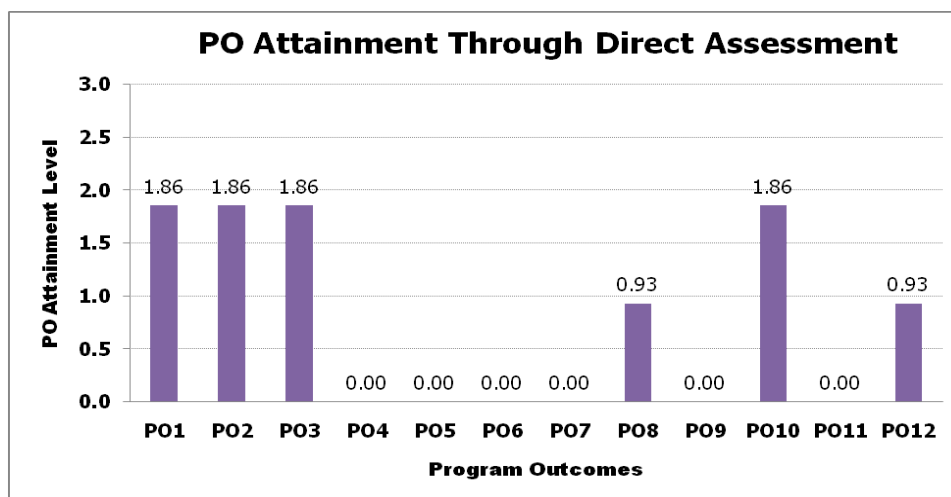
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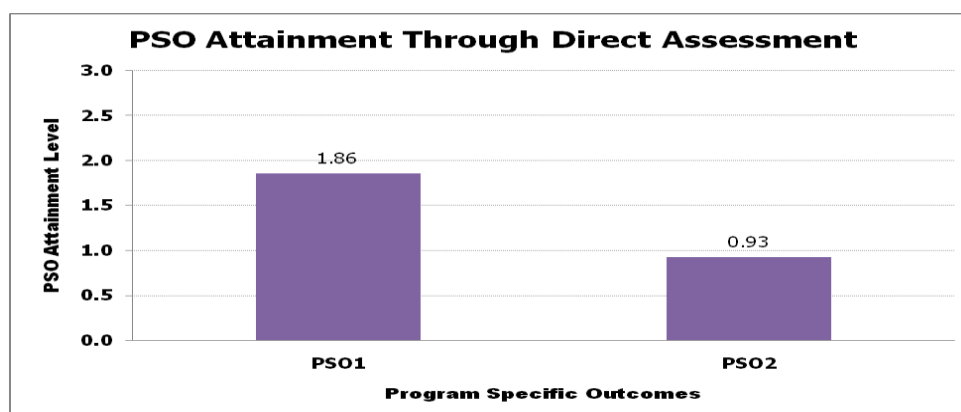
**V. PO Attainment for the Entire Course:**

CO/PO	PO1	PO2	PO3	PO8	PO5	PO6	PO10	PO8	PO9	PO10	PO11	PO12
C418	1.86	1.86	1.86	0.00	0.00	0.00	0.00	0.93	0.00	1.86	0.00	0.93



**VI. PSO Attainment for the Entire Course:**

CO/PSO	PSO1	PSO2
C418	1.86	0.93

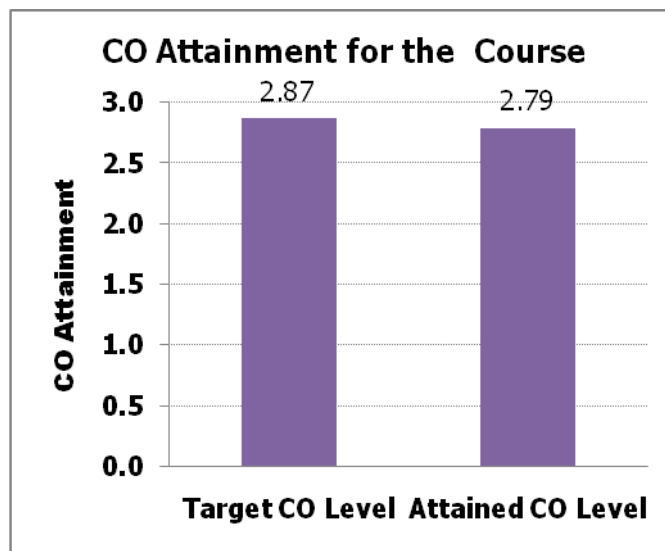






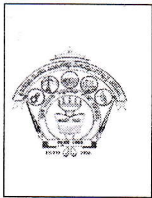
## VII. Target Attainment:

<b>CO Attainment for the Course</b>	
Target CO Level	2.87
Attained CO Level	2.79



## VIII. Course Coordinator Remarks:

S. No.	Observations	Comments
1	Impact of Delivery Methods	Delivery methods are satisfactory. Pedagogy used to deliver lectures is quite satisfactory. But overall attainment of all course outcomes is moderate as it is observed in CO attainment table. Because of covid-19 pandemic online teaching method was adopted, therefore due to limitations of online teaching the set target was not achieved.
2	Course Outcome Attainment	Overall Attainment of all course outcomes (CIE+SEE) is more than 50% on 1 -3 performance scale as observed CO attainment table. But attainment level of COs less than set target level. To improve attainment level course outcomes following activities are to be implemented. <ul style="list-style-type: none"><li>Tutorial/Remedial classes are to be conducted to explain concepts in simpler way by one to one interaction to weaker/slow learners.</li></ul>
3	Scope for Improvement	Below mentioned activities can be suggested. <ul style="list-style-type: none"><li>NPTEL video lectures will be shared to students to clarify difficult concepts in the course.</li></ul>
4	Additional Comments (if any)	--




### X. INDIRECT ASSESSMENT OF PO & PSO THROUGH COURSE EXIT SURVEY (CES)


$$\begin{aligned} \text{PO Attainment} &= (\text{Mapped value} * \text{CES attainment value})/3 \\ &= (2 * 2.87) / 3 = \\ &= (1 * 2.87)/3 = \end{aligned}$$


POs→	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
COs↓												
C418.1	2	2	2	--	--	--	--	1	--	2	--	1
C418.2	2	2	2	--	--	--	--	1	--	2	--	1
C418.3	2	2	2	--	--	--	--	1	--	2	--	1
C418.4	2	2	2	--	--	--	--	1	--	2	--	1
C418.5	2	2	2	--	--	--	--	1	--	2	--	1
Average	2	2	2	--	--	--	--	1	--	2	--	1
CES Attainment	1.91	1.91	1.91	--	--	--	--	0.96	--	1.91	--	0.96

$$\text{PSO Attainment} = (\text{Mapped value} * \text{CES attainment value})/3$$


PSOs	PSO 1	PSO 2
COs		
C418.1	2	1
C418.2	2	1
C418.3	2	1
C418.4	2	1
C418.5	2	1
Average	2	1
CES Attainment	1.91	0.96

  
Dr. K. B. Manwade  
Course Coordinator

  
Dr. S. G. Gollagi  
Module Coordinator

  
Prof. S. V. Manjaragi  
HOD

**H.O.D**  
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												<b>NBA</b>	
												<b>PO/PSO Attainment</b>	
												<b>2021-22</b>	

## Attainment of Program Outcomes and Program Specific Outcomes

### Assessment Year 2020-21

#### PO/PSO Attainment through Direct Assessment Method:

Assessment Method/POs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
Direct Assessment(A)	2.14	2.10	1.83	1.83	1.66	1.98	2.32	1.32	2.20	1.51	2.14	1.29	1.86	1.61

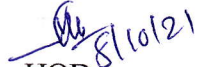
#### PO/PSO Attainment through Indirect Assessment Methods:

S. No.	Indirect Method	Weightage (%)	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
1	Employer Survey	5	2.67	2.67	3.00	3.00	2.33	3.00	2.67	3.00	3.00	2.67	2.67	3.00	3.00	2.67
2	Alumni Survey	15	3.00	3.00	2.00	2.00	2.14	1.63	1.63	2.00	2.13	2.13	2.00	2.14	2.14	--
3	Senior Exit Survey	15	2.86	2.86	2.86	2.81	2.92	2.92	2.83	2.89	2.89	2.89	2.75	2.89	2.86	2.89
4	Activity Feedback	35	3	3	3		3	3	3	3	3	3	3	3	3	3
5	Course Exit Survey	15	2.45	2.47	2.11	2.07	1.95	2.51	2.69	1.48	2.22	1.64	2.45	1.55	2.06	1.78
6	Placement, Higher Education and Entrepreneurship	15	1.72	1.72	1.72	1.72	1.72	1.72	1.72	1.72	1.72	1.72	1.72	1.72	1.72	1.72
Indirect Assessment(B)			2.69	2.69	2.50	1.44	2.48	2.52	2.51	2.41	2.54	2.44	2.52	2.45	2.52	2.14

#### PO/PSO Attainment through Direct and Indirect Assessment Methods:

Assessment Method/POs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
Direct Assessment(A)	2.14	2.10	1.83	1.83	1.66	1.98	2.32	1.32	2.20	1.51	2.14	1.29	1.86	1.61
Indirect Assessment(B)	2.69	2.69	2.50	1.44	2.48	2.52	2.51	2.41	2.54	2.44	2.52	2.45	2.52	2.14
<b>AVG(0.8*A+0.2*B)</b>	<b>2.25</b>	<b>2.22</b>	<b>1.96</b>	<b>1.75</b>	<b>1.82</b>	<b>2.09</b>	<b>2.36</b>	<b>1.54</b>	<b>2.27</b>	<b>1.69</b>	<b>2.22</b>	<b>1.52</b>	<b>1.99</b>	<b>1.72</b>

  
 Criteria Coordinator

  
 HOD  
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<b>CSE DEPT.</b>
<b>NBA</b>
<b>Direct Assessment</b>
<b>2021-22</b>

## PO Attainment through Direct Assessment Method

Assessment Year - 2020-21

Sl. No	Course	Code	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
1	Engg. Mathematics-I	C101	1.76	1.17	0.59	--	--	--	--	--	--	--	--	0.59
2	Engg. Physics	C102	2.18	--	1.45	--	0.73	--	--	--	--	--	--	0.73
3	Basic Civil Engg.	C103	1.16	1.16	0.77	0.77	--	0.39	--	0.39	--	--	0.39	0.77
4	Elements of Mechanical Engg.	C104	1.86	1.24	--	--	--	--	0.62	--	--	--	--	--
5	Basic Electrical Engg.	C105	1.88	--	1.25	--	0.63	--	--	--	--	--	--	0.63
6	Workshop Practice Lab	C106	2.66	1.66	3	1.33	--	3	--	3	2	2	3	2.5
7	Engg. Physics Lab	C107	2.76	--	--	--	0.92	--	--	--	--	--	--	--
8	Engg. Mathematics-II	C109	1.52	1.01	0.51	--	--	--	--	--	--	--	--	0.51
9	Engineering Chemistry	C110	1.73	1.38	1.15	--	--	1.04	--	--	--	--	--	0.58
10	Programming in C & Data Structures	C111	1.43	1.14	1.24	--	--	--	--	0.48	--	0.48	--	0.48
11	Computer Aided & Engg. Drawing	C112	0.5	--	--	--	1.01	--	--	0.5	--	1.51	--	--
12	Basic Electronics	C113	1.63	1.63	1.63	1.09	--	0.54	--	--	--	--	--	1.09
13	Computer Programming Lab	C114	2.91	2.91	2.91	--	--	--	--	0.97	1.94	1.94	--	0.97
14	Engg. Chemistry Lab	C115	2.91	2.91	2.91	--	--	1.94	--	--	--	--	--	0.97
15	Environmental Science	C116	3	2	2	--	--	2	2	1	--	--	1	1
16	Engineering Mathematics -III	C201	1.63	1.09	0.54	--	--	--	--	--	--	--	--	0.54
17	Analog & Digital Electronics	C202	2.12	2.12	2.12	--	--	--	--	1.42	--	0.71	--	1.42
18	Data Structures & Applications	C203	2.25	2.25	1.87	--	--	--	--	1.50	--	1.50	--	--
19	Computer Organization	C204	1.14	1.25	1.25	--	--	--	--	0.57	--	0.57	--	0.57
20	Unix & System Programming	C205	2.21	2.21	1.47	--	--	--	--	0.74	--	0.74	--	0.74
21	Discrete Mathematical Structures	C206	2.09	2.09	1.40	--	--	--	--	1.40	--	1.40	--	--



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22	Analog & Digital Electronics Lab	C207	2.92	2.92	1.95	1.95	1.95	--	--	1.95	1.95	1.95	--	1.95
23	Data Structures Lab	C208	2.85	2.85	1.90	--	1.90	--	--	1.90	1.90	1.90	--	1.90
24	Engineering Mathematics -IV	C209	2.02	1.35	0.67	--	--	--	--	--	--	--	--	0.67
25	Object Oriented Concepts	C210	1.03	1.03	1.03	--	0.51	--	--	0.51	--	0.51	--	1.03
26	Design & Analysis of Algorithms	C211	1.48	1.48	1.48	--	--	--	--	1.48	--	1.48	--	1.48
27	Microprocessor & Microcontroller	C212	2.17	2.17	1.45	--	--	--	--	0.72	--	0.72	--	1.45
28	Software Engineering	C213	1.38	2.07	2.07	1.38	1.72	1.38	--	1.38	--	0.69	2.07	1.38
29	Data Communications	C214	0.49	0.99	--	--	0.49	--	--	0.49	--	0.49	--	0.49
30	Design & Analysis of Algorithms Lab	C215	2.81	2.81	1.87	--	--	--	--	0.94	1.87	1.87	--	1.87
31	Microprocessors Lab	C216	1.82	1.82	1.82	0.91	0.91	--	--	0.91	1.82	1.82	--	0.91
32	Management & Entrepreneurship for IT	C301	2.44	2.44	--	--	--	1.90	1.63	2.44	2.44	2.44	2.44	2.03
33	Computer Networks	C302	1.72	1.72	1.72	1.72	--	--	--	0.86	--	1.72	--	1.72
34	Database Management System	C303	1.68	1.68	1.12	--	--	--	--	0.56	--	0.56	--	0.56
35	Automata Theory & Computability	C304	2.22	2.22	1.77	--	--	--	--	1.48	--	1.48	--	--
36	Advanced Java & J2EE	C307	1.72	1.72	1.72	--	1.72	--	--	0.69	--	0.69	--	2.06
37	Dotnet Framework for Application Development	C312	2.06	2.06	2.06	0.69	2.06	--	--	1.37	--	1.37	--	2.06
38	Computer Networks Lab	C314	2.81	2.81	1.87	1.87	1.87	--	--	0.94	1.87	1.87	--	0.94
39	DBMS Lab with Mini Project	C315	2.76	2.76	1.84	1.84	1.84	--	--	0.92	1.84	1.84	1.84	0.92
40	Cryptography, Network Security & Cyber Law	C316	2.96	2.96	1.48	--	--	--	--	1.98	--	0.99	--	0.99
41	Computer Graphics & Visualization	C317	2.32	1.74	1.93	--	2.89	--	--	0.96	--	0.96	--	0.96
42	System Software and Compiler Design	C318	2.98	2.39	2.39	--	--	--	--	1.99	--	1.99	--	--
43	Operating Systems	C319	1.85	1.85	1.85	--	--	--	--	1.85	--	1.85	--	0.92
44	Data Mining & Data Warehousing	C320	2.98	2.98	2.98	--	--	--	--	0.99	--	0.99	--	0.99



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45	Python Application Programming	C327	0.98	1.95	1.95	--	0.98	--	--	0.98	--	0.98	--	0.98
46	System Software & Operating System Lab	C330	1.98	1.98	0.99	--	--	--	--	0.99	1.98	1.98	--	0.99
47	Computer Graphics & Visualization Lab with	C331	1.95	1.95	1.95	--	0.98	--	--	0.98	1.95	1.95	0.98	0.98
48	Web Technology & Applications	C401	2.36	2.36	1.58	--	0.79	--	--	0.79	--	1.58	--	1.58
49	Advanced Computer Architecture	C402	2.68	2.68	2.68	--	--	--	--	1.79	--	1.79	--	1.79
50	Machine Learning	C403	2.05	2.05	2.05	--	--	--	--	0.88	--	0.88	--	0.88
51	Cloud Computing & Applications	C405	1.64	1.64	1.64	--	1.64	--	--	0.82	--	0.82	--	0.82
52	Storage Area Networks	C411	2.39	2.39	--	--	--	1.59	--	1.59	--	1.59	--	1.59
53	Machine Learning Lab	C412	2.88	2.88	1.92	1.92	1.92	--	--	0.96	1.92	1.92	--	1.92
54	Web Technology Lab with Mini Project	C413	2.98	2.98	1.99	--	1.99	--	--	0.99	1.99	1.99	1.99	0.99
55	Project Phase - I	C414	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
56	Internet of Things & Applications	C415	2.81	2.81	2.81	--	--	--	--	1.87	--	0.94	--	1.87
57	Big Data Analytics	C416	0.96	1.93	1.93	--	--	--	--	0.96	--	0.96	--	0.96
58	User Interface Design	C420	1.86	1.86	1.86	--	--	--	--	0.93	--	1.86	--	0.93
59	Internship	C421	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
50	Project Work - II	C422	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
61	Seminar	C423	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
<b>Direct Assessment(A)</b>			<b>2.14</b>	<b>2.10</b>	<b>1.83</b>	<b>1.83</b>	<b>1.66</b>	<b>1.98</b>	<b>2.32</b>	<b>1.32</b>	<b>2.20</b>	<b>1.51</b>	<b>2.14</b>	<b>1.29</b>

*[Signature]*  
06/10/2021  
Criteria Coordinator

*[Signature]*  
06/10/21  
HOD  
Computer Science & Engg.  
HIT, Nidasoshi



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## PSO Attainment through Direct Assessment Method

Assessment Year - 2020-21

Sl.No.	Course	Code	PSO1	PSO2
1.	Engineering Mathematics -III	C201	--	--
2.	Analog & Digital Electronics	C202	2.12	1.42
3.	Data Structures & Applications	C203	1.50	1.50
4.	Computer Organization	C204	0.91	0.57
5.	Unix & System Programming	C205	2.21	2.21
6.	Discrete Mathematical Structures	C206	0.70	--
7.	Analog & Digital Electronics Lab	C207	1.95	1.95
8.	Data Structures Lab	C208	1.90	1.90
9.	Engineering Mathematics -IV	C209	--	--
10.	Software Engineering	C210	1.03	1.03
11.	Design & Analysis of Algorithms	C211	1.48	1.48
12.	Microprocessor & Microcontroller	C212	1.45	0.72
13.	Object Oriented Concepts	C213	1.38	1.38
14.	Data Communications	C214	0.49	0.49
15.	Design & Analysis of Algorithms Lab	C215	2.81	2.81
16.	Microprocessors Lab	C216	0.91	0.91
17.	Management & Entrepreneurship for IT	C301	--	2.44
18.	Computer Networks	C302	1.72	0.86
19.	Database Management System	C303	1.68	1.68
20.	Automata Theory & Computability	C304	1.48	--
21.	Advanced Java & J2EE	C307	2.06	1.37
22.	Dotnet Framework for Application development	C312	2.06	1.37
23.	Computer Networks Lab	C314	1.87	0.94
24.	DBMS Lab with Mini Project	C315	2.76	2.76
25.	Cryptography, Network Security & Cyber Law	C316	1.98	1.98
26.	Computer Graphics & Visualization	C317	1.93	1.93
27.	System Software and Compiler Design	C318	1.99	--
28.	Operating Systems	C319	1.85	0.92
29.	Data Mining & Data Warehousing	C320	1.99	0.99
30.	Python Application Programming	C327	1.95	1.95
31.	System Software & Operating System Lab	C330	1.98	0.99
32.	Computer Graphics & Visualization Lab with Mini	C331	0.98	0.98
33.	Web Technology & Applications	C401	1.58	0.79
34.	Advanced Computer Architecture	C402	2.68	1.79



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35.	Machine Learning	C403	1.75	1.75
36.	Cloud Computing & Applications	C405	1.64	1.64
37.	Storage Area Networks	C411	1.59	0.80
38.	Machine Learning Lab	C412	1.92	1.92
39.	Web Technology Lab	C413	1.99	0.99
40.	Project Phase - I	C414	3.00	3.00
41.	Internet of Things & Applications	C415	2.81	1.87
42.	Big Data Analytics	C416	1.93	1.93
43.	User Interface Design	C420	0.93	0.93
44.	Internship	C421	3.00	3.00
45.	Project Work - II	C422	3.00	3.00
46.	Seminar	C423	3.00	3.00
<b>Direct Assessment</b>			<b>1.86</b>	<b>1.61</b>

*D. Jayachandran*  
86/10/2021  
Criteria Coordinator

*P. M. S. Reddy*  
26/10/21  
HOD  
Computer Science & Engg.  
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		<b>2019-20</b>

## **FACULTY COURSE ASSESSEMENT REPORT (FCAR)**


**Course Coordinator: Prof: A. A. Daptardar** **Class Strength:49**  
**Semester:VI** **Subject: Operating Systems** **Code: 15CS64**

### **I. Program Outcomes (POs): Engineering Graduates will be able to:**

1. **Engineering knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
2. **Problem analysis:** Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
3. **Design/development of solutions:** Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
4. **Conduct investigations of complex problems:** Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
5. **Modern tool usage:** Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.
6. **The engineer and society:** Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.
7. **Environment and sustainability:** Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
8. **Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
9. **Individual and team work:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
10. **Communication:** Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
11. **Project management and finance:** Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
12. **Life-long learning:** 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.

### **II. Program Specific Outcomes (PSOs):**

PSO1:	Understand, design and analyze computer programs in the areas related to Algorithms, System Software, Web design, Bigdata Analytics and Networking.
PSO2:	Make use of modern computer tools for creating innovative career paths to be an entrepreneur and desire for higher studies.

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		<b>NBA</b>
		<b>FCAR</b>
		<b>2019-20</b>

**III. Course outcomes (COs):** The student, after successful completion of the course, will be able to:


CO	Description	Cognitive Level	Mapped Pos
C319.1	Demonstrate need for Operating System and its types.	L2	1,2,3,8,10,12
C319.2	Explain the multithreaded systems and scheduling algorithms.	L2	1,2,3,8,10,12
C319.3	Illustrate the concept of process synchronization and Deadlock.	L2	1,2,3,8,10,12
C319.4	Explain the concept of memory management and File System.	L2	1,2,3,8,10,12
C319.5	Illustrate the different concepts of disk management, Protection and Linux System case studies.	L2	1,2,3,8,10,12

**IV. Mapping of Course Outcomes (COs) to Program Outcomes (Pos):**

POs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
<b>COs</b>												
<b>C319.1</b>	2	2	2	--	--	--	--	2	--	2	--	1
<b>C319.2</b>	2	2	2	--	--	--	--	2	--	2	--	1
<b>C319.3</b>	2	2	2	--	--	--	--	2	--	2	--	1
<b>C319.4</b>	2	2	2	--	--	--	--	2	--	2	--	1
<b>C319.5</b>	2	2	2	--	--	--	--	2	--	2	--	1
<b>Average</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>2</b>	<b>--</b>	<b>2</b>	<b>--</b>	<b>1</b>


**V. Mapping of Course Outcomes (COs) to Program Specific Outcomes (PSOs):**

PSOs	PSO 1	PSO 2
<b>COs</b>		
<b>C319.1</b>	2	1
<b>C319.2</b>	2	1
<b>C319.3</b>	2	1
<b>C319.4</b>	2	1
<b>C319.5</b>	2	1
<b>Average</b>	<b>2</b>	<b>1</b>

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		<b>NBA</b>
		<b>FCAR</b>
		<b>2019-20</b>

## VI. Justification of CO-PO Mapping:

Mapping	Justification
C319.1-PO1	A moderate correlation is given, as to demonstrate the need for Operating System and its types requires the basic knowledge of engineering.
C319.2-PO1	A moderate correlation is given, as to explain the multithreaded systems and scheduling algorithms requires the knowledge of mathematics and engineering fundamentals.
C319.3-PO1	A moderate correlation is given, as to illustrate the concept of process synchronization and deadlock which includes Banker's algorithm requires the knowledge of mathematics and engineering fundamentals.
C319.4-PO1	A moderate correlation is given, as to explain the concept of memory management and file system requires the knowledge of mathematics and engineering fundamentals.
C319.5-PO1	A moderate correlation is given, as to explain the different concepts of disk management, protection and Linux system case studies requires the knowledge of mathematics and engineering fundamentals.
C319.1-PO2	A moderate correlation is given, as to demonstrate the need for Operating System and its types is essential for problem identification and solution formulation.
C319.2-PO2	A moderate correlation is given, as to explain the multithreaded systems and scheduling algorithms is essential for problem identification and solution formulation.
C319.3-PO2	A moderate correlation is given, as to illustrate the concept of process synchronization and deadlock which includes Banker's algorithm is essential for problem identification and solution formulation.
C319.4-PO2	A moderate correlation is given, as to explain the concept of memory management and file system is essential for problem identification and solution formulation.
C319.5-PO2	A moderate correlation is given, as to explain the different concepts of disk management, protection and Linux system case studies is essential for problem identification and solution formulation.
C319.1-PO3	A moderate correlation is given, as to demonstrate the need for Operating System and its types is essential during the design/development of solutions to the problems.
C319.2-PO3	A moderate correlation is given, as to explain the multithreaded systems and scheduling algorithms is essential during the design/development of solutions to the problems.
C319.3-PO3	A moderate correlation is given, as to illustrate the concept of process synchronization and deadlock which includes Banker's algorithm is essential during the design/development of solutions to the problems.
C319.4-PO3	A moderate correlation is given, as to explain the concept of memory management and file system is essential is essential during the design/development of solutions to the problems.
C319.5-PO3	A moderate correlation is given, as to explain the different concepts of disk management, protection and Linux system case studies is essential during the design/development of solutions to the problems.
C319.1-PO8	A moderate correlation is given, as to demonstrate the need for Operating System and its types requires knowledge of ethical principles and professional ethics.
C319.2-PO8	A moderate correlation is given, as to explain the multithreaded systems and scheduling algorithms requires knowledge of ethical principles and professional ethics.
C319.3-PO8	A moderate correlation is given, as to illustrate the concept of process synchronization and deadlock which includes Banker's algorithm requires knowledge of ethical principles and professional ethics.

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		<b>NBA</b>
		<b>FCAR</b>
		<b>2019-20</b>

C319.4-PO8	A moderate correlation is given, as to explain the concept of memory management and file system is essential requires knowledge of ethical principles and professional ethics.
C319.5-PO8	A moderate correlation is given, as to explain the different concepts of disk management, protection and Linux system case studies requires knowledge of ethical principles and professional ethics.
C319.1-PO10	A moderate correlation is given, as to demonstrate the need for Operating System and its types requires knowledge of Verbal/Non-Verbal communication for effective presentation and design documentation.
C319.2-PO10	A moderate correlation is given, as to explain the multithreaded systems and scheduling algorithms requires knowledge of Verbal/Non-Verbal communication for effective presentation and design documentation.
C319.3-PO10	A medium correlation is given, as to illustrate the concept of process synchronization and deadlock which includes Banker's algorithm requires knowledge of Verbal/Non-Verbal communication for effective presentation and design documentation.
C319.4-PO10	A moderate correlation is given, as to explain the concept of memory management and file system requires knowledge of Verbal/Non-Verbal communication for effective presentation and design documentation.
C319.5-PO10	A moderate correlation is given, as to explain the different concepts of disk management, protection and Linux system case studies requires knowledge of Verbal/Non-Verbal communication for effective presentation and design documentation.
C319.1-PO12	A weak correlation is given, as to demonstrate the need for Operating System and its types recognize the need for life-long learning in the broadest context of technological change.
C319.2-PO12	A weak correlation is given, as to explain the multithreaded systems and scheduling algorithms recognize the need for life-long learning in the broadest context of technological change.
C319.3-PO12	A weak correlation is given, as to illustrate the concept of process synchronization and deadlock which includes Banker's algorithm recognize the need for life-long learning in the broadest context of technological change.
C319.4-PO12	A weak correlation is given, as to explain the concept of memory management and file system is essential recognize the need for life-long learning in the broadest context of technological change.
C319.5-PO12	A weak correlation is given, as to explain the different concepts of disk management, protection and Linux system case studies recognize the need for life-long learning in the broadest context of technological change.

## VII. Justification of CO-PSO Mapping:

Mapping	Justification
C319.1-PSO1	A moderate correlation is given, as to demonstrate the need for Operating System and its types to understand and analyze the computer programs using the operating system.
C319.2-PSO1	A moderate correlation is given, as to explain the multithreaded systems and scheduling algorithms to understand and analyze the computer programs using the operating system.
C319.3-PSO1	A moderate correlation is given, as to illustrate the concept of process synchronization and deadlock which includes Banker's algorithm to understand and analyze the computer programs using the operating system.
C319.4-PSO1	A moderate correlation is given, as to explain the concept of memory management and file system to understand and analyze the computer programs using the operating system..
C319.5-PSO1	A moderate correlation is given, as to explain the different concepts of disk management, protection and Linux system case studies to understand and analyze the computer programs using the operating system.



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C319.1-PSO2	A weak correlation is given, as to demonstrate the need for Operating System and its types for creating career paths to be an entrepreneur
C319.2-PSO2	A weak correlation is given, as to explain the multithreaded systems and scheduling algorithms for creating career paths to be an entrepreneur
C319.3-PSO2	A weak correlation is given, as to illustrate the concept of process synchronization and deadlock which includes Banker's algorithm for creating career paths to be an entrepreneur
C319.4-PSO2	A weak correlation is given, as to explain the concept of memory management and file system for creating career paths to be an entrepreneur.
C319.5-PSO2	A weak correlation is given, as to explain the different concepts of disk management, protection and Linux system case studies for creating career paths to be an entrepreneur

### VIII. Bench Mark Setting

<b>VTU Result(CIE+SEE)</b>					
<b>July/August 2015 Max. Marks:125</b>		<b>July/August 2016 Max. Marks: 125</b>		<b>July/August 2017 Max. Marks: 125</b>	
<b>USN</b>	<b>Marks Obtained</b>	<b>USN</b>	<b>Marks Obtained</b>	<b>USN</b>	<b>MARKS Obtained</b>
2HN11CS006	35	2HN11CS015	70	2HN14CS002	88
2HN11CS011	61	2HN12CS011	61	2HN14CS004	73
2HN11CS013	53	2HN12CS014	62	2HN14CS005	
2HN11CS024	52	2HN12CS024	50	2HN14CS006	86
2HN12CS001	80	2HN12CS038	64	2HN14CS008	75
2HN12CS002	65	2HN12CS411	50	2HN14CS010	100
2HN12CS003	91	2HN13CS001	75	2HN14CS011	76
2HN12CS004	57	2HN13CS002	61	2HN14CS012	66
2HN12CS005	81	2HN13CS003	62	2HN14CS013	94
2HN12CS006	40	2HN13CS004	69	2HN14CS015	84
2HN12CS007	54	2HN13CS005	71	2HN14CS016	71
2HN12CS008	52	2HN13CS006	81	2HN14CS017	83
2HN12CS009	83	2HN13CS007	66	2HN14CS018	81
2HN12CS010	57	2HN13CS008	53	2HN14CS019	78
2HN12CS012	83	2HN13CS009	62	2HN14CS020	
2HN12CS013	68	2HN13CS010	69	2HN14CS021	91
2HN12CS015	78	2HN13CS011	65	2HN14CS023	89
2HN12CS016	55	2HN13CS013	69	2HN14CS024	80
2HN12CS018	48	2HN13CS014	79	2HN14CS025	60
2HN12CS019	28	2HN13CS015	78	2HN14CS026	74
2HN12CS020	81	2HN13CS016	56	2HN14CS027	92
2HN12CS021	75	2HN13CS017	82	2HN14CS028	95
2HN12CS022	89	2HN13CS018	67	2HN14CS029	89
2HN12CS023	81	2HN13CS019	86	2HN14CS030	69
2HN12CS025	97	2HN13CS020	58	2HN14CS031	92
2HN12CS026	72	2HN13CS022	68	2HN14CS032	75
2HN12CS027	72	2HN13CS023	81	2HN14CS033	72



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2HN12CS028	86	2HN13CS025	61	2HN14CS034	59
2HN12CS030	68	2HN13CS026	70	2HN14CS035	90
2HN12CS031	66	2HN13CS027	69	2HN14CS037	82
2HN12CS032	91	2HN13CS028	83	2HN14CS038	91
2HN12CS033	84	2HN13CS029	78	2HN14CS039	97
2HN12CS034	52	2HN13CS030	74	2HN14CS040	88
2HN12CS035	60	2HN13CS031	76	2HN14CS041	88
2HN12CS036	74	2HN13CS032	53	2HN14CS042	80
2HN12CS037	70	2HN13CS033	67	2HN14CS043	69
2HN12CS039	66	2HN13CS034	74	2HN14CS045	93
2HN12CS040	70	2HN13CS035	70	2HN14CS046	80
2HN12CS041	69	2HN13CS036	73	2HN14CS048	79
2HN12CS042	46	2HN13CS037	72	2HN15CS400	54
2HN12CS043	53	2HN13CS038	85	2HN15CS401	80
2HN12CS045	54	2HN13CS039	93	2HN15CS402	76
2HN12CS046	79	2HN13CS040	75	2HN15CS403	74
2HN12CS047	57	2HN13CS041	78	2HN15CS404	68
2HN12CS048	56	2HN13CS042	91	2HN15CS405	71
2HN12CS406	66	2HN13CS043	77	2HN13CS021	53
2HN13CS400	50	2HN13CS045	74		
2HN13CS401	57	2HN13CS046	78		
2HN13CS402	59	2HN13CS047	55		
2HN13CS403	74	2HN13CS048	78		
2HN13CS404	73	2HN13CS049	57		
2HN12CS044	60	2HN13CS050	71		
2HN10CS026	52	2HN13CS051	63		
		2HN13CS052	73		
		2HN13CS053	76		
		2HN14CS400	63		
		2HN14CS401	63		
		2HN13CS024	66		
		2HN12CS029	50		
<b>MEDIAN</b>	<b>66</b>		<b>70</b>		<b>80</b>

Year	Median	Median of Medians	Initial Target Value <b>ITV= (Median of Medians)*3/100</b>
July/August 2015	66	70	<b>2.10</b>
July/August 2016	70		
July/August 2017	80		



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## IX. DIRECT ASSESSMENT OF COs, POs & PSOs ATTAINMENT

### Teaching Methodology:

- Lecture by Teacher
- PPT or Online demo etc.

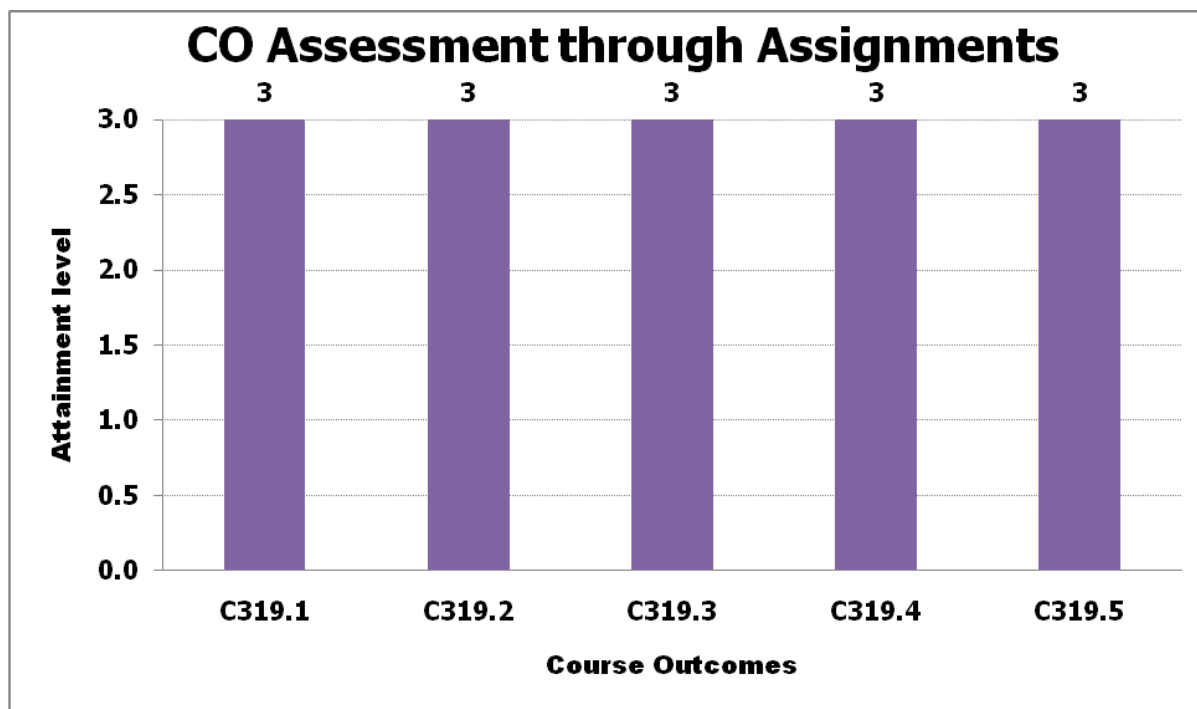
### Assessment Tools:

- Continuous assessment
- Laboratory experiments
- End semester exam

### I. Assessment through Assignment:

**A: Appeared R: Reached Low =1 (50-60 %) Medium =2 (61-70 %) High =3 (above 70 %)**

COs	Assignment-1		Assignment-2		Assignment-3		Assignment-4		Assignment-5		Attainment level of CO in Percentage	Attainment level of CO	Mapped PO	Mapped PSO
	A	R	A	R	A	R	A	R	A	R				
C319.1	49	49									100.00	3	1,2,3,8,10,12	1,2
C319.2			49	49							100.00	3	1,2,3,8,10,12	1,2
C319.3					49	49					100.00	3	1,2,3,8,10,12	1,2
C319.4							49	49			100.00	3	1,2,3,8,10,12	1,2
C319.5									49	49	100.00	3	1,2,3,8,10,12	1,2

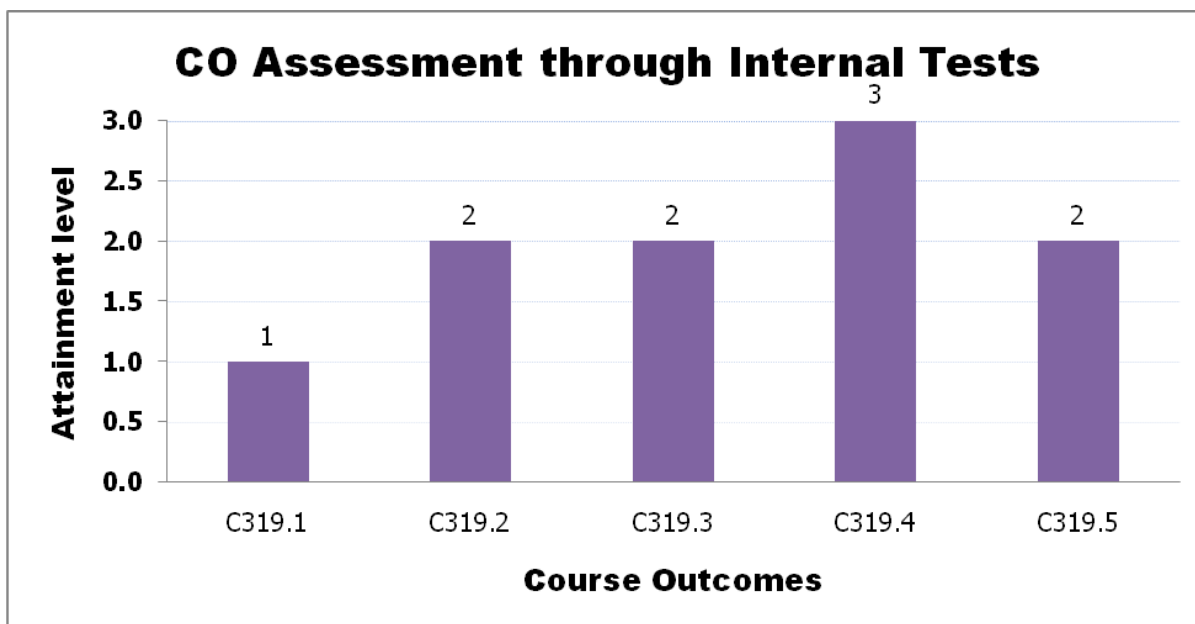


## II. Assessment through Internal Marks:

**A: Appeared R: Reached Low =1 (50-60 %) Medium =2 (61-70 %) High =3 (above 70 %)**

COs	IA - 1		IA -2				IA -3				Attainment level of CO	Mapped PO	Mapped PSO		
	Q.No.1	Q.No.3	Q.No.1	Q.No.3	Q.No.1	Q.No.3	Q.No.1	Q.No.3							
	OR	OR	OR	OR	OR	OR	OR	OR							
	Q. No. 2	Q. No. 4	Q. No. 2	Q. No. 4	Q. No. 2	Q. No. 4	Q. No. 2	Q. No. 4							
A	R	A	R	A	R	A	R	A	R	A	R				
C319.1	48	26											1	1,2,3,8,10,12	1,2
C319.2			49	30									2	1,2,3,8,10,12	1,2
C319.3					49	30	48	32					2	1,2,3,8,10,12	1,2
C319.4									33	30			3	1,2,3,8,10,12	1,2
C319.5											33	23	2	1,2,3,8,10,12	1,2





### III. Semester End Exam Assessment Based on VTU Exam Results:

COs Attainment Levels:

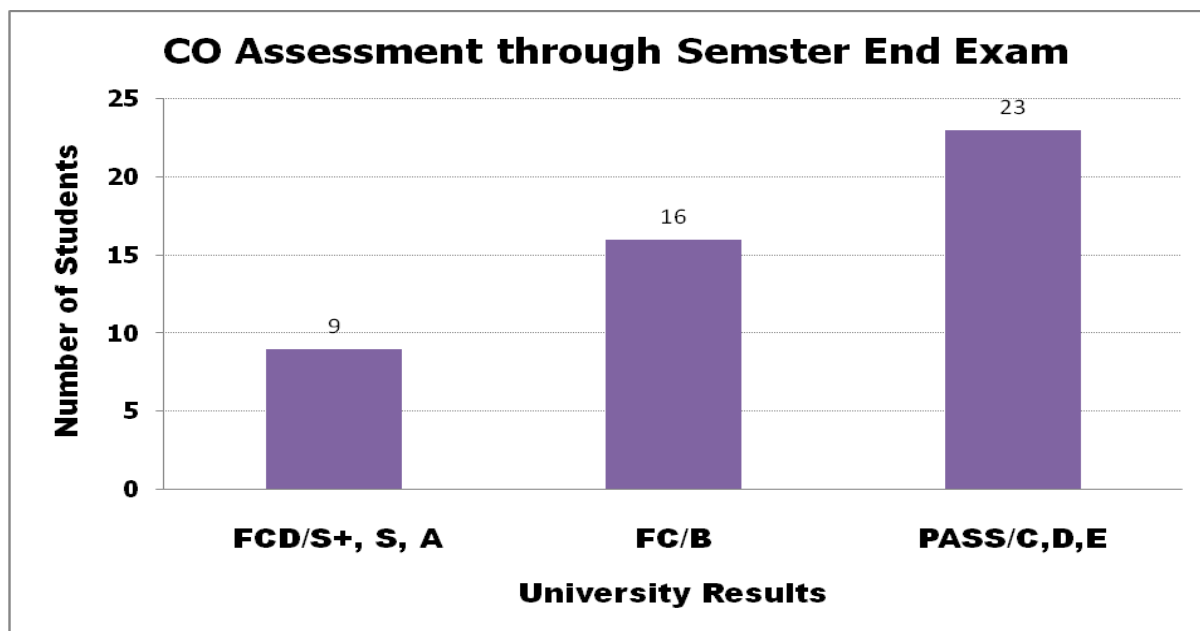
FCD: S+, S, & A = 3;

FC (B) = 2;

Pass: C, D, & E = 1;

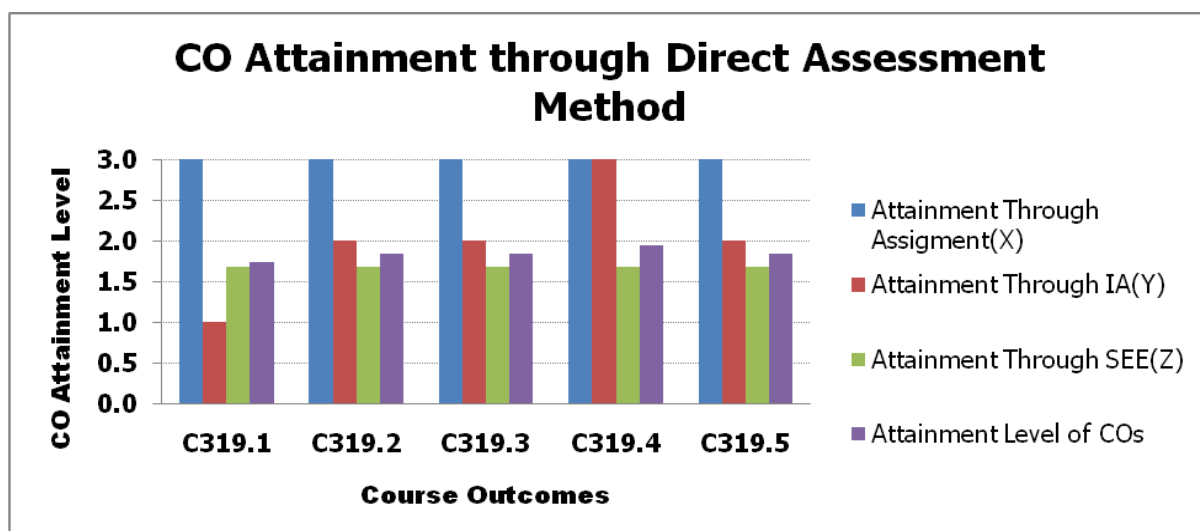
Fail = 0

Total no. of Students Appeared	49	
Class/Grade	Total Number of Students	Course (COs) Attainment Through Semester End Exams
FCD/S+, S, A	9	27
FC/B	16	32
PASS/C,D,E	23	23
Total Percentage of Passing	97.96%	1.67



#### IV. CO Attainment:

COs	Attainment Through Assignment (X)	Attainment Through IA Test(Y)	Attainment Through Semester End Exam(Z)	Attainment level of CO	Mapped POs	Mapped PSOs
				$[0.2(X+Y)/2]+0.8Z$		
C319.1	3	1	1.67	1.74	1,2,3,8,10,12	1,2
C319.2	3	2	1.67	1.84	1,2,3,8,10,12	1,2
C319.3	3	2	1.67	1.84	1,2,3,8,10,12	1,2
C319.4	3	3	1.67	1.94	1,2,3,8,10,12	1,2
C319.5	3	2	1.67	1.84	1,2,3,8,10,12	1,2
<b>CO Attainment through Direct Assessment Method</b>				1.84		





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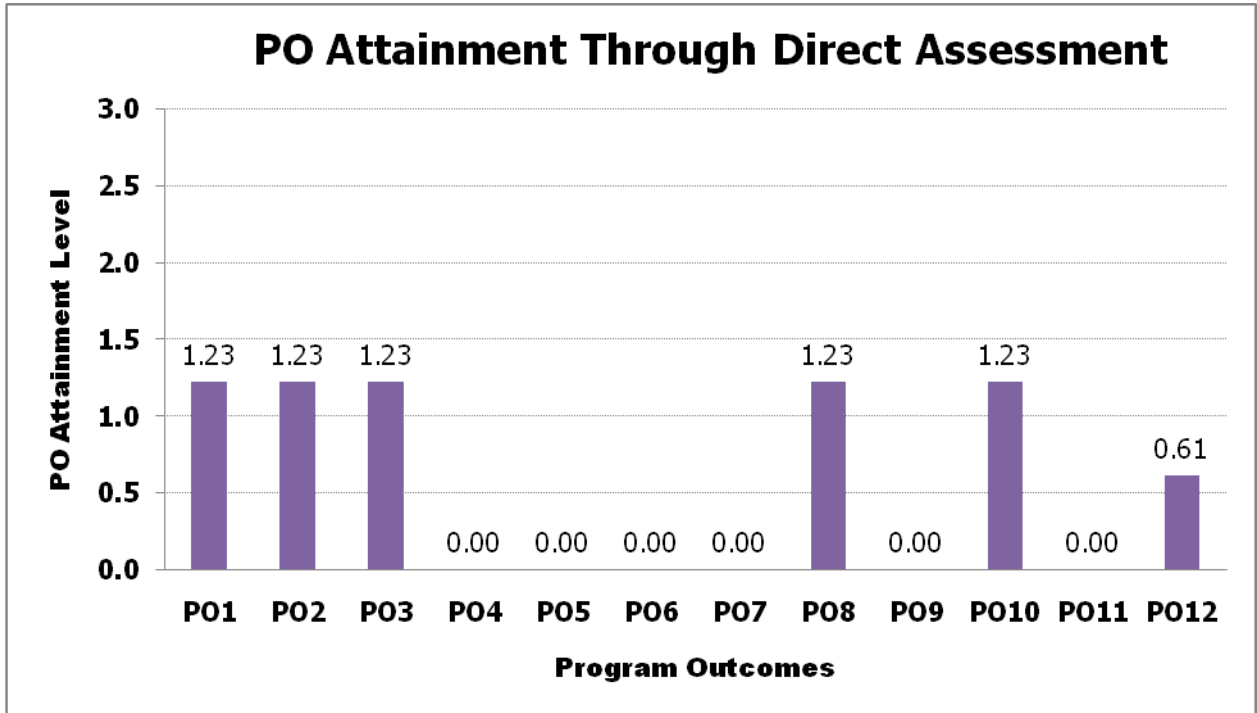
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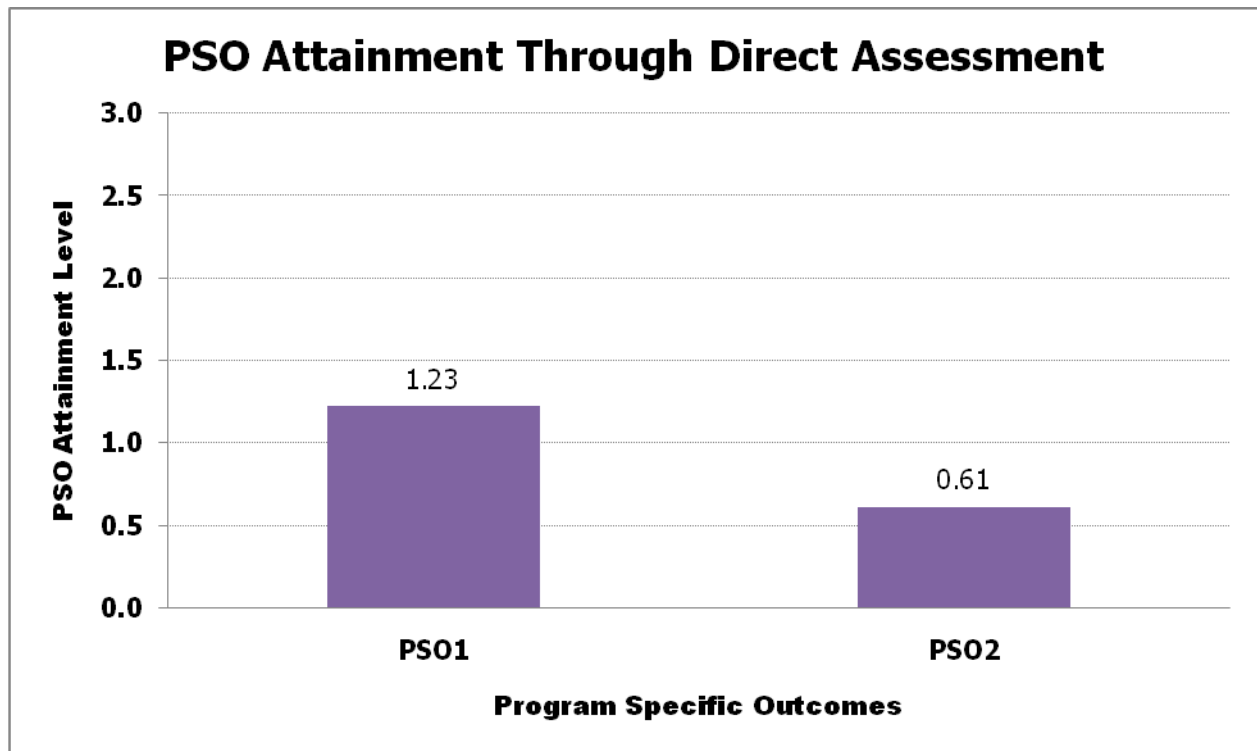
**V. PO Attainment for the Entire Course:**

CO/PO	PO1	PO2	PO3	PO8	PO5	PO6	PO10	PO8	PO9	PO10	PO11	PO12
C319	1.23	1.23	1.23	--	--	--	--	1.23	--	1.23	--	0.61



**VI. PSO Attainment for the Entire Course:**

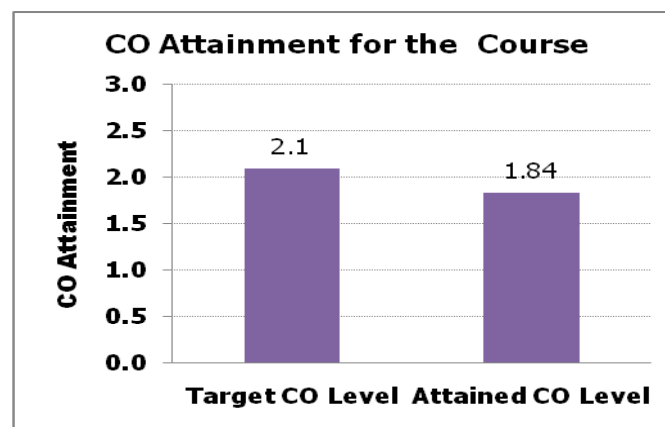
CO/PSO	PSO1	PSO2
C319	1.23	0.61




## VII. Target Attainment:

Median of median of previous three years university results of SEE has been taken to set bench mark. If the attained value is greater than or equal to initial target value, then for next subsequent years (2018-19) attained value is taken as the set target. If the attained value is less than set target then the same set target is continued for the next subsequent years.

Set Target Value (ITV)	2.10
Attained Value	1.84
New Target Level for the next Exam	2.10



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		<b>NBA</b>
		<b>FCAR</b>
		<b>2019-20</b>

### VIII. Course Coordinator Remarks:

S. No.	Observations	Comments
1	Impact of Delivery Methods	Delivery methods are satisfactory. Pedagogy used to deliver lectures is quite satisfactory. But overall attainment of all course outcomes is moderate as it is observed in CO attainment table. Some tutorial classes are required to clarify ambiguities of students.
2	Course Outcome Attainment	Overall Attainment of all course outcomes (CIE+SEE) is more than 50% on 1 -3 performance scale as observed CO attainment table. But attainment level of COs 1is less than 2 as compared to other remaining COs. To improve attainment level course outcomes C319.1, following activates are to be implemented. <ul style="list-style-type: none"> <li>Tutorial/Remedial classes are to be conducted to explain concepts in simpler way by one to one interaction to weaker/slow learners.</li> </ul>
3	Scope for Improvement	Below mentioned activities can be suggested. <ul style="list-style-type: none"> <li>Animated videos to clarify concepts of Operating System</li> </ul>
4	Additional Comments (if any)	--

### X. INDIRECT ASSESSMENT OF PO & PSO THROUGH COURSE EXIT SURVEY (CES)

PO Attainment = (Mapped value \* CES attainment value)/3

POs→	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
COs↓												
C319.1	2	2	2	--	--	--	--	2	--	2	--	1
C319.2	2	2	2	--	--	--	--	2	--	2	--	1
C319.3	2	2	2	--	--	--	--	2	--	2	--	1
C319.4	2	2	2	--	--	--	--	2	--	2	--	1
C319.5	2	2	2	--	--	--	--	2	--	2	--	1
Average	2	2	2	--	--	--	--	2	--	2	--	1
CES Attainment	1.81	1.81	1.81	--	--	--	--	1.81	--	1.81	--	0.90

PSO Attainment = (Mapped value \* CES attainment value)/3



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PSOs	PSO 1	PSO 2
<b>COs</b>		
C319.1	2	1
C319.2	2	1
C319.3	2	1
C319.4	2	1
C319.5	2	1
Average	2	1
CES Attainment	1.81	0.90

Prof. A. A. Daptardar  
Course Coordinator

Prof. A. A. Daptardar  
Module Coordinator

Prof. S. V. Manjaragi  
HOD

**H.O.D**  
**Computer Science & Engg.**  
**HIT, Nidasoshi.**



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**CSE**  
**NBA**  
**PO/PSO**  
**Attainment**  
**2020-21**

## Attainment of Program Outcomes and Program Specific Outcomes

### Assessment Year 2019-20

#### PO/PSO Attainment through Direct Assessment Method:

Assessment Method/POs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
Direct Assessment(A)	1.84	1.78	1.58	1.75	1.50	1.70	2.19	1.07	2.09	1.32	1.92	1.12	1.54	1.34

#### PO/PSO Attainment through Indirect Assessment Methods:

S. No.	Indirect Method	Weightage (%)	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
1	Employer Survey	5	3	2.67	2.67	2.33	2.67	3.00	3.00	3.00	2.67	2	2.33	2.33	2.67	3.00
2	Alumni Survey	15	2.62	2.52	2.29	2.52	2.80	2.33	2.33	2.29	2.43	2.52	1.00	2.87	2.00	1.00
3	Senior Exit Survey	15	2.47	2.53	2.52	2.52	2.48	2.56	2.5	2.71	2.54	2.6	2.5	2.67	2.54	2.58
4	Activity Feedback	35	3.00	3.00	3.00	--	3.00	3.00	3.00	3.00	3.00	3.00	3.00	--	3.00	3.00
5	Course Exit Survey	15	2.33	2.34	1.99	1.95	1.85	2.32	2.47	1.39	2.12	1.57	2.29	1.46	1.96	1.69
6	Placement, Higher Education and Entrepreneurship	15	1.42	1.42	1.42	1.42	1.42	1.42	1.42	1.42	1.42	1.42	1.42	1.42	1.42	1.42
Indirect Assessment(B)			2.53	2.51	2.42	1.38	2.47	2.49	2.51	2.37	2.46	2.37	2.25	1.38	2.37	2.20

#### PO/PSO Attainment through Direct and Indirect Assessment Methods:

Assessment Method/POs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
Direct Assessment(A)	1.84	1.78	1.58	1.75	1.50	1.70	2.19	1.07	2.09	1.32	1.92	1.12	1.54	1.34
Indirect Assessment(B)	2.53	2.51	2.42	1.38	2.47	2.49	2.51	2.37	2.46	2.37	2.25	1.38	2.37	2.20
<b>AVG(0.8*A+0.2*B)</b>	<b>1.98</b>	<b>1.92</b>	<b>1.74</b>	<b>1.68</b>	<b>1.69</b>	<b>1.86</b>	<b>2.26</b>	<b>1.33</b>	<b>2.16</b>	<b>1.53</b>	<b>1.99</b>	<b>1.17</b>	<b>1.70</b>	<b>1.51</b>

*Deepti*  
 10/10/2020  
 Criteria Coordinator

*Deepti*  
 10/10/2020  
 HOD  
 Computer Science & Engg.  
 HIT, Nidasoshi.



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<b>NBA</b>
<b>Direct Assessment</b>
<b>2020-21</b>

## PO Attainment through Direct Assessment Method

Assessment Year - 2019-20

Sl. No	Course	Code	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
1	Engg. Mathematics-I	C101	2.04	1.36	--	--	--	--	--	--	--	--	--	0.68
2	Engg. Physics	C102	2.28	--	1.52	--	0.76	--	--	0.76	--	0.76	--	0.76
3	Basic Civil Engg.	C103	1.37	1.37	0.91	0.91	--	0.46	--	0.46	--	--	0.46	0.91
4	Elements of Mechanical Engg.	C104	1.67	1.44	--	--	--	0.48	0.24	--	--	--	--	1.44
5	Basic Electrical Engg.	C105	1.1	1.1	0.28	--	--	0.14	--	0.14	--	--	0.14	--
6	Workshop Practice Lab	C106	2.6	1.62	2.93	1.3	--	2.93	--	2.93	1.95	1.95	2.93	2.44
7	Engg. Physics Lab	C107	2.59	--	0.92	--	0.86	--	--	0.76	--	--	--	0.46
8	Const. of India Prof. Ethics & Human Rights	C108	--	--	--	--	1.12	--	--	0.75	--	--	--	--
9	Engg. Mathematics-II	C109	1.48	0.98	--	--	--	--	--	--	--	--	--	0.49
10	Engineering Chemistry	C110	1.82	1.46	1.21	--	--	1.09	--	--	--	--	--	0.61
11	Programming in C & Data Structures	C111	1.92	1.53	1.66	--	--	--	--	0.64	--	0.64	--	0.64
12	Computer Aided & Engg. Drawing	C112	0.88	--	--	--	1.76	--	--	0.3	--	2.63	--	--
13	Basic Electronics	C113	1.77	1.77	1.77	1.18	--	0.59	--	--	--	--	--	1.39
14	Computer Programming Lab	C114	2.87	2.87	2.87	--	--	--	--	0.96	1.91	1.91	--	0.96
15	Engg. Chemistry Lab	C115	2.89	2.89	2.89	--	--	1.93	--	--	--	--	--	0.96
16	Environmental Science	C116	2.43	1.62	1.62	--	--	1.62	1.62	0.81	--	--	0.81	0.81
17	Engineering Mathematics -III	C201	2.12	1.41	0.71	--	--	--	--	--	--	--	--	0.71
18	Analog & Digital Electronics	C202	1.72	1.72	1.72	--	--	--	--	1.15	--	0.57	--	1.15
19	Data Structures & Applications	C203	1.41	1.41	1.18	--	--	--	--	0.94	--	0.94	--	--
20	Computer Organization	C204	0.99	1.09	1.09	--	--	--	--	0.50	--	0.50	--	0.50
21	Unix & System Programming	C205	1.85	1.85	1.23	--	--	--	--	0.62	--	0.62	--	0.62
22	Discrete Mathematical Structures	C206	1.39	1.39	0.93	--	--	--	--	0.93	--	0.93	--	--





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<b>CSE DEPT.</b>
<b>NBA</b>
<b>Direct Assessment</b>
<b>2020-21</b>

23	Analog & Digital Electronics Lab	C207	2.34	2.34	2.34	1.56	1.56	--	--	1.56	1.56	1.56	--	1.56
24	Data Structures Lab	C208	1.66	1.66	1.11	--	1.11	--	--	1.11	1.11	1.11	--	1.11
25	Engineering Mathematics -IV	C209	2.58	1.72	0.86	--	0.00	--	--	--	--	--	--	0.86
26	Software Engineering	C210	1.08	1.62	1.62	1.08	1.35	1.08	--	1.08	--	0.54	1.62	1.08
27	Design & Analysis of Algorithms	C211	1.23	1.23	1.23	--	--	--	--	1.23	--	1.23	--	1.23
28	Microprocessor & Microcontroller	C212	2.11	2.11	1.41	--	--	--	--	0.70	--	0.70	--	0.70
29	Object Oriented Concepts	C213	0.79	0.79	0.79	--	0.40	--	--	0.40	--	0.40	--	0.79
30	Data Communications	C214	0.44	0.89	--	--	0.44	--	--	0.44	--	0.44	--	0.44
31	Design & Analysis of Algorithms Lab	C215	2.13	2.13	1.42	--	--	--	--	0.71	1.42	1.42	--	1.42
32	Microprocessors Lab	C216	1.98	1.98	1.98	0.99	0.99	--	--	0.99	1.98	1.98	--	0.99
33	Management & Entrepreneurship for IT	C301	2.24	2.24	--	--	--	1.74	1.49	2.24	2.24	2.24	2.24	1.87
34	Computer Networks	C302	1.37	1.37	1.37	1.37	--	--	--	0.68	--	1.37	--	1.37
35	Database Management System	C303	1.42	1.42	0.95	--	--	--	--	0.47	--	0.47	--	0.47
36	Automata Theory & Computability	C304	2.06	2.06	1.65	--	--	--	--	1.37	--	1.37	--	--
37	Introduction to Software Testing	C306	1.29	1.29	1.29	1.29	--	--	--	0.65	--	1.29	--	0.65
38	Advanced Java & J2EE	C307	1.87	1.87	1.87	0.00	1.87	--	--	0.75	--	0.75	--	2.24
39	Dotnet Framework for Application	C312	1.44	1.44	1.44	0.48	1.44	--	--	0.96	--	0.96	--	1.44
40	Computer Networks Lab	C314	2.36	2.36	1.57	1.57	1.57	--	--	0.79	1.57	1.57	--	0.79
41	DBMS Lab with Mini Project	C315	2.81	2.81	1.87	1.87	1.87	--	--	0.94	1.87	1.87	1.87	0.94
42	Cryptography, Network Security & Cyber Law	C316	1.96	1.96	0.98	--	--	--	--	1.31	--	0.65	--	0.65
43	Computer Graphics & Visualization	C317	1.24	0.93	1.03	--	1.55	--	--	0.52	--	0.52	--	0.52
44	System Software and Compiler Design	C318	1.94	1.55	1.55	--	--	--	--	1.29	--	1.29	--	0.00
45	Operating Systems	C319	1.51	1.51	1.51	--	--	--	--	1.51	--	1.51	--	0.75



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**NBA**

**Direct  
Assessment**

**2020-21**

46	Data Mining & Data Warehousing	C320	1.88	1.88	1.88	--	--	--	--	0.63	--	0.63	--	0.63
47	Python Application Programming	C327	0.50	1.01	1.01	--	0.50	--	--	0.50	--	0.50	--	0.50
48	System Software & Operating System Lab	C330	1.96	1.96	0.98	--	--	--	--	0.98	1.96	1.96	--	0.98
49	Computer Graphics & Visualization Lab with	C331	2.00	2.00	2.00	--	1.00	--	--	1.00	2.00	2.00	1.00	1.00
50	Web Technology & Applications	C401	1.52	1.52	1.01	--	0.51	--	--	0.51	--	1.01	--	1.01
51	Advanced Computer Architecture	C402	2.02	2.02	2.02	--	--	--	--	1.35	--	1.35	--	1.35
52	Machine Learning	C403	1.48	1.48	1.48	--	--	--	--	0.63	--	0.63	--	0.63
53	Cloud Computing & Applications	C405	1.71	1.71	1.71	--	1.71	--	--	0.85	--	0.85	--	0.85
54	Storage Area Networks	C411	2.25	2.25	--	--	--	1.50	--	1.50	--	1.50	--	1.50
55	Machine Learning Lab	C412	2.79	2.79	1.86	1.86	1.86	--	--	0.93	1.86	1.86	--	1.86
56	Web Technology Lab with Mini Project	C413	2.97	2.97	1.98	--	1.98	--	--	0.99	1.98	1.98	1.98	0.99
57	Project Phase - I	C414	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
58	Internet of Things & Applications	C415	2.47	2.47	2.47	--	--	--	--	1.65	--	0.82	--	1.65
59	Big Data Analytics	C416	0.91	1.83	1.83	--	--	--	--	0.91	--	0.91	--	0.91
60	User Interface Design	C420	0.96	1.91	1.91	--	--	--	--	0.96	--	0.96	--	0.96
61	Internship	C421	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
62	Project Work - II	C422	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
63	Seminar	C423	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
Direct Assessment(A)			1.84	1.78	1.58	1.75	1.50	1.70	2.19	1.07	2.09	1.32	1.92	1.12

Criteria Coordinator

HOD  
Computer Science & Engg.  
HIT, Nidasoshi.



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<b>CSE DEPT.</b>
<b>NBA</b>
<b>Direct Assessment</b>
<b>2020-21</b>

## PSO Attainment through Direct Assessment Method

Assessment Year - 2019-20

Sl.No.	Course	Code	PSO1	PSO2
1.	Engineering Mathematics -III	C201	--	--
2.	Analog & Digital Electronics	C202	1.72	1.15
3.	Data Structures & Applications	C203	0.94	0.94
4.	Computer Organization	C204	0.79	0.50
5.	Unix & System Programming	C205	1.85	1.85
6.	Discrete Mathematical Structures	C206	0.46	
7.	Analog & Digital Electronics Lab	C207	1.56	1.56
8.	Data Structures Lab	C208	1.11	1.11
9.	Engineering Mathematics -IV	C209	--	--
10.	Software Engineering	C210	1.08	1.08
11.	Design & Analysis of Algorithms	C211	1.23	1.23
12.	Microprocessor & Microcontroller	C212	1.41	0.70
13.	Object Oriented Concepts	C213	0.79	0.79
14.	Data Communications	C214	0.44	0.44
15.	Design & Analysis of Algorithms Lab	C215	2.13	2.13
16.	Microprocessors Lab	C216	0.99	0.99
17.	Management & Entrepreneurship for IT	C301	--	2.24
18.	Computer Networks	C302	1.37	0.68
19.	Database Management System	C303	1.42	1.42
20.	Automata Theory & Computability	C304	1.37	--
21.	Introduction to Software Testing	C306	1.29	1.29
22.	Advanced Java & J2EE	C307	2.24	1.49
23.	Dotnet Framework for Application development	C312	1.44	0.96
24.	Computer Networks Lab	C314	1.57	0.79
25.	DBMS Lab with Mini Project	C315	2.81	2.81
26.	Cryptography, Network Security & Cyber Law	C316	1.31	1.31
27.	Computer Graphics & Visualization	C317	1.03	1.03
28.	System Software and Compiler Design	C318	1.29	--
29.	Operating Systems	C319	1.51	0.75
30.	Data Mining & Data Warehousing	C320	1.25	0.63
31.	Python Application Programming	C327	1.01	1.01
32.	System Software & Operating System Lab	C330	1.96	0.98
33.	Computer Graphics & Visualization Lab with Mini	C331	1.00	1.00
34.	Web Technology & Applications	C401	1.01	0.51



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2020-21

35.	Advanced Computer Architecture	C402	2.02	1.35
36.	Machine Learning	C403	1.27	1.27
37.	Cloud Computing & Applications	C405	1.71	1.71
38.	Storage Area Networks	C411	1.50	0.75
39.	Machine Learning Lab	C412	1.86	1.86
40.	Web Technology Lab	C413	1.98	0.99
41.	Project Phase - I	C414	3.00	3.00
42.	Internet of Things & Applications	C415	2.47	1.65
43.	Big Data Analytics	C416	1.83	1.83
44.	User Interface Design	C420	1.91	1.91
45.	Internship	C421	3.00	3.00
46.	Project Work - II	C422	3.00	3.00
47.	Seminar	C423	3.00	3.00
Direct Assessment			1.54	1.34

*Dr. S. S. S. S.*  
10/10/2020  
Criteria Coordinator

*S. S. S. S.*  
HOD  
10/10/20

Computer Science & Engg.  
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## FACULTY COURSE ASSESSEMENT REPORT (FCAR)

**Course Coordinator:** Prof: Mahesh G. Huddar **Class Strength:** 47  
**Semester:** VII **Subject:** Machine Learning **Code:** 15CS73

### I. Program Outcomes (POs): Engineering Graduates will be able to:

- Engineering knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
- Problem analysis:** Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
- Design/development of solutions:** Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
- Conduct investigations of complex problems:** Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
- Modern tool usage:** Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.
- The engineer and society:** Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.
- Environment and sustainability:** Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
- Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
- Individual and team work:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
- Communication:** Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
- Project management and finance:** Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
- Life-long learning:** 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.

### II. Program Specific Outcomes (PSOs):

PSO1:	Understand, design and analyze computer programs in the areas related to Algorithms, System Software, Web design, Bigdata Analytics and Networking.
PSO2:	Make use of modern computer tools for creating innovative career paths to be an entrepreneur and desire for higher studies.



**III. Course outcomes (COs):** The student, after successful completion of the course, will be able to:

CO	Description	Cognitive Level	Mapped Pos
<b>C403.1</b>	Identify the problems for machine learning and select the either supervised, unsupervised or reinforcement learning.	L2	PO1, PO2, PO3, PO8, PO10, PO12
<b>C403.2</b>	Explain theory of probability and statistics related to machine learning.	L2	PO1, PO2, PO3, PO8, PO10, PO12
<b>C403.3</b>	Investigate concept learning, ANN, Bayes classifier, k nearest neighbor, Q Learning.	L3	PO1, PO2, PO3, PO8, PO10, PO12

**IV. Mapping of Course Outcomes (COs) to Program Outcomes (Pos):**

POs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
<b>COs</b>												
<b>C403.1</b>	2	2	2	-	-	-	-	1	-	1	-	1
<b>C403.2</b>	2	2	2	-	-	-	-	1	-	1	-	1
<b>C403.3</b>	3	3	3	-	-	-	-	1	-	1	-	1
<b>Average</b>	2.33	2.33	2.33	-	-	-	-	1	-	1	-	1

**V. Mapping of Course Outcomes (COs) to Program Specific Outcomes (PSOs):**

PSOs	PSO 1	PSO 2
<b>COs</b>		
<b>C403.1</b>	2	2
<b>C403.2</b>	2	2
<b>C403.3</b>	2	2
<b>Average</b>	2	2

**VI. Justification of CO-PO Mapping:**

Mapping	Justification
C403.1-PO1	A medium correlation as the basic knowledge of machine learning helps to represent the complex engineering problem.
C403.2-PO1	A medium correlation as the basic knowledge of probability and statistics helps to represent the complex engineering problem.
C403.3-PO1	A strong correlation as the basic knowledge of machine learning algorithms helps to represent the complex engineering problem.
C403.1-PO2	A medium correlation as the basic knowledge of machine learning helps to analyze the



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	complex engineering problem.
C403.2-PO2	A medium correlation as the basic knowledge of probability and statistics helps to analyze the complex engineering problem.
C403.3-PO2	A strong correlation as the basic knowledge of machine learning algorithms helps to analyze the complex engineering problem.
C403.1-PO3	A medium correlation as the basic knowledge of machine learning helps to solve the complex engineering problem.
C403.2-PO3	A medium correlation as the basic knowledge of probability and statistics helps to solve the complex engineering problem.
C403.3-PO3	A strong correlation as the basic knowledge of machine learning algorithms helps to solve the complex engineering problem.
C403.1-PO8	A weak correlation since students applies ethical principles while writing programs.
C403.2-PO8	
C403.3-PO8	
C403.1-PO10	A weak correlation since it help students to 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.
C403.2-PO10	
C403.3-PO10	
C403.1-PO12	A weak correlation since it contributes weakly in lifelong learning of a student.
C403.2-PO12	
C403.3-PO12	

**VII. Justification of CO-PSO Mapping:**

Mapping	Justification
C403-PSO1	A medium correlation since it contributes in understanding, analyzing and developing machine learning applications among students.
C403-PSO2	A medium correlation since it contributes in creating innovative career paths to be an entrepreneur and desire for higher studies in data science.

**VIII. Bench Mark Setting**

The course Machine Learning (15CS673) is introduced first time in the 2015 scheme of the University curriculum, the CO attainment target is set to 1.5.

**IX. DIRECT ASSESSMENT OF COs, POs & PSOs ATTAINMENT****Teaching Methodology:**

- Lecture by Teacher
- PPT or Online demo etc.

**Assessment Tools:**

- Continuous assessment
- Laboratory experiments
- End semester exam



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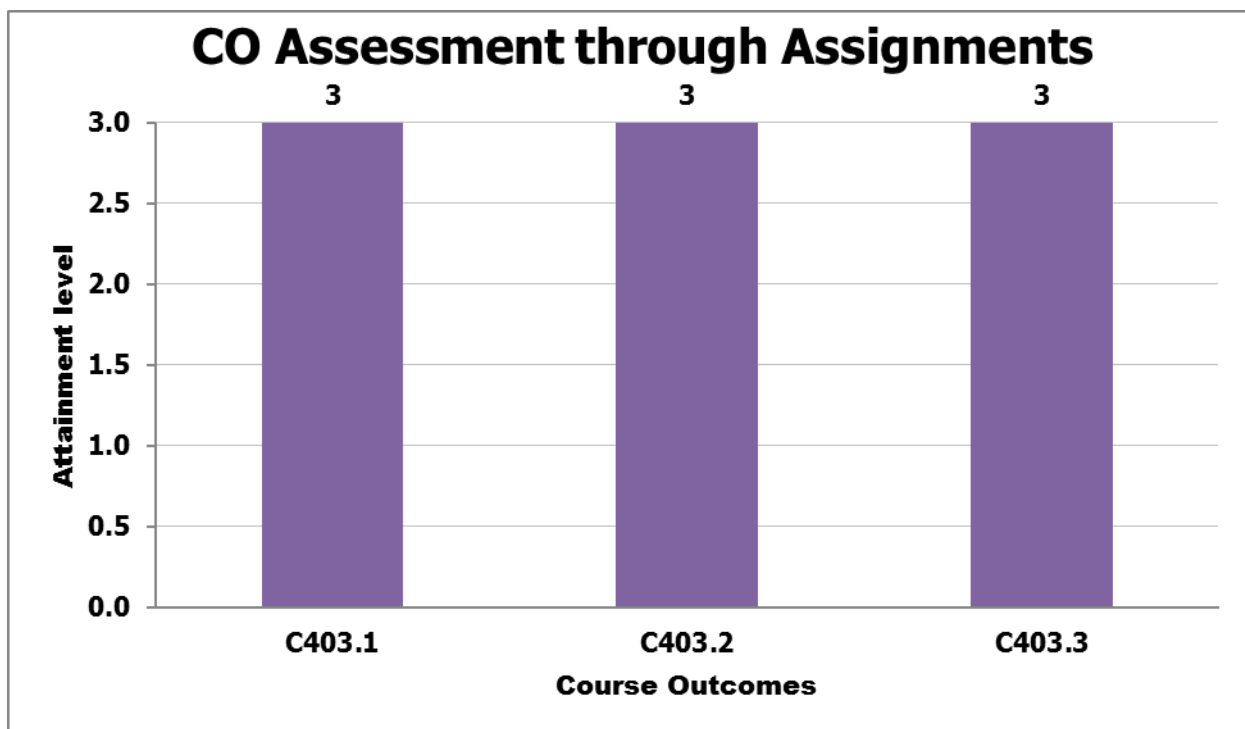
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## I. Assessment through Assignment:

A: Appeared R: Reached Low =1 (50-60 %) Medium =2 (61-70 %) High =3 (above 70 %)

COs	Assignment-1		Assignment-2		Assignment-3		Assignment-4		Assignment-5		Attainment level of CO in Percentage	Attainment level of CO	Mapped PO
	A	R	A	R	A	R	A	R	A	R			
C403.1	47	47									100.00	3	PO1, PO2, PO3, PO8, PO10, PO12
C403.2			47	47	47	47					100.00	3	PO1, PO2, PO3, PO8, PO10, PO12
C403.3							47	47	47	47	100.00	3	PO1, PO2, PO3, PO8, PO10, PO12



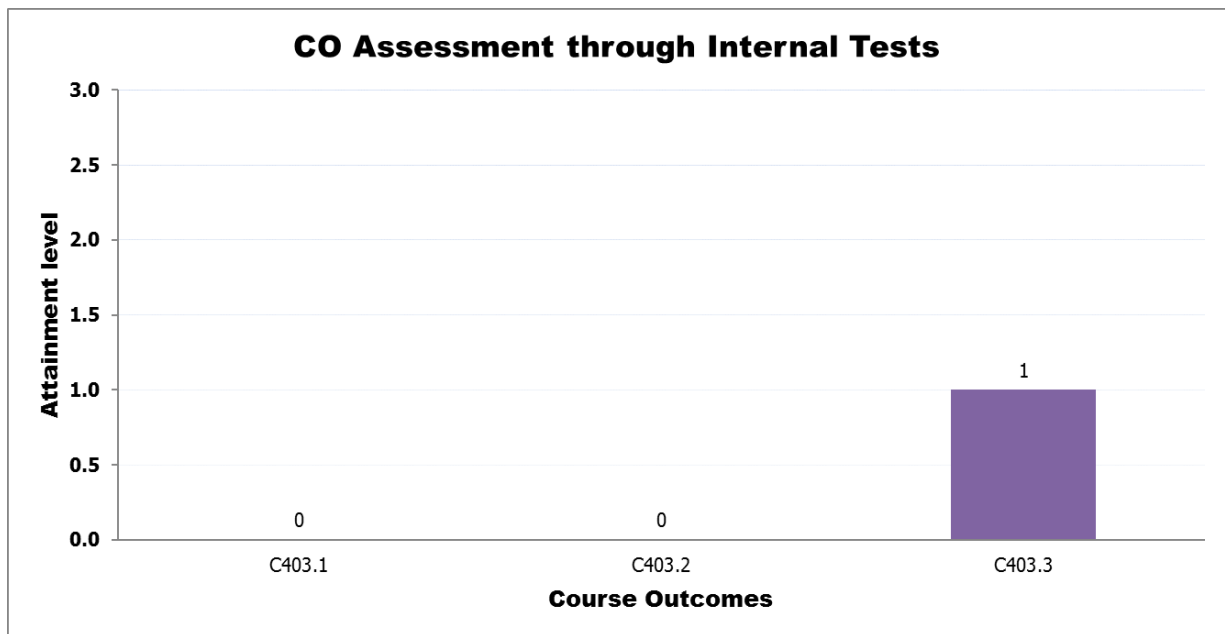




## II. Assessment through Internal Marks:

**A: Appeared R: Reached Low =1 (50-60 %) Medium =2 (61-70 %) High =3 (above 70 %)**

COs	IA-1				IA-2				IA-3				Attainment level of CO	Mapped PO
	Q.No.1 OR Q. No. 2		Q.No.3 OR Q. No. 4		Q.No.1 OR Q. No. 2		Q.No.3 OR Q. No. 4		Q.No.1 OR Q. No. 2		Q.No.3 OR Q. No. 4			
	A	R	A	R	A	R	A	R	A	R	A	R		
C403.1	46	16	46	29									0	PO1, PO2, PO3, PO8, PO10, PO12
C403.2					43	13			23	14			0	PO1, PO2, PO3, PO8, PO10, PO12
C403.3							43	27			21	7	1	PO1, PO2, PO3, PO8, PO10, PO12

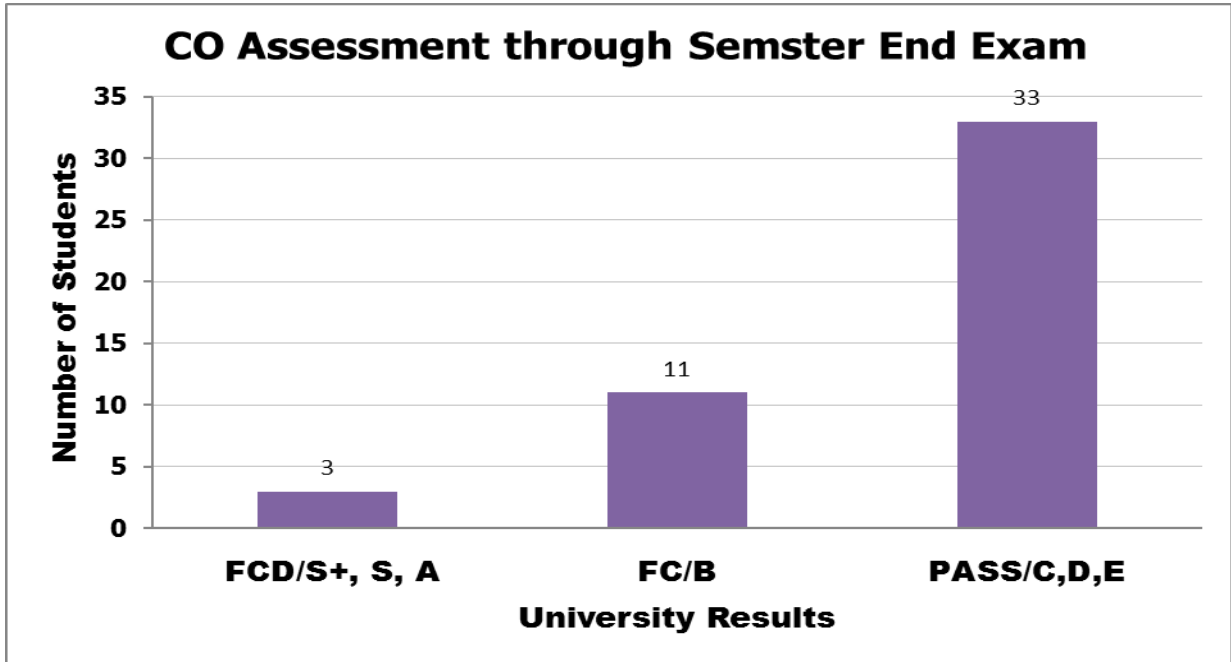


## III. Semester End Exam Assessment Based on VTU Exam Results:

COs Attainment Levels:

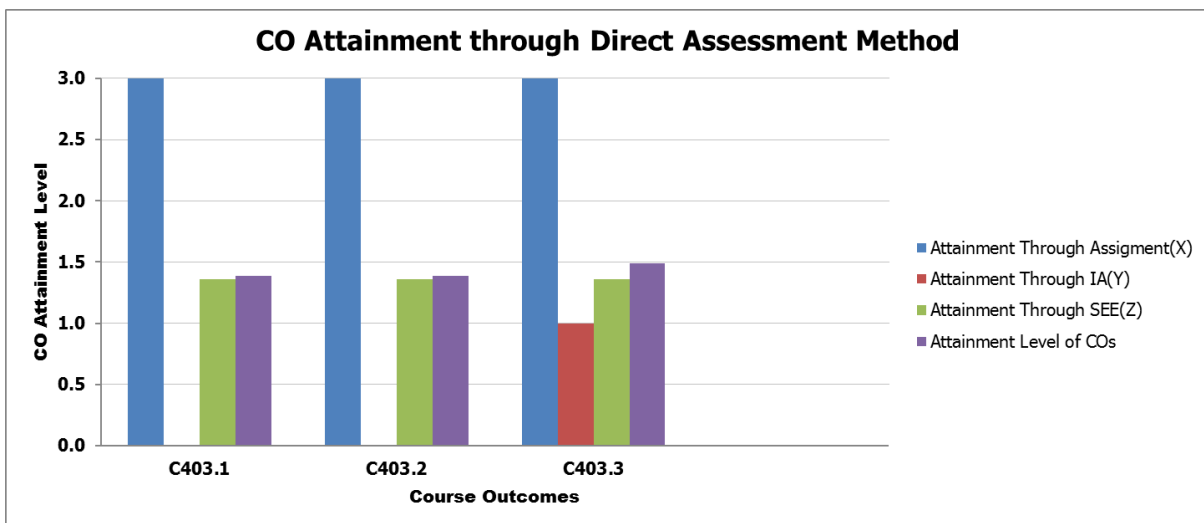
FCD: S+, S, & A = 3;      FC (B) = 2;      Pass: C, D, & E = 1;      Fail = 0

<b>Total no. of Students Appeared</b>	<b>47</b>	
<b>Class/Grade↓</b>	<b>Total Number of Students</b>	<b>Course (COs) Attainment Through Semester End Exams</b>
<b>FCD/S+, S, A</b>	<b>3</b>	<b>9</b>
<b>FC/B</b>	<b>11</b>	<b>22</b>
<b>PASS/C,D,E</b>	<b>33</b>	<b>33</b>
<b>Total Percentage of Passing</b>	<b>100.00%</b>	<b>1.36</b>



#### IV. CO Attainment:

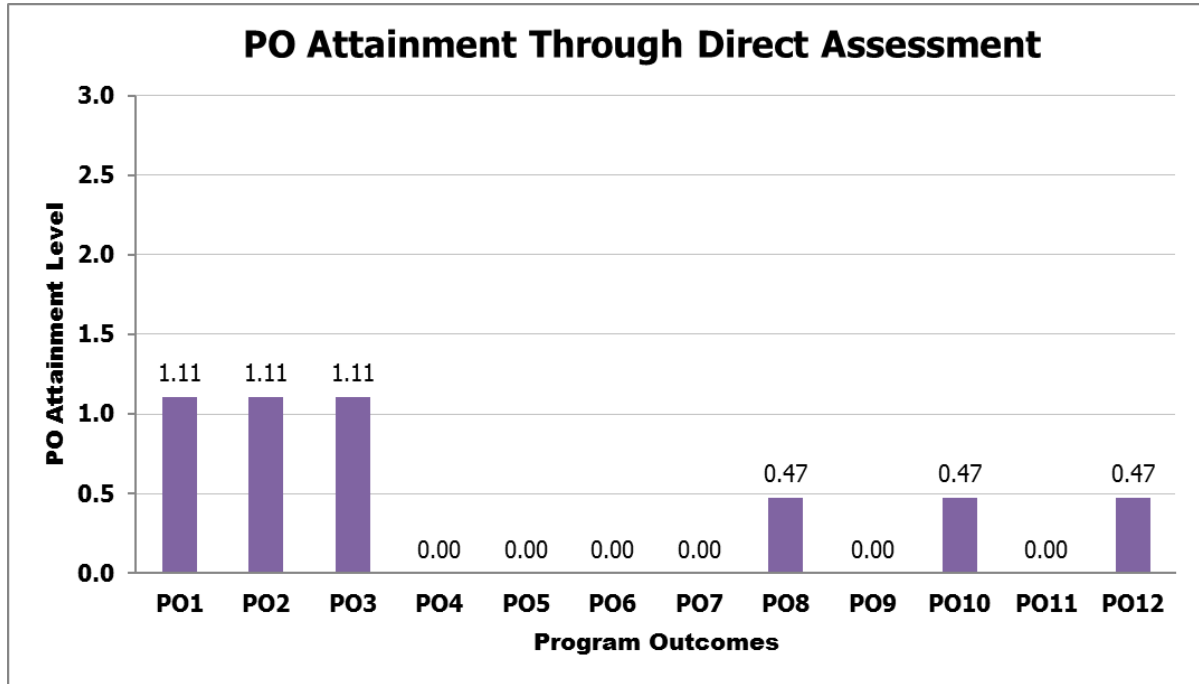
COs	Attainment Through Assignment(X)	Attainment Through IA Test(Y)	Attainment Through Semester End Exam(Z)	Attainment level of CO	Mapped POs
				$[0.2(X+Y)/2]+0.8Z$	
C403.1	3	0	1.36	1.39	PO1, PO2, PO3, PO8, PO10, PO12
C403.2	3	0	1.36	1.39	PO1, PO2, PO3, PO8, PO10, PO12
C403.3	3	1	1.36	1.49	PO1, PO2, PO3, PO8, PO10, PO12
<b>CO Attainment through Direct Assessment Method</b>				<b>1.42</b>	





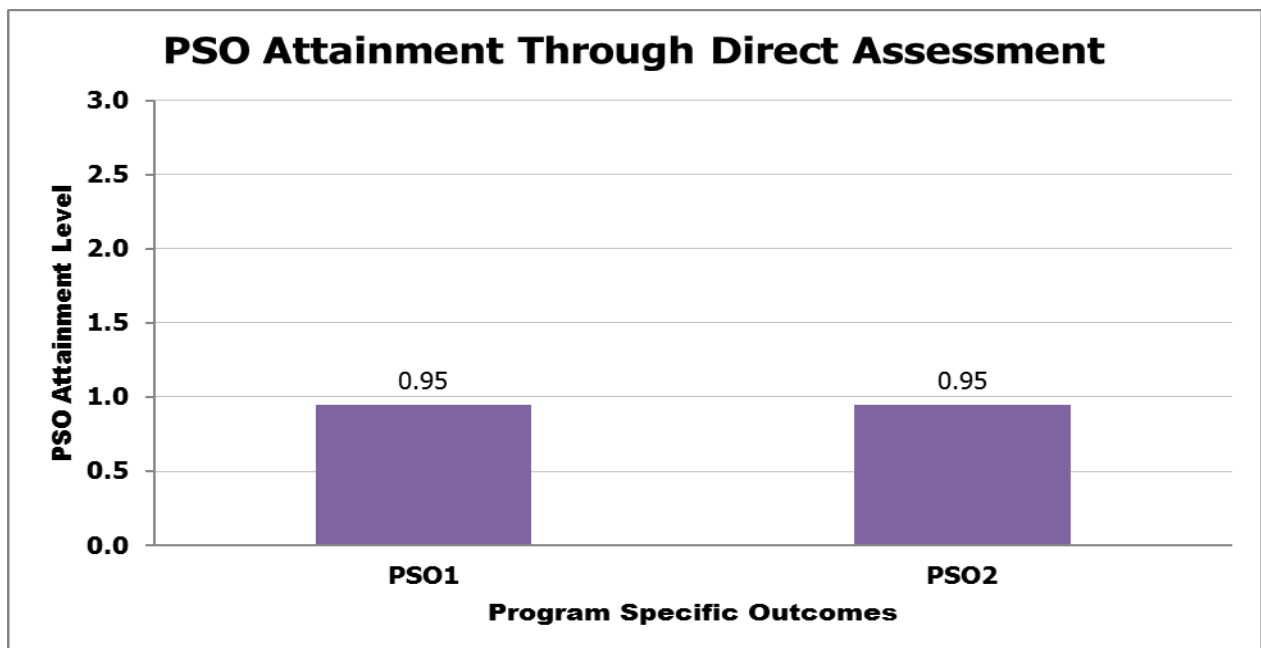
### V. PO Attainment for the Entire Course:

CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C403	1.11	1.11	1.11	0.00	0.00	0.00	0.00	0.47	0.00	0.47	0.00	0.47



### VI. PSO Attainment for the Entire Course:

CO/PSO	PSO1	PSO2
C403	0.95	0.95

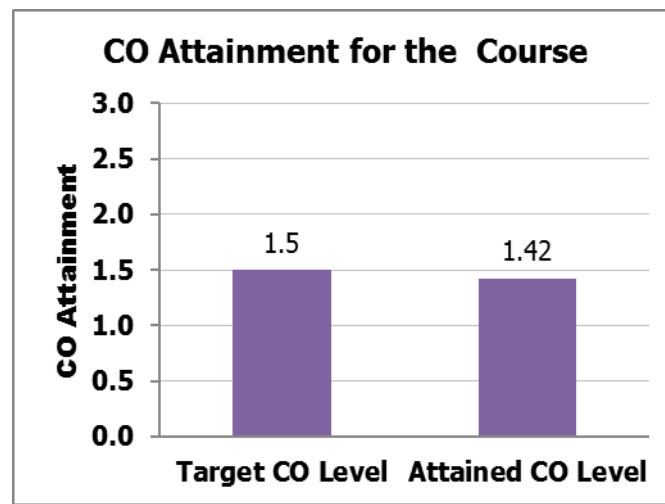




## VII. Target Attainment:

The course Machine Learning (15CS73) is introduced first time in the 2015 scheme of the University curriculum, the CO attainment target is set to 1.5. If the attained value is greater than or equal to initial target value, then for next subsequent years (2019-20) attained value is taken as the set target. If the attained value is less than set target then the same set target is continued for the next subsequent years.

Set Target Value (ITV)	1.50
Attained Value	1.42
New Target Level for the Next Exam	1.50



## VIII. Course Coordinator Remarks:

S. No.	Observations	Comments
1	Impact of Delivery Methods	Delivery methods are satisfactory. Pedagogy used to deliver lectures is quite satisfactory. But overall attainment of all course outcomes is moderate as it is observed in CO attainment table. Some tutorial classes are required to clarify ambiguities of students.
2	Course Outcome Attainment	Target level can be achieved by improving the IA performance and semester end examination result with innovative teaching methodologies such as using videos for the real time examples, providing important course materials other than prescribed textbooks, conducting quiz on subject areas etc.
3	Scope for Improvement	Below mentioned activities can be suggested. <ul style="list-style-type: none"><li>• Animated videos to clarify concepts of Machine Learning</li></ul>
4	Additional Comments (if any)	--



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## X. INDIRECT ASSESSMENT OF PO & PSO THROUGH COURSE EXIT SURVEY (CES)


PO Attainment = (Mapped value \* CES attainment value)/3


POs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
COs												
C403.1	2	2	2	-	-	-	-	1	-	1	-	1
C403.2	2	2	2	-	-	-	-	1	-	1	-	1
C403.3	3	3	3	-	-	-	-	1	-	1	-	1
Average	2.33	2.33	2.33	-	-	-	-	1	-	1	-	1
CES Attainment	2.04	2.04	2.04	0.00	0.00	0.00	0.00	0.87	0.00	0.87	0.00	0.87

PSO Attainment = (Mapped value \* CES attainment value)/3

PSOs	PSO 1	PSO 2
COs		
C403.1	2	2
C403.2	2	2
C403.3	2	2
Average	2	2
CES Attainment	1.75	1.75

  
Prof. Mahesh G. Huddar  
Course Coordinator

  
Prof. Mahesh G. Huddar  
Module Coordinator

  
Prof. S. V. Manjaragi  
HOD

**H.O.D**  
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<b>2019-20</b>

## Attainment of Program Outcomes and Program Specific Outcomes

### PO/PSO Attainment through Direct Assessment Method:

Assessment Method/POs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO1	PO11	PO12	PSO1	PSO2
Direct Assessment(A)	1.73	1.69	1.52	1.60	1.40	1.63	2.08	1.04	1.95	1.24	1.88	1.06	1.43	1.29

### PO/PSO Attainment through Indirect Assessment Methods:

S. No.	Indirect Method	Weightage (%)	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
1	Employer Survey	5	3	2.75	2.75	2.75	2.75	2.75	2.75	3	3	2.75	2.5	2.5	2.75	3
2	Alumni Survey	15	2.77	2.77	2.15	2.38	2.17	1.62	1.62	2.23	2.46	2.46	--	2.17	2.00	1.00
3	Senior Exit Survey	15	2.60	2.68	2.68	2.55	2.66	2.74	2.77	2.81	2.81	2.79	2.66	2.81	2.79	2.77
4	Activity Feedback	35	3	--	--	--	3	--	3	3	3	3	3	3	3	3
5	Course Exit Survey	15	2.30	2.34	2.01	1.97	1.85	2.39	2.61	1.41	2.14	1.54	2.34	1.43	1.98	1.72
6	Placement, Higher Education and Entrepreneurship	15	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20
Indirect Assessment(B)			<b>2.53</b>	<b>1.49</b>	<b>1.34</b>	<b>1.35</b>	<b>2.37</b>	<b>1.33</b>	<b>2.42</b>	<b>2.35</b>	<b>2.49</b>	<b>2.39</b>	<b>2.11</b>	<b>2.32</b>	<b>2.38</b>	<b>2.20</b>

### PO/PSO Attainment through Direct and Indirect Assessment Methods:

Assessment Method/POs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO1	PO11	PO12	PSO1	PSO2
Direct Assessment(A)	1.73	1.69	1.52	1.60	1.40	1.63	2.08	1.04	1.95	1.24	1.88	1.06	1.43	1.29
Indirect Assessment(B)	2.53	1.49	1.34	1.35	2.37	1.33	2.42	2.35	2.49	2.39	2.11	2.32	2.38	2.20
<b>AVG(0.8*A+0.2*B)</b>	<b>1.89</b>	<b>1.65</b>	<b>1.48</b>	<b>1.55</b>	<b>1.59</b>	<b>1.57</b>	<b>2.15</b>	<b>1.30</b>	<b>2.06</b>	<b>1.47</b>	<b>1.92</b>	<b>1.31</b>	<b>1.62</b>	<b>1.47</b>

*Rajkumar*  
 Criteria Coordinator  
 8/11/2019

*[Signature]*  
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**Assessment**  
**2019-20**

## PO Attainment through Direct Assessment Method

Assessment Year - 2018-19

Sl. No	Course	Code	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO1	PO11	PO12
1	Engg. Mathematics-I	C101	1.25	0.83	--	--	--	--	--	--	--	--	--	0.42
2	Engg. Physics	C102	1.59	--	1.06	--	0.53	--	--	0.53	--	0.53	--	0.53
3	Basic Civil Engg.	C103	1.64	1.64	1.09	1.09	--	0.55	--	0.55	--	--	0.55	1.09
4	Elements of Mechanical Engg.	C104	1.34	1.34	--	--	--	0.67	--	--	--	--	--	2
5	Basic Electrical Engg.	C105	0.84	0.84	--	--	--	--	--	--	--	--	--	--
6	Workshop Practice Lab	C106	2.13	1.33	2.4	1.6	--	2.4	--	2.4	1.6	1.6	2.4	0.8
7	Engg. Physics Lab	C107	2.76	--	--	--	0.92	--	--	0.92	1.84	1.82	--	0.92
8	Const. of India Prof. Ethics & Human Rights	C108	--	--	--	--	1.12	--	--	0.75	--	--	--	--
9	Engg. Mathematics-II	C109	1.33	0.89	--	--	--	--	--	--	--	--	--	0.44
10	Engineering Chemistry	C110	1.36	1.09	0.91	--	--	0.82	--	--	--	--	--	0.45
11	Programming in C & Data Structures	C111	1.62	1.3	1.4	--	--	--	--	0.54	--	0.54	--	0.54
12	Computer Aided & Engg. Drawing	C112	0.87	--	--	--	1.75	--	--	--	--	2.62	--	--
13	Basic Electronics	C113	1.11	0.74	0.96	0.59	0.74	1.11	--	--	0.74	0.96	0.59	1.11
14	Computer Programming Lab	C114	2.83	2.83	2.83	--	--	--	--	0.94	1.89	1.89	--	0.94
15	Engg. Chemistry Lab	C115	2.96	2.96	2.96	--	--	1.98	--	--	--	--	--	0.99
16	Environmental Science	C116	2.3	1.53	1.53	--	--	1.53	1.53	0.77	--	--	0.77	0.77
17	Engineering Mathematics -III	C201	2.07	1.38	0.69	--	--	--	--	--	--	--	--	0.69
18	Analog & Digital Electronics	C202	1.85	1.85	1.85	--	--	--	--	1.23	--	0.62	--	1.23
19	Data Structures & Applications	C203	1.49	1.49	1.24	--	--	--	--	0.99	--	0.99	--	--
20	Computer Organization	C204	0.99	1.09	1.09	--	--	--	--	0.50	--	0.50	--	0.50
21	Unix & System Programming	C205	2.13	2.13	1.42	--	--	--	--	0.71	--	0.71	--	0.71
22	Discrete Mathematical Structures	C206	1.26	1.26	0.84	--	--	--	--	0.84	--	0.84	--	--



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23	Analog & Digital Electronics Lab	C207	2.20	2.20	2.20	1.47	1.47	--	--	1.47	1.47	1.47	--	1.47
24	Data Structures Lab	C208	1.66	1.66	1.11	--	1.11	--	--	1.11	1.11	1.11	--	1.11
25	Engineering Mathematics -IV	C209	2.35	1.57	0.78	--	--	--	--	--	--	--	--	0.78
26	Software Engineering	C210	1.13	1.69	1.69	1.13	1.41	1.13	--	1.13	--	0.56	1.69	1.13
27	Design & Analysis of Algorithms	C211	1.19	1.19	1.19	--	--	--	--	1.19	--	1.19	--	1.19
28	Microprocessor & Microcontroller	C212	1.33	1.33	0.89	--	--	--	--	0.44	--	0.44	--	0.44
29	Object Oriented Concepts	C213	0.83	0.83	0.83	--	0.41	--	--	0.41	--	0.41	--	0.83
30	Data Communications	C214	0.45	0.90	--	--	0.45	--	--	0.45	--	0.45	--	0.45
31	Design & Analysis of Algorithms Lab	C215	2.58	2.58	1.72	--	--	--	--	0.86	1.72	1.72	--	1.72
32	Microprocessors Lab	C216	1.91	1.91	1.91	0.96	0.96	--	--	0.96	1.91	1.91	--	0.96
33	Management & Entrepreneurship for IT	C301	1.52	1.52	--	--	--	1.18	1.01	1.52	1.52	1.52	1.52	1.27
34	Computer Networks	C302	1.15	1.15	1.15	1.15	--	--	--	0.57	--	1.15	--	1.15
35	Database Management System	C303	1.37	1.37	0.91	--	--	--	--	0.46	--	0.46	--	0.46
36	Automata Theory & Computability	C304	1.39	1.39	1.11	--	--	--	--	0.93	--	0.93	--	--
37	Introduction to Software Testing	C306	1.19	1.19	1.19	1.19	--	--	--	0.60	--	1.19	--	0.60
38	Advanced Java & J2EE	C307	1.18	1.18	1.18	--	1.18	--	--	0.47	--	0.47	--	1.41
39	Dotnet Framework for Application development	C312	1.50	1.50	1.50	0.50	1.50	--	--	1.00	--	1.00	--	1.50
40	Computer Networks Lab	C314	2.43	2.43	1.62	1.62	1.62	--	--	0.81	1.62	1.62	--	0.81
41	DBMS Lab with Mini Project	C315	2.84	2.84	1.89	1.89	1.89	--	--	0.95	1.89	1.89	1.89	0.95
42	Cryptography, Network Security & Cyber Law	C316	1.64	1.64	0.82	--	--	--	--	1.09	--	0.55	--	0.55
43	Computer Graphics & Visualization	C317	1.11	0.83	0.93	--	1.39	--	--	0.46	--	0.46	--	0.46
44	System Software and Compiler Design	C318	1.74	1.39	1.39	--	--	--	--	1.16	--	1.16	--	--
45	Operating Systems	C319	1.23	1.23	1.23	--	--	--	--	1.23	--	1.23	--	0.61





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**2019-20**

46	Data Mining & Data Warehousing	C320	1.84	1.84	1.84	--	--	--	--	0.61	--	0.61	--	0.61
47	Python Application Programming	C327	0.50	1.00	1.00	--	0.50	--	--	0.50	--	0.50	--	0.50
48	System Software & Operating System Lab	C330	1.79	1.79	0.90	--	--	--	--	0.90	1.79	1.79	--	0.90
49	Computer Graphics & Visualization Lab with	C331	1.98	1.98	1.98	--	0.99	--	--	0.99	1.98	1.98	0.99	0.99
50	Web Technology & Applications	C401	1.71	1.71	1.14	--	0.57	--	--	0.57	--	1.14	--	1.14
51	Advanced Computer Architecture	C402	2.06	2.06	2.06	--	--	--	--	1.37	--	1.37	--	1.37
52	Machine Learning	C403	1.10	1.10	1.10	--	--	--	--	0.47	--	0.47	--	0.47
53	Cloud Computing & Applications	C405	1.20	1.20	1.20	--	1.20	--	--	0.60	--	0.60	--	0.60
54	Storage Area Networks	C411	1.63	1.63	--	--	--	1.09	--	1.09	--	1.09	--	1.09
55	Machine Learning Lab	C412	2.97	2.97	1.98	1.98	1.98	--	--	0.99	1.98	1.98	--	1.98
56	Web Technology Lab with Mini Project	C413	2.98	2.98	1.99	--	1.99	--	--	0.99	1.99	1.99	1.99	0.99
57	Project Phase - I	C414	3	3	3	3	3	3	3	3	3	3	3	3
58	Internet of Things & Applications	C415	2.25	2.25	2.25	--	--	--	--	1.50	--	0.75	--	1.50
59	Big Data Analytics	C416	0.67	1.35	1.35	--	--	--	--	0.67	--	0.67	--	0.67
60	System Modeling and Simulation	C420	0.77	1.55	1.55	--	--	--	--	0.77	--	0.77	--	0.77
61	Internship	C421	3	3	3	3	3	3	3	3	3	3	3	3
62	Project Work - II	C422	3	3	3	3	3	3	3	3	3	3	3	3
63	Seminar	C423	3	3	3	3	3	3	3	3	3	3	3	3
Direct Assessment(A)			1.73	1.69	1.52	1.60	1.40	1.63	2.08	1.04	1.95	1.24	1.88	1.06

*Diptendu*  
 - 8/11/2019  
 Criteria Coordinator

*[Signature]*  
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**PSO Attainment through Direct Assessment Method of LYGm3**  
**(2018-19 Passedout Batch)**

SL.No.	Course	Code	PSO1	PSO2
1.	Engineering Mathematics -III	C201	-	-
2.	Analog & Digital Electronics	C202	1.85	1.23
3.	Data Structures & Applications	C203	0.99	0.99
4.	Computer Organization	C204	0.79	0.50
5.	Unix & System Programming	C205	2.13	2.13
6.	Discrete Mathematical Structures	C206	0.42	--
7.	Analog & Digital Electronics Lab	C207	1.47	1.47
8.	Data Structures Lab	C208	1.11	1.11
9.	Engineering Mathematics -IV	C209	--	--
10.	Software Engineering	C210	1.13	1.13
11.	Design & Analysis of Algorithms	C211	1.19	1.19
12.	Microprocessor & Microcontroller	C212	0.89	0.44
13.	Object Oriented Concepts	C213	0.83	0.83
14.	Data Communications	C214	0.45	0.45
15.	Design & Analysis of Algorithms Lab	C215	2.58	2.58
16.	Microprocessors Lab	C216	0.96	0.96
17.	Management & Entrepreneurship for IT	C301	0.00	1.52
18.	Computer Networks	C302	1.15	0.57
19.	Database Management System	C303	1.37	1.37
20.	Automata Theory & Computability	C304	0.93	--
21.	Introduction to Software Testing	C306	1.19	1.19
22.	Advanced Java & J2EE	C307	1.41	0.94
23.	Dotnet Framework for Application development	C312	1.50	1.00
24.	Computer Networks Lab	C314	1.62	0.81
25.	DBMS Lab with Mini Project	C315	2.84	2.84
26.	Cryptography, Network Security & Cyber Law	C316	1.09	1.09
27.	Computer Graphics & Visualization	C317	0.93	0.93
28.	System Software and Compiler Design	C318	1.16	--
29.	Operating Systems	C319	1.23	0.61
30.	Data Mining & Data Warehousing	C320	1.23	0.61
31.	Python Application Programming	C327	1.00	1.00
32.	System Software & Operating System Lab	C330	1.79	0.90
33.	Computer Graphics & Visualization Lab with Mini	C331	0.99	0.99
34.	Web Technology & Applications	C401	1.14	0.57



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35.	Advanced Computer Architecture	C402	2.06	1.37
36.	Machine Learning	C403	0.95	0.95
37.	Cloud Computing & Applications	C405	1.20	1.20
38.	Storage Area Networks	C411	1.09	0.54
39.	Machine Learning Lab	C412	1.98	1.98
40.	Web Technology Lab	C413	1.99	0.99
41.	Project Phase - I	C414	3	3
42.	Internet of Things & Applications	C415	2.25	1.50
43.	Big Data Analytics	C416	1.35	1.35
44.	System Modeling and Simulation	C420	1.55	1.55
45.	Internship	C421	3	3
46.	Project Work - II	C422	3	3
47.	Seminar	C423	3	3
<b>Direct Assessment</b>			<b>1.43</b>	<b>1.29</b>

*Dr. P. S. S. S.*  
8/11/2019  
Criteria Coordinator

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