KLE Technological University
Creating Value
Leveraging Knowledge

KLE Society's
KLE Technological University
SCHOOL OF COMPUTER SCIENCE & ENGINEERING

Program: Bachelor of Engineering		
Course Title: **Data Structures with C**		Course Code: **15ECSC203**
L-T-P: **4-0-0**	Credits: **4**	Contact Hrs: **4 hrs/week**
CIE Marks: **50**	SEE Marks: **50**	Total Marks: **100**
Teaching Hrs: **50**	Exam Duration: **3hrs**	

Unit –I		
1	**C Language Features** Structures – Basics, Structures And Functions, Arrays of Structures, Pointers to Structures, Self Referential Structures, Unions and Bit Fields, Files.	**06 hrs**
2	**Stacks and Recursion** Definition, Representation and Applications of Stack. Recursion.	**06 hrs**
3	**Queues** Definitions, Representation and Applications of Linear, Circular, De-queues, Multiple Queues, Priority Queue.	**08 hrs**
Unit –II		
4	**Lists** Linked Lists, Singly, Doubly, Circular Lists, Definitions, Representations. Dynamic memory representations. Implementation of List Operations, Applications – Polynomial Addition, Addition of Long Integers. Linked Stacks, Linked Queues.	**08 hrs**
5	**Trees** Binary Trees – Definitions, Representations Traversals (Recursive and Iterative Versions).	**06 hrs**
6	**Trees (Contd.)** Binary Search Trees – Building and Searching, Threaded Binary Trees, Trees and their applications.	**06 hrs**
Unit –III		
7	**Hashing** Hash Table, Hash Functions, Collision Resolution Strategies, Hash Table Implementation.	**05 hrs**
8	**File Structures** Files, Random and Direct access, Indexing.	**05 hrs**

Text Books:

1. Mark Allen Weiss, "Data Structures and Algorithm Analysis in C", Second Edition, Pearson Education, 2010.
2. Aron M. Tenenbaum, et al Data Structures using C, PHI, 2006.

Reference Books:

1. Kernighan and Ritchie, The ANSI C programming Language, 2 ed., PHI.
2. Robert Kruse, Data Structures and Program Design in C, 2 ed., Pearson.

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SCHOOL OF COMPUTER SCIENCE & ENGINEERING

Program: Bachelor of Engineering		
Course Title: **Design and Analysis of Algorithms**		Course Code:**15ECSC207**
L-T-P: **3-1-0**	Credits: **4**	Contact Hrs: **5hrs/week**
CIE Marks: **50**	SEE Marks: **50**	Total Marks: **100**
Teaching Hrs: **60**	Exam Duration: **3hrs**	

	Unit –I	
1	**Introduction** Notion of Algorithm, Fundamentals of Algorithmic Problem Solving, Important Problem Types, Review of Data Structures.	**05 hrs**
2	**Framework for Analysis of Algorithm Efficiency** Analysis Framework, Asymptotic Notations and Basic Efficiency Classes, Mathematical Analysis of Non-Recursive Algorithms, Mathematical Analysis of Recursive Algorithms, Exercises on Analysis of Recursive and Non-Recursive algorithms.	**06 hrs**
3	**Brute Force** Introduction, Selection Sort, Sequential Search, Brute-Force String Matching, Exhaustive Search.	**04 hrs**
	Unit –II	
4	**Divide –and- Conquer, Decrease –and- Conquer** Introduction, Mergesort, Quick Sort,Graph traversals, Algorithms for Generating Permutation and Subsets.	**06 hrs**
5	**Transform and Conquer** Introduction; Instance Simplification: Presorting; Representation Change: Balanced Search Trees, Heaps and Heapsort; Problem Reduction: Computing the LCM.	**05 hrs**
6	**Space and Time Tradeoffs, Dynamic Programming** Introduction, Input Enhancement in String Matching: Horspool's algorithm.	**04 hrs**
	Unit –III	
7	**Greedy Technique** Introduction, Kruskal's Algorithm, Dijkstra's Algorithm	**3 hrs**
8	**Coping with limitations of Algorithm power** Backtracking: n-Queens Problem; Branch- and- Bound: Knapsack Problem; Approximation algorithms for NP-Hard Problems: Knapsack Problem. Lower-Bound Arguments, Decision Trees, P, NP and NP- complete Problems	**7 hrs**

Text Books:

1. Levitin A., Introduction to the Design and Analysis of Algorithms, 3ed., Pearson Education, 2011.

Reference Books:

1. Cormen T. H. et al., Introduction to Algorithms, 2ed., PHI, 2003
2. Horowitz E. et al.., Fundamentals of Computer Algorithms, 2004ed., Galgotia Publishers, 2006
3. Michael T. Goodrich and Roberto Tamassia., Algorithm Design and Applications,2014

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Course Feedback

(To be filled by each Student at the time of Course Completion)

Dear Students,

Please give us your views on this Course so that the course quality can be improved. You are encouraged to be frank and constructive in your comments.

Course Teacher

Department/School SoCSE Name of the Teacher S.K. Patil

Course Title DS with C Course code: 15ECSL207 Semester III

a. The design of the course	Strongly agree	Agree	Uncertain	Disagree	Strongly Disagree
The course objectives were clear	✓				
The course contents met with your expectation		✓			
The course work load was manageable		✓			
The lecture sequence was well planned to meet learning outcomes	✓				
The contents were illustrated with adequate examples		✓			
The course exposed you to new knowledge and practice	✓				
The level of the course was moderate	✓				

b. The conduct of the course	Strongly agree	Agree	Uncertain	Disagree	Strongly Disagree
The lectures were easy to understand & ideas and concepts presented clearly	✓				
The teaching aids were effectively used	✓				
The course material handed out was adequate		✓			
Were objectives of the course realized?		✓			
The overall environment in the class was conducive to learning	✓				

c. Learning Resources	Strongly agree	Agree	Uncertain	Disagree	Strongly Disagree
Learning materials (Lesson Plans, Course Notes etc.) were relevant and useful	✓	✓			
Recommended reading Books etc. were relevant and appropriate		✓			
The provision of learning resources in the library was adequate and appropriate	✓				

d. Assessment	Strongly agree	Agree	Uncertain	Disagree	Strongly Disagree
The method of assessment were reasonable	✓				
Feedback on ISA assessment was timely		✓			
Feedback on ISA assessment was helpful	✓				

Suggestions for improvement:

More handson needed

Overall rating of the course: (✓ tick mark the appropriate)

90% -100% ☐ 80% - 90% ☐ 70% - 80% ☑ 60% - 70% ☐ 50% - 60% ☐ Below 50% ☐

Date: 12/12/2019

V.K.K
Signature

KLE Technological University

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Course Feedback

(To be filled by each Student at the time of Course Completion)

Dear Students,

Please give us your views on this Course so that the course quality can be improved. You are encouraged to be frank and constructive in your comments.

Course Teacher

Department/School SoCSE Name of the Teacher Jayalaxmi N.

Course Title Data structures with C Course code: 18ECS207 Semester IV

a. The design of the course	Strongly agree	Agree	Uncertain	Disagree	Strongly Disagree
The course objectives were clear		✓			
The course contents met with your expectation		✓			
The course work load was manageable		✓			
The lecture sequence was well planned to meet learning outcomes	✓				
The contents were illustrated with adequate examples		✓			
The course exposed you to new knowledge and practice	✓				
The level of the course was moderate	✓				

b. The conduct of the course	Strongly agree	Agree	Uncertain	Disagree	Strongly Disagree
The lectures were easy to understand & ideas and concepts presented clearly	✓				
The teaching aids were effectively used	✓				
The course material handed out was adequate		✓			
Were objectives of the course realized?	✓				
The overall environment in the class was conducive to learning		✓			

c. Learning Resources	Strongly agree	Agree	Uncertain	Disagree	Strongly Disagree
Learning materials (Lesson Plans, Course Notes etc.) were relevant and useful	✓				
Recommended reading Books etc. were relevant and appropriate	✓				
The provision of learning resources in the library was adequate and appropriate	✓				

d. Assessment	Strongly agree	Agree	Uncertain	Disagree	Strongly Disagree
The method of assessment were reasonable	✓				
Feedback on ISA assessment was timely		✓			
Feedback on ISA assessment was helpful	✓				

Suggestions for improvement:

Course activity to be done with 4 ppl. So workload will be shared.

Overall rating of the course: (✓ tick mark the appropriate)

90% -100% [✓] 80% - 90% [ ] 70% - 80% [ ] 60% - 70% [ ] 50% - 60% [ ] Below 50% [ ]

Date: 1/12/2019

Signature

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Course Feedback

(To be filled by each Student at the time of Course Completion)

Dear Students,

Please give us your views on this Course so that the course quality can be improved. You are encouraged to be frank and constructive in your comments.

Course Teacher

Department/School SOCSE Name of the Teacher Vijal B

Course Title DA & A Course code: 15EC81207 Semester IV

a. The design of the course	Strongly agree	Agree	Uncertain	Disagree	Strongly Disagree
The course objectives were clear		✓			
The course contents met with your expectation		✓			
The course work load was manageable		✓			
The lecture sequence was well planned to meet learning outcomes		✓			
The contents were illustrated with adequate examples	✓				
The course exposed you to new knowledge and practice	✓				
The level of the course was moderate	✓				

b. The conduct of the course	Strongly agree	Agree	Uncertain	Disagree	Strongly Disagree
The lectures were easy to understand & ideas and concepts presented clearly	✓				
The teaching aids were effectively used		✓			
The course material handed out was adequate	✓				
Were objectives of the course realized?		✓			
The overall environment in the class was conducive to learning	✓				

c. Learning Resources	Strongly agree	Agree	Uncertain	Disagree	Strongly Disagree
Learning materials (Lesson Plans, Course Notes etc.) were relevant and useful	✓				
Recommended reading Books etc. were relevant and appropriate	✓				
The provision of learning resources in the library was adequate and appropriate	✓				

d. Assessment	Strongly agree	Agree	Uncertain	Disagree	Strongly Disagree
The method of assessment were reasonable	✓				
Feedback on ISA assessment was timely		✓			
Feedback on ISA assessment was helpful	✓				

Suggestions for improvement:

more practical session and real time examples to be carried out.

Overall rating of the course: (✓ tick mark the appropriate)

90% -100% ☐ 80% - 90% ☑ 70% - 80% ☐ 60% - 70% ☐ 50% - 60% ☐ Below 50% ☐

Date: 11/12/2019

Signature

KLE Technological University

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Course Feedback

(To be filled by each Student at the time of Course Completion)

Dear Students,

Please give us your views on this Course so that the course quality can be improved. You are encouraged to be frank and constructive in your comments.

Course Teacher

Department/School Computer Science Name of the Teacher Prof Kavita H. S.

Course Title Design and analysis of Algorithms Course code: CSE207 Semester IV

a. The design of the course	Strongly agree	Agree	Uncertain	Disagree	Strongly Disagree
The course objectives were clear			✓		
The course contents met with your expectation		✓			
The course work load was manageable		✓			
The lecture sequence was well planned to meet learning outcomes		✓			
The contents were illustrated with adequate examples			✓		
The course exposed you to new knowledge and practice		✓			
The level of the course was moderate		✓			

b. The conduct of the course	Strongly agree	Agree	Uncertain	Disagree	Strongly Disagree
The lectures were easy to understand & ideas and concepts presented clearly		✓			
The teaching aids were effectively used		✓			
The course material handed out was adequate		✓			
Were objectives of the course realized?		✓			
The overall environment in the class was conducive to learning		✓			

c. Learning Resources	Strongly agree	Agree	Uncertain	Disagree	Strongly Disagree
Learning materials (Lesson Plans, Course Notes etc.) were relevant and useful		✓			
Recommended reading Books etc. were relevant and appropriate			✓		
The provision of learning resources in the library was adequate and appropriate		✓			

d. Assessment	Strongly agree	Agree	Uncertain	Disagree	Strongly Disagree
The method of assessment were reasonable		✓			
Feedback on ISA assessment was timely		✓			
Feedback on ISA assessment was helpful		✓			

Suggestions for improvement:

Evaluation Criteria should be changed

Overall rating of the course: (✓ tick mark the appropriate)

90% -100% ☐ 80% - 90% ☑ 70% - 80% ☐ 60% - 70% ☐ 50% - 60% ☐ Below 50% ☐

Date: 12/1/2019

Signature

KLE Technological University

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Course Feedback

(To be filled by each Student at the time of Course Completion)

Dear Students,

Please give us your views on this Course so that the course quality can be improved. You are encouraged to be frank and constructive in your comments.

Course Teacher

Department/School SOCSE Name of the Teacher Somashekar Patil

Course Title Design & analysis of Algorithms Course code: 15ECSC207 Semester IV

a. The design of the course	Strongly agree	Agree	Uncertain	Disagree	Strongly Disagree
The course objectives were clear		✓			
The course contents met with your expectation	✓				
The course work load was manageable	✓				
The lecture sequence was well planned to meet learning outcomes	✓				
The contents were illustrated with adequate examples		✓			
The course exposed you to new knowledge and practice		✓			
The level of the course was moderate			✓		

b. The conduct of the course	Strongly agree	Agree	Uncertain	Disagree	Strongly Disagree
The lectures were easy to understand & ideas and concepts presented clearly	✓				
The teaching aids were effectively used	✓				
The course material handed out was adequate	✓				
Were objectives of the course realized?		✓			
The overall environment in the class was conducive to learning		✓			

c. Learning Resources	Strongly agree	Agree	Uncertain	Disagree	Strongly Disagree
Learning materials (Lesson Plans, Course Notes etc.) were relevant and useful	✓				
Recommended reading Books etc. were relevant and appropriate		✓			
The provision of learning resources in the library was adequate and appropriate	✓				

d. Assessment	Strongly agree	Agree	Uncertain	Disagree	Strongly Disagree
The method of assessment were reasonable	✓				
Feedback on ISA assessment was timely			✓		
Feedback on ISA assessment was helpful		✓			

Suggestions for improvement:

Assesments were very difficult and time consuming

Overall rating of the course: (✓ tick mark the appropriate)

90% -100% ☐ 80% - 90% ☐ 70% - 80% ☑ 60% - 70% ☐ 50% - 60% ☐ Below 50% ☐

Date: 12/9/2019

Signature

Alumni Survey Form

Dear proud alumni,

The following are the list of skills and competencies that engineering graduates should have. We seek your participation in the Alumni Survey conducted to know your satisfaction with the *level of competency* you have achieved as a result of your education at the Institution and also able to practice the same. For each question, indicate your answer with symbol "A" in the appropriate column/box. All individual responses will be kept confidential. Only statistically analyzed results from the entire population will be shared.

Regards,
Head of the department

.No	Competencies	Level of Competency			
		Completely Dissatisfied	Dissatisfied	Satisfied	Completely Satisfied
1	**Engineering knowledge :**				
	Ability to apply the knowledge of mathematics, science, engineering fundamentals, and engineering specialization for the solution of engineering problems				A
2	**Problem analysis:**				
	Ability to identify, characterize and formulate a solution plan for solving engineering problems			A	
	Ability to execute a solution process and analyse results				A
3	**Design/Development of Solutions:**				
	Ability to design components, systems or processes that meet specified needs, following appropriate engineering design process				A
4	**Conduct investigations of complex problems:**				
	Ability to conduct investigations or tests through design of experiments to understand and solve engineering problems				A
	Ability to critically analyse and interpret data to reach valid conclusions				A
5	**Modern tool usage:**				
	Ability to identify / create and use appropriate modern engineering and IT tools, techniques and resources to solve engineering problems				A
6	**The engineer and society:**				

Alumni Survey Form

	Demonstrate an understanding of professional engineering regulations, legislation and standards			A	
7	**Environment and sustainability:**				
	Ability to understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development			A	
8	**Ethics:**				
	Ability to apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice			A	
9	**Individual and team work:**				
	Ability to function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings			A	
10	**Communication:**				
	.Ability to comprehend technical literature and prepare effective reports and design documents				A
	Demonstrate competence in listening, speaking, and presentation				A
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				A
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				A
13	**Modeling and Design**				
	An ability to apply mathematical foundations, algorithmic principles, and computer science theory in the modeling and design of computer based systems in a way that demonstrates comprehension of the tradeoffs involved in design choices.				A
14	**Construction of software system**				
	An ability to apply design and development principles in the construction of software systems of varying complexity.				A

Alumni Survey Form

Indicate your Answer with symbol "A" in the appropriate box

1) How would you rate your overall satisfaction with your preparation to become an engineer?

Not Satisfied [ ] Little Satisfied [ ] Satisfied [A] Very Satisfied [ ]

2) In general, the department has provided a _____ quality academic program?

Poor [ ] OK [ ] Good [ ] Very Good [A]

Name: T. UMA	Branch: CS
e-mail id: t.uma555@yahoo.com	Batch: 2BV13CS118 (2016-17)
Name of the company: Accenture	
Correspondence Address:	
Signature: Uma	

Alumni Survey Form

Dear proud alumni,

The following are the list of skills and competencies that engineering graduates should have. We seek your participation in the Alumni Survey conducted to know your satisfaction with the *level of competency* you have achieved as a result of your education at the Institution and also able to practice the same. For each question, indicate your answer with symbol "A". in the appropriate column/box. All individual responses will be kept confidential. Only statistically analyzed results from the entire population will be shared.

Regards,
Head of the department

.No	Competencies	Level of Competency			
		Completely Dissatisfied	Dissatisfied	Satisfied	Completely Satisfied
1	**Engineering knowledge :**				
	Ability to apply the knowledge of mathematics, science, engineering fundamentals, and engineering specialization for the solution of engineering problems			A	
2	**Problem analysis:**				
	Ability to identify, characterize and formulate a solution plan for solving engineering problems				A
	Ability to execute a solution process and analyse results				A
3	**Design/Development of Solutions:**				
	Ability to design components, systems or processes that meet specified needs, following appropriate engineering design process				A
4	**Conduct investigations of complex problems:**				
	Ability to conduct investigations or tests through design of experiments to understand and solve engineering problems				A
	Ability to critically analyse and interpret data to reach valid conclusions			A	
5	**Modern tool usage:**				
	Ability to identify / create and use appropriate modern engineering and IT tools, techniques and resources to solve engineering problems				A
6	**The engineer and society:**				

	Demonstrate an understanding of professional engineering regulations, legislation and standard				A
7	Environment and sustainability:				
	Ability to understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development			A	
8	Ethics:				
	Ability to apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice				A
9	Individual and team work:				
	Ability to function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings				A
10	Communication:				
	Ability to comprehend technical literature and prepare effective reports and design documents				A
	Demonstrate competence in listening, speaking, and presentation				A
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 environment				A
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				A
13	Modeling and Design				
	An ability to apply mathematical foundations, algorithmic principles, and computer science theory in the modeling and design of computer-based systems in a way that demonstrates comprehension of the tradeoffs involved in design choices				A
14	Construction of software system				
	An ability to apply design and development principles in the construction of software systems of varying complexity				A

Alumni Survey Form

Indicate your Answer with symbol "A" in the appropriate box

1) How would you rate your overall satisfaction with your preparation to become an engineer?

Not Satisfied ☐ Little Satisfied ☐ Satisfied ☐ Very Satisfied ☑

2) In general, the department has provided a _____ quality academic program?

Poor ☐ OK ☐ Good ☐ Very Good ☑

Name: Shruti Biradar	Branch: CS
e-mail id: shruti.biradar1994@gmail.com	Batch: 15-16
Name of the company: Toshiba.	
Correspondence Address:	
Signature: S Biradar	

Alumni Survey Form

	Demonstrate an understanding of professional engineering regulations, legislation and standards			✓	
7	**Environment and sustainability:**				
	Ability to 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:**				
	Ability to apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice				✓
9	**Individual and team work:**				
	Ability to function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings				✓
10	**Communication:**				
	.Ability to comprehend technical literature and prepare effective reports and design documents			✓	
	Demonstrate competence in listening, speaking, and presentation				✓
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				✓
13	**Modeling and Design**				
	An ability to apply mathematical foundations, algorithmic principles, and computer science theory in the modeling and design of computer-based systems in a way that demonstrates comprehension of the tradeoffs involved in design choices.				✓
14	**Construction of software system**				
	An ability to apply design and development principles in the construction of software systems of varying complexity.				✓

K.L.E. Society's
B.V. Bhoomaradi College of Engineering & Technology, Hubli - 31
DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

Alumni Survey Form

Dear proud alumni,

The following are the list of skills and competencies that engineering graduates should have. We seek your participation in the Alumni Survey conducted to know your satisfaction with the *level of competency* you have achieved as a result of your education at the Institution and also able to practice the same. For each question, indicate your answer with symbol "A" in the appropriate column/box. All individual responses will be kept confidential. Only statistically analyzed results from the entire population will be shared.

Regards,
Head of the department

.No	Competencies	Level of Competency			
		Completely Dissatisfied	Dissatisfied	Satisfied	Completely Satisfied
1	**Engineering knowledge :**				
	Ability to apply the knowledge of mathematics, science, engineering fundamentals, and engineering specialization for the solution of engineering problems				✓
2	**Problem analysis:**				
	Ability to identify, characterize and formulate a solution plan for solving engineering problems				✓
	Ability to execute a solution process and analyse results				✓
3	**Design/Development of Solutions:**				
	Ability to design components, systems or processes that meet specified needs, following appropriate engineering design process			✓	
4	**Conduct investigations of complex problems:**				
	Ability to conduct investigations or tests through design of experiments to understand and solve engineering problems				✓
	Ability to critically analyse and interpret data to reach valid conclusions				✓
5	**Modern tool usage:**				
	Ability to identify / create and use appropriate modern engineering and IT tools, techniques and resources to solve engineering problems				✓
6	**The engineer and society:**				

Alumni Survey Form

Indicate your Answer with symbol "A" in the appropriate box

1) How would you rate your overall satisfaction with your preparation to become an engineer?

Not Satisfied ☐ Little Satisfied ☐ Satisfied ☐ Very Satisfied ☑

2) In general, the department has provided a _____ quality academic program?

Poor ☐ OK ☐ Good ☐ Very Good ☑

Name: Jaya V.	Branch: CS
e-mail id: Jayahulli@gmail.com	Batch: 15-16
Name of the company: SONY.	
Correspondence Address:	
Signature:	

	Demonstrate an understanding of professional engineering regulations, legislation and standards				A
7	**Environment and sustainability:**				
	Ability to understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development			A	
8	**Ethics:**				
	Ability to apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice				A
9	**Individual and team work:**				
	Ability to function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings				A
10	**Communication:**				
	.Ability to comprehend technical literature and prepare effective reports and design documents				A
	Demonstrate competence in listening, speaking, and presentation				A
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				A
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				A
13	**Modeling and Design**				
	An ability to apply mathematical foundations, algorithmic principles, and computer science theory in the modeling and design of computer-based systems in a way that demonstrates comprehension of the tradeoffs involved in design choices.				A
14	**Construction of software system**				
	An ability to apply design and development principles in the construction of software systems of varying complexity.				A

Alumni Survey Form

Dear proud alumni,

The following are the list of skills and competencies that engineering graduates should have. We seek your participation in the Alumni Survey conducted to know your satisfaction with the *level of competency* you have achieved as a result of your education at the Institution and also able to practice the same. For each question, indicate your answer with symbol "A" in the appropriate column/box. All individual responses will be kept confidential. Only statistically analyzed results from the entire population will be shared.

Regards,
Head of the department

No	Competencies	Level of Competency			
		Completely Dissatisfied	Dissatisfied	Satisfied	Completely Satisfied
1	**Engineering knowledge :**				
	Ability to apply the knowledge of mathematics, science, engineering fundamentals, and engineering specialization for the solution of engineering problems			A	
2	**Problem analysis:**				
	Ability to identify, characterize and formulate a solution plan for solving engineering problems				A
	Ability to execute a solution process and analyse results				A
3	**Design/Development of Solutions:**				
	Ability to design components, systems or processes that meet specified needs, following appropriate engineering design process			A	
4	**Conduct investigations of complex problems:**				
	Ability to conduct investigations or tests through design of experiments to understand and solve engineering problems				A
	Ability to critically analyse and interpret data to reach valid conclusions				A
5	**Modern tool usage:**				
	Ability to identify / create and use appropriate modern engineering and IT tools, techniques and resources to solve engineering problems			A	
6	**The engineer and society:**				

Alumni Survey Form

Indicate your Answer with symbol "A" in the appropriate box

1) How would you rate your overall satisfaction with your preparation to become an engineer?

Not Satisfied ☐ Little Satisfied ☐ Satisfied ☐ Very Satisfied ☑

2) In general, the department has provided a _____ quality academic program?

Poor ☐ OK ☐ Good ☐ Very Good ☑

Name: Shweta H.M	Branch: CS
e-mail id: hmshweta1994@gmail.com	Batch: 15-16
Name of the company: Infosys.	
Correspondence Address:	
Signature: Shweta	

Alumni Survey Form

Dear proud alumni,

The following are the list of skills and competencies that engineering graduates should have. We seek your participation in the Alumni Survey conducted to know your satisfaction with the *level of competency* you have achieved as a result of your education at the Institution and also able to practice the same. For each question, indicate your answer with symbol "A" in the appropriate column/box. All individual responses will be kept confidential. Only statistically analyzed results from the entire population will be shared.

Regards,
Head of the department

S.No	Competencies	Level of Competency			
		Completely Dissatisfied	Dissatisfied	Satisfied	Completely Satisfied
1	**Engineering knowledge :**				
	Ability to apply the knowledge of mathematics, science, engineering fundamentals, and engineering specialization for the solution of engineering problems				A
2	**Problem analysis:**				
	Ability to identify, characterize and formulate a solution plan for solving engineering problems			A	
	Ability to execute a solution process and analyse results				A
3	**Design/Development of Solutions:**				
	Ability to design components, systems or processes that meet specified needs, following appropriate engineering design process			A	
4	**Conduct investigations of complex problems:**				
	Ability to conduct investigations or tests through design of experiments to understand and solve engineering problems				A
	Ability to critically analyse and interpret data to reach valid conclusions				A
5	**Modern tool usage:**				
	Ability to identify / create and use appropriate modern engineering and IT tools, techniques and resources to solve engineering problems			A	
6	**The engineer and society:**				

Alumni Survey Form

	Demonstrate an understanding of professional engineering regulations, legislation and standards				A
7	**Environment and sustainability:**				A
	Ability to understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development			A	
8	**Ethics:**				
	Ability to apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice				A
9	**Individual and team work:**				
	Ability to function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings				A
10	**Communication:**				
	Ability to comprehend technical literature and prepare effective reports and design documents				A
	Demonstrate competence in listening, speaking, and presentation				A
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				A
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			A	
13	**Modeling and Design**				
	An ability to apply mathematical foundations, algorithmic principles, and computer science theory in the modeling and design of computer-based systems in a way that demonstrates comprehension of the tradeoffs involved in design choices.				A
14	**Construction of software system**				
	An ability to apply design and development principles in the construction of software systems of varying complexity.				A

Alumni Survey Form

Indicate your Answer with symbol "A" in the appropriate box.

1) How would you rate your overall satisfaction with your preparation to become an engineer?

Not Satisfied ☐ Little Satisfied ☐ Satisfied ☐ Very Satisfied ☑

2) In general, the department has provided a _____ quality academic program?

Poor ☐ OK ☐ Good ☐ Very Good ☑

Name: Suma S M	Branch: CSE
e-mail id: sumamedavi9@gmail	Batch: 2015-16
Name of the company: Accenture	
Correspondence Address:	
Signature: Suma.	

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Employers Feedback form

Dear Sir/Madam,

We seek your kind participation in this process of collecting feedback about our graduates serving in your organization. Your inputs will be helping us to make required modifications in the existing curriculum, pedagogy to enhance the competencies of the graduating engineers. For each question, indicate your opinion with a tick mark in the appropriate column. All individual responses will be kept confidential. Only statistically analyzed results from the entire population will be shared.

Regards,

Head of the Department/School

Please rank the following qualities: 5 = excellent, 4 = high, 3 = good, 2 = average, 1 = low, NA= Not Applicable

S.No.	Qualities	1	2	3	4	5	NA
1	Ability to apply the knowledge of mathematics, science, engineering fundamentals, and engineering specialization for the solution of engineering problems					✓	
2	Ability to identify, characterize and formulate a solution plan for solving engineering problems					✓	
3	Ability to execute a solution process and analyze results					✓	
4	Ability to design components, systems or processes that meet specified needs, following appropriate engineering design process			✓			
5	Ability to conduct investigations or tests through design of experiments to understand and solve engineering problems					✓	
6	Ability to critically analyse and interpret data to reach valid conclusions				✓		
7	Ability to identify / create and use appropriate modern engineering and IT tools, techniques and resources to solve engineering problems				✓		
8	Demonstrate an understanding of professional engineering regulations, legislation and standards				✓		
9	Ability to understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development				✓		

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	Qualities	1	2	3	4	5	NA
10	Ability to apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice					✓	
11	Ability to function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings					✓	
12	Ability to comprehend technical literature and prepare effective reports and design documents				✓		
13	Demonstrate competence in listening, speaking, and presentation					✓	
14	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				✓		
15	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				✓		
16	An ability to apply mathematical foundations, algorithmic principles, and computer science theory in the modeling and design of computer-based systems in a way that demonstrates comprehension of the tradeoffs involved in design choices.				✓		
17	An ability to apply design and development principles in the construction of software systems of varying complexity.				✓		

Space for comments:

Name of the organization: JUNIPER NETWORKS INDIA PVT LTD

Address: Elnath - Exora Business Park, Amane Belandure Khane Village, Marathalli Outer Ring Road Bangalore 103

Name of the contact person: Onkar Naik Dessai

e-mail id: Odessai@Juniper.net

Signature & seal:

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Employers Feedback form

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Regards,

Head of the Department/School

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S.No.	Qualities	1	2	3	4	5	NA
1	Ability to apply the knowledge of mathematics, science, engineering fundamentals, and engineering specialization for the solution of engineering problems						✓
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3	Ability to execute a solution process and analyze results					✓	
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5	Ability to conduct investigations or tests through design of experiments to understand and solve engineering problems					✓	
6	Ability to critically analyse and interpret data to reach valid conclusions				✓		
7	Ability to identify / create and use appropriate modern engineering and IT tools, techniques and resources to solve engineering problems					✓	
8	Demonstrate an understanding of professional engineering regulations, legislation and standards					✓	
9	Ability to understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development						✓

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10	Ability to apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice					✓	
	Qualities	1	2	3	4	5	NA
11	Ability to function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings					✓	
12	Ability to comprehend technical literature and prepare effective reports and design documents					✓	
13	Demonstrate competence in listening, speaking, and presentation					✓	
14	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				✓		
15	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					✓	
16	An ability to apply mathematical foundations, algorithmic principles, and computer science theory in the modeling and design of computer-based systems in a way that demonstrates comprehension of the tradeoffs involved in design choices.					✓	
17	An ability to apply design and development principles in the construction of software systems of varying complexity.					✓	

Space for comments:

Name of the organization: INFORMATICA Address: NO 66/1, BAGMANE COMMERZ Ø2 BAGMANE TECH PARK C V RAMAN NAGAR, BENGALURU-560093	
Name of the contact person: RAHUL KULKARNI	
e-mail id: RKULKARNI@INFORMATICA.COM	Signature & seal:

INFORMATICA BUSINESS SOLUTIONS PVT. LTD. ★ BANGALORE

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Employers Feedback form

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Regards,

Head of the Department/School

ANIL PUJERI, ENGINEERING PRODUCT MANAGER

Please rank the following qualities: 5 = excellent, 4 = high, 3 = good, 2 = average, 1 = low, NA= Not Applicable

S.No.	Qualities	1	2	3	4	5	NA
1	Ability to apply the knowledge of mathematics, science, engineering fundamentals, and engineering specialization for the solution of engineering problems	☐	☐	☐	☑	☐	☐
2	Ability to identify, characterize and formulate a solution plan for solving engineering problems	☐	☐	☐	☑	☐	☐
3	Ability to execute a solution process and analyze results	☐	☐	☐	☑	☐	☐
4	Ability to design components, systems or processes that meet specified needs, following appropriate engineering design process	☐	☐	☑	☐	☐	☐
5	Ability to conduct investigations or tests through design of experiments to understand and solve engineering problems	☐	☐	☐	☑	☐	☐
6	Ability to critically analyse and interpret data to reach valid conclusions	☐	☐	☐	☑	☐	☐
7	Ability to identify / create and use appropriate modern engineering and IT tools, techniques and resources to solve engineering problems	☐	☐	☐	☑	☐	☐
8	Demonstrate an understanding of professional engineering regulations, legislation and standards	☐	☐	☑	☐	☐	☐
9	Ability to understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development	☐	☐	☐	☑	☐	☐

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10	Ability to apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice	☐	☐	☐	☑	☐	☐
	Qualities	1	2	3	4	5	NA
11	Ability to function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings	☐	☐	☐	☑	☐	☐
12	Ability to comprehend technical literature and prepare effective reports and design documents	☐	☐	☐	☐	☐	☑
13	Demonstrate competence in listening, speaking, and presentation	☐	☐	☐	☑	☐	☐
14	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	☐	☐	☐	☑	☐	☐
15	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	☐	☐	☐	☑	☐	☐
16	An ability to apply mathematical foundations, algorithmic principles, and computer science theory in the modeling and design of computer-based systems in a way that demonstrates comprehension of the tradeoffs involved in design choices.	☐	☐	☐	☑	☐	☐
17	An ability to apply design and development principles in the construction of software systems of varying complexity.	☐	☐	☐	☑	☐	☐

Space for comments: Students from your college have great potential. They need more exposure to the outside world. Their communication presentation skills can be better. They have good technical strength.

Name of the organization: Zoom Technology & Services (I) Pvt. Ltd.

Address: Brigade Tech Park, No.134/1, Block-B, 8th Floor, Whitefield Main Road, Bangalore, Karnataka, India – 560 066

Name of the contact person: Priya Dabale

e-mail id: hr1@priya.dabale@zoomi.com

Signature & seal:

ZOOM Technology & Services (I) Pvt. Ltd. BANGALORE

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1	Ability to apply the knowledge of mathematics, science, engineering fundamentals, and engineering specialization for the solution of engineering problems			✓			
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3	Ability to execute a solution process and analyze results			✓			
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5	Ability to conduct investigations or tests through design of experiments to understand and solve engineering problems			✓			
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8	Demonstrate an understanding of professional engineering regulations, legislation and standards				✓		
9	Ability to understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development				✓		

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Employers Feedback form

	Qualities	1	2	3	4	5	NA
10	Ability to apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice						
11	Ability to function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings			✓			
12	Ability to comprehend technical literature and prepare effective reports and design documents			✓			
13	Demonstrate competence in listening, speaking, and presentation				✓		
14	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			✓			
15	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			✓			
16	An ability to apply mathematical foundations, algorithmic principles, and computer science theory in the modeling and design of computer-based systems in a way that demonstrates comprehension of the tradeoffs involved in design choices.			✓			
17	An ability to apply design and development principles in the construction of software systems of varying complexity.			✓			

Space for comments:

Name of the organization: TOSHIBA Software (India) Pvt. Ltd. Regd. & Corporate Office: # 32, "Essae Vaishnavi Solitaire", 3rd Block, Koramangala, BANGALORE - 560 034. KARNATAKA, INDIA. Tel : +91 80 4180 3500 / 3700 Fax : 4110 1650 / 2563 4382 URL : www.toshiba-test.com Address:	
Name of the contact person: PREM NAIR	
e-mail id: prem.nair@toshiba-tsip.com	Signature & seal: TOSHIBA SOFTWARE (INDIA) PVT LTD Bangalore

KLE Technological University

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Engineering & Technology, Hubli

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1	Ability to apply the knowledge of mathematics, science, engineering fundamentals, and engineering specialization for the solution of engineering problems		✓				
2	Ability to identify, characterize and formulate a solution plan for solving engineering problems		✓	✓			
3	Ability to execute a solution process and analyze results						
4	Ability to design components, systems or processes that meet specified needs, following appropriate engineering design process			✓			
5	Ability to conduct investigations or tests through design of experiments to understand and solve engineering problems			✓			
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9	Ability to understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development				✓		

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Engineering & Technology, Hubli

Employers Feedback form

10	Ability to apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice			✓			
	Qualities	1	2	3	4	5	NA
11	Ability to function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings			✓			
12	Ability to comprehend technical literature and prepare effective reports and design documents			✓			
13	Demonstrate competence in listening, speaking, and presentation			✓			
14	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			✓			
15	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			✓			
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17	An ability to apply design and development principles in the construction of software systems of varying complexity.				✓		

Space for comments:

Name of the organization:	Robert Bosch Engineering & Business Solutions Private Limited
Address:	
Name of the contact person:	Bharath. K
e-mail id: Bharath.kalkaiah@in.bosch.com	Signature & seal:

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SCHOOL OF COMPUTER SCIENCE & ENGINEERING

Teachers Feedback

Semester: IV
Course: Design and Analysis of Algorithms

Course: UG
Course Code:15ECSC207

Year	Feedback	Name of course instructor
2016-17	Design and Analysis of Algorithms(15ECSC207) and Data Structures with C (15ECSC203) need to taught as a single course to make better applications running in today's scenario.	Mr. Amit G

Amit G

Signature Course faculty:

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KLE Technological University
SCHOOL OF COMPUTER SCIENCE & ENGINEERING

Teachers Feedback

Semester: III
Course: Data structures with C

Course: UG
Code:15ECSC203

Year	Feedback	Name of course instructor
2016-17	Based on my teaching experience of Data structures and Design & analysis of algorithms, I suggest to combine both the courses for following reasons: • Algorithms and Data structures should learn in parallel to explore the utilization of Data structures • Efficiency of algorithm depends on type of data structure used for development of applications • Performance of application depends on both algorithms and data structures. • Data structures exist as the end products of algorithms. Thus combined study helps for better understanding of algorithms. • To understand the nature of problem at deeper level combined study of data structure and algorithms is required.	Prof. Jayalaxmi G Naragund

Signature course faculty:
(Jayalaxmi G.N.)

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KLE Technological University
SCHOOL OF COMPUTER SCIENCE & ENGINEERING

Teachers Feedback

Semester: III
Course: Design and Analysis of Algorithm

Course: UG
Course Code:15ECSC207

Year	Feedback	Name of course instructor
2016-17	• Considering the placement feedback, to enhance the algorithms and design skills, algorithms and data structures course needs to be combined where students learn how to use data structures as a tool. • The course must introduce various algorithm design techniques.	Kavita H S

Kavita H.S
Course faculty:

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SCHOOL OF COMPUTER SCIENCE & ENGINEERING

Teachers Feedback

Semester: IV
Course: Design and Analysis of Algorithms

Course: UG
Course Code:15ECSC207

Year	Feedback	Name of course instructor
2016-17	Design and Analysis of Algorithms(15ECSC207) and Data Structures with C (15ECSC203) need to taught as a single course for the reasons specified below: • Data structure and algorithms need to be studied together to understand the use of appropriate data structure in algorithms to have an optimized solution. • Space and time trade-off, when used with different data structures in algorithms, need to be understood	Mr.Somashekar Patil

Course faculty:

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SCHOOL OF COMPUTER SCIENCE & ENGINEERING

Teachers Feedback

Semester: III
Course: Data Structures with C

Course: UG
Course Code:15ECSC203

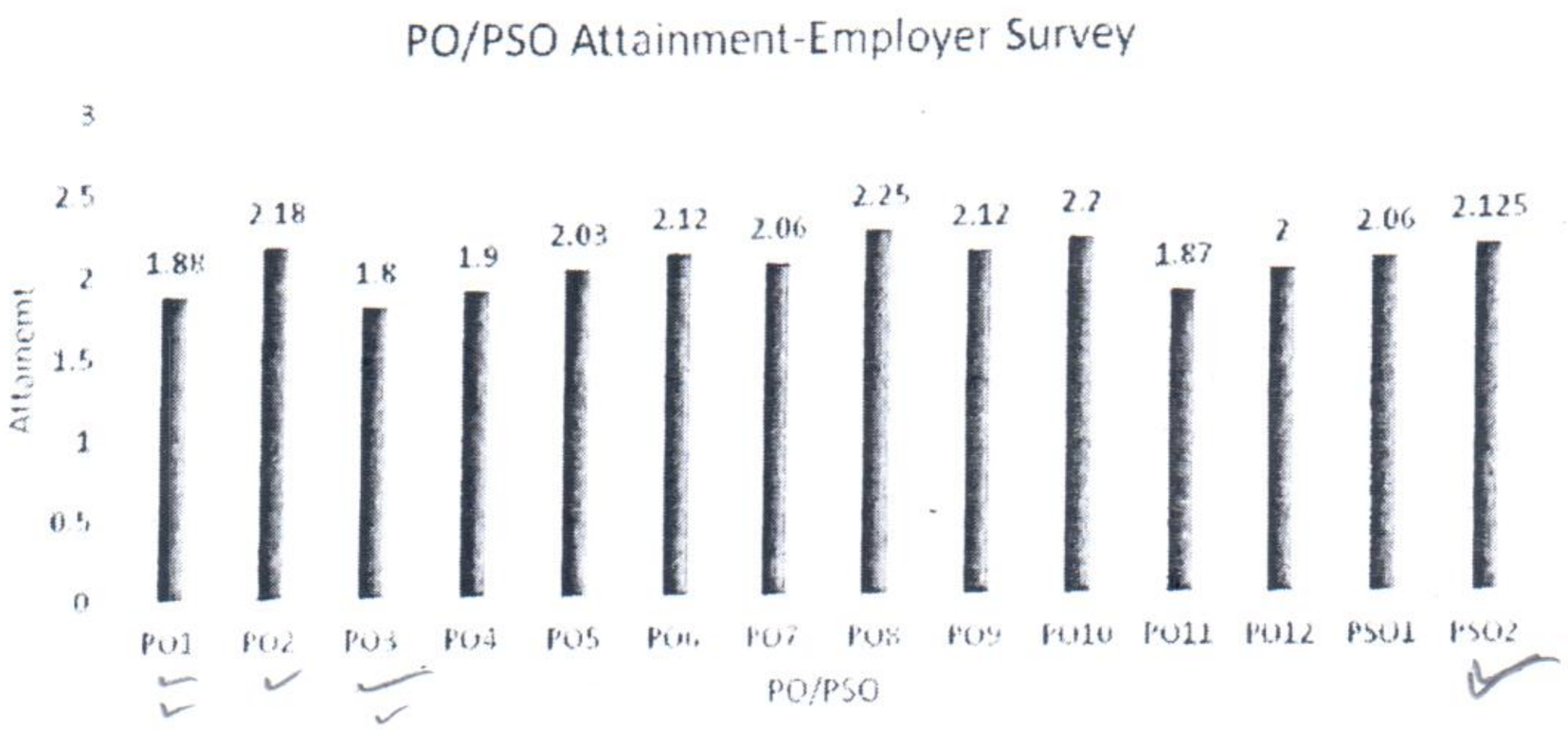
Year	Feedback	Name of course instructor
2016-17	Design and Analysis of Algorithms(15ECSC207) and Data Structures with C (15ECSC203) need to taught as a single course to enable students to develop the capability of writing algorithms for given task, implement it using suitable data structures for efficient code/application/solution.	Mr.Vijay Bajantri

Course faculty:

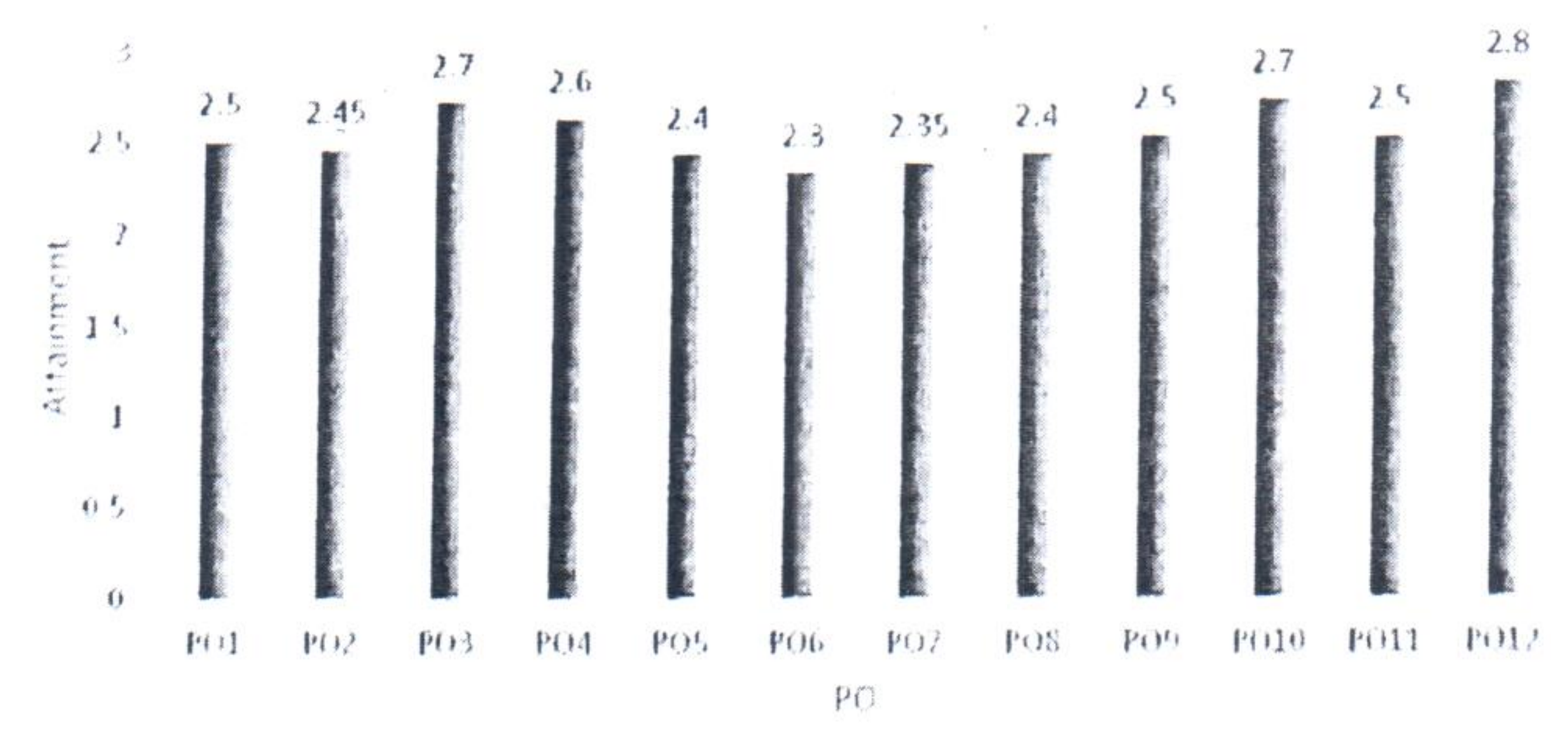
Indirect Attainment (2015-19)

Survey	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
Employer Survey	1.88	2.18	1.8	1.9	2.03	2.12	2.06	2.25	2.12	2.2	1.87	2	2.06	2.125
Student Exit Survey	2.5	2.45	2.7	2.6	2.4	2.3	2.35	2.4	2.5	2.7	2.5	2.8		
Alumni Survey	2.79	2.64	2.46	2.67	2.61	2.63	2.46	2.83	2.46	2.73	2.56	2.78	2.57	2.68
Indirect Attainment	2.39	2.42	2.32	2.39	2.35	2.35	2.29	2.49	2.36	2.54	2.31	2.53	2.32	2.40

Employer Survey



Exit Survey



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Minutes

2nd Board of Studies Meeting

of

School of Computer Science and Engineering

Hubballi, Karnataka

18th March 2016

KLE Technological University

(Established under Karnataka Act No.22, 2013)

REGISTRAR
KLE Technological University
HUBBALLI-580 031

School of Computer Science and Engineering
KLE Tech University
BVBCET Campus, Hubballi –31

The following are the minutes of the Board of Studies meeting of SoCSE, KLE Technological University, Hubballi which was held on 18th March 2016 at 09:00 am at the C-lite Board Room.

The following members were present.

Sl No	Name	Designation	Position
1.	Dr. Meena S. M.	Professor & Head of the School/ Department	Chairman
2.	Prof. K.R. Biradar	Professor, Dean's nominee	Member
3.	Dr. G. H. Joshi	Professor, Dean's nominee	Member
4.	Dr. Vishwanath P Baligar	Professor, Dean's nominee	Member
5.	Dr. S.G. Totad	Professor, Dean's nominee	Member
6.	Mr. Narayan D. G.	Associate Professor, Dean's nominee	Member
7.	Dr. Uday Wali	Subject expert from outside the college nominated by the Vice-Chancellor	Member
8.	Dr. Pradeep V. Desai	Representative from industry corporate sector/ allied area relating to placement nominated by the Vice-Chancellor	Member
9.	Mr. Shashikumar G.	Representative from industry corporate sector/ allied area relating to placement nominated by the Vice-Chancellor	Member
10.	Mr. Ram Jakati	Representative from industry corporate sector/ allied area relating to placement nominated by the Vice-Chancellor	Member

Agenda

Sl No	Particulars	Page No.
2.1	To welcome the BoS Members and present the department achievements & initiatives	
2.2	To read and confirm the minutes of 1st BoS meeting held on 11th July 2015	
2.3	To confirm the action taken report on the minutes of the previous meeting held on 11th July 2015	
2.4	To consider the Schemes and Syllabi of the undergraduate program B.E in Computer Science and approve the same. a) Scheme approval of I to VIII Semester (2016-20) b) Syllabus approval of I / II Semester, Programming in C course (2016-20) c) Ratification of Scheme of III to VIII Semester (2015-19) d) Syllabus approval of III / IV Semester (2015-19) e) Approval of Minor Program in CSE	
2.5	To consider the Schemes and Syllabi of the postgraduate program in CSE. a) Scheme approval of I to IV Semester (2016-18) b) Syllabus approval of I/II Semester (2016-18)	
2.6	Vision, Mission, POs and PSOs of School of CSE	
2.7	Any other matter for discussion with the permission of the Chair	

REGISTRAR
KLE Technological University
HUBBALLI-580 031

BoS 2.1	**To welcome the BoS Members and present department achievements & initiatives and discussed about the inputs from all stake holders. *(Annexure 2.1)***

Resolution 2.1: The BoS members appreciated the initiatives of SoCSE and lauded its achievements.

BoS 2.2 **To read and confirm the minutes of 1st BoS meeting held on 11th July 2015**

The following are the minutes of the Board of Studies meeting of SoCSE, KLE Technological University, Hubballi which was held on 11th July 2015 at 10:30 am at Clite board room of the University.

The following members were present.

#	Name	Designation	Position
1.	Dr. Meena S. M.	Professor & Head of the School/ Department	Chairman
2.	Prof. K.R. Biradar	Professor , Dean's nominee	Member
3.	Dr. G. H. Joshi	Professor , Dean's nominee	Member
4.	Dr. Vishwanath P Baligar	Professor Dean's nominee	Member
5.	Dr. S.G. Totad	Professor Dean's nominee	Member
6.	Mr. Narayan D. G.	Associate Professor Dean's nominee	Member
7.	Dr. Uday Wali	Subject expert from outside the college nominated by the Vice-Chancellor	Member
8.	Dr. Pradeep V. Desai	Representative from industry corporate sector/ allied area relating to placement nominated by the Vice-Chancellor	Member

The following members have sought leave of absence:

Sl No	Name	Designation	Position
1.	Mr. Shashikumar G.	Representative from industry corporate sector/ allied area relating to placement nominated by the Vice-Chancellor	Member
2.	Mr. Saurav Mishra	Representative from industry corporate sector/ allied area relating to placement nominated by the Vice-Chancellor	Member

BoS 1.1 To welcome the members of BoS

Resolution 1.1: The BoS members appreciated the work done towards recognition of KLE Technological University as a State private University effective from 2015.

BoS 1.2 To consider the Schemes and Syllabi of the undergraduate program B.E in Computer Science and approve the same.

a) Scheme approval of I to VIII Semester (2015-19) subject to modifications
b) Syllabus approval of I/II semester, Programming in C course (2015-19)

Discussion: Based on the discussions following action items as agreed upon by BoS members were finalized and the same were circulated to all the members on 11th July 2015. Persons responsible for these action items have already initiated the actions, which will be shared in the next BoS meeting.

Action Item No.1: Strengthen the verticals by identifying appropriate core courses for the UG program B.E.-CSE

Action Item No.2: Identify industry specific electives for the UG program B.E.-CSE

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KLE Technological University
HUBBALLI-580 031

	Action Item No.3: Identify industry experts for co-design and co-delivery of the identified courses. **Resolution 1.2: Resolved to approve the Schemes and Syllabi of the undergraduate program B.E in Computer Science:** a) Scheme approval of I to VIII Semester (2015-19) subject to modifications b) Syllabus approval of I/II semester, Programming in C course (2015-19)
BoS 1.3	To consider the Schemes and Syllabi of the postgraduate program in CSE and approve the same. a) Scheme approval of I to IV Semester (2015-17) b) Syllabus approval of I and IV Semester (2015-17) **Discussion:** Based on the discussions following action items as agreed upon by everyone were finalized and the same were circulated to all the members on 11th July 2015. Persons responsible for these action items have already initiated the actions, which will be shared in the next BoS meeting. ***Action Item No.4: Identify industries in focus areas.*** ***Action Item No.5: Identify industries for Internships.*** **Resolution 1.3: Resolved to approve the Schemes and Syllabi of the postgraduate program in CSE:** **a) Scheme approval of I to IV Semester (2015-17)** **b) Syllabus approval of I and IV Semester (2015-17)**
BoS 1.4	Approval of change of Vision, Mission, POs and PSOs of School of CSE **Resolution 1.4: Resolved to approve the Vision, Mission, POs and PSOs of School of CSE:**
BoS 1.5	Any other subject with the permission of the Chair Nil.

Resolution 2.2: Resolved to confirm the minutes of its 1st BoS meeting held on 11th July 2015

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KLE Technological University
HUBBALLI-580 031

BoS 2.3	**To confirm the action taken report on the minutes of the previous meeting held on 11th July 2015**	
Item No	**Description**	**Action Taken**
BoS 1.1	To welcome the members of BoS **Resolution 1.1:** The BoS members appreciated the work done towards recognition of KLE Technological University as a State Private University with effective from 2015.	Noted
BoS 1.2	To consider the Schemes and Syllabi of the undergraduate program B.E in Computer Science and Engineering and approve the same. a) Scheme approval of I to VIII Semester (2015-19) subject to modifications b) Syllabus approval of I/II semester, Programming in C course(2015-19) **Discussion**: Based on the discussions following action items as agreed upon by everyone were finalized and the same were circulated to all the members on 11th July 2015. Persons responsible for these action items have already initiated the actions, which will be shared in the next BoS meeting. ***Action Item No.1: Strengthen the verticals by identifying appropriate core courses for the for the UG program B.E.-CSE*** ***Action Item No.2: Identify industry specific electives for the for the UG program B.E.-CSE*** ***Action Item No.3: Identify industry experts for co-design and co-delivery of the identified courses.*** **Resolution 1.2: Resolved to approve the Schemes and Syllabi of the undergraduate program B.E in Computer Science and Engineering:** **a) Scheme approval of I to VIII Semester (2015-19) subject to modifications** **b) Syllabus approval of I/II semester, Programming in C course(2015-19)**	**The BoS members noted the progress of the School and recommended certain action items and timeline.** ***Action Item No.1: Strengthen the verticals by identifying appropriate core courses for the for the UG program B.E.-CSE*** *ATR: Identified the core courses for the 3 verticals and will present during next BoS.* ***Action Item No.2: Identify industry specific electives for the for the UG program B.E.-CSE*** *ATR: Identified the industry specific electives and will present during next BoS.* ***Action Item No.3: Identify industry experts for co-design and co-delivery of the identified courses.*** *ATR: Discussion with industries from Juniper, Microsoft, Infosys BOSCH and other industries for co-design and delivery of the courses is identified as per Action Item No. 2.*
BoS 1.3	To consider the Schemes and Syllabi of the postgraduate program and approve the same. a) Scheme approval of I to IV Semester (2015-17) b) Syllabus approval of I and IV Semester (2015-17) **Discussion:** Based on the discussions following action items as agreed upon by everyone were finalized and the same were circulated to all the members on 11th July 2015. Persons responsible for these action items have already initiated the actions, which will be shared in the next BoS meeting. ***Action Item No.4: Identify industries in focus areas.*** ***Action Item No.5: Identify industries for Internships.*** **Resolution 1.3: Resolved to approve the Schemes and Syllabi of the postgraduate program in CSE:** **a) Scheme approval of I to IV Semester (2015-17)** **b) Syllabus approval of I and IV Semester (2015-17)**	**The BoS members noted the progress of the School and recommended certain action items and timeline.** ***Action Item No.4: Identify industries in focus areas.*** *ATR: Discussion with industries from Infosys, KPIT, Continental, and other industries.* ***Action Item No.5: Identify industries for Internships.*** *ATR: Identified about 10 industries, and discussions are at initial stage.*
BoS 1.4	Approval of change of Vision, Mission, POs and PSOs of School of CSE **Resolution 1.5: Resolved to approve the Vision, Mission, POs and PSOs of School of CSE:**	SoCSE staff aligned to Vision, Mission, POs and PSOs
BoS 1.5	Any other subject with the permission of the Chair Nil.	

Resolution: 2.3 Resolved to confirm the action taken report on the minutes of its 1st BoS meeting held on 11th July 2015. The BoS members appreciated the new initiatives taken by SoCSE.

REGISTRAR
KLE Technological University
HUBBALLI-580 031

BoS 2.4	To consider the Schemes and Syllabi of the undergraduate program B.E in Computer Science and approve the same. a) Scheme approval of I to VIII Semester (2016-20) b) Syllabus approval of I / II Semester, Programming in C course (2016-20) c) Ratification of Scheme of III to VIII Semester (2015-19) d) Syllabus approval of III / IV Semester (2015-19) e) Approval of Minor Program in CSE
	Discussion: Based on the discussions following action, items as agreed upon by everyone were finalized and the same were circulated to all the members on 02nd April 2016. Persons responsible for these action items have already initiated the actions, which will be shared the next BoS meeting. The details of discussion are in ***Annexure 2.4***. ***Action Item No.1: Suggested to adopt Unix System Programming to implement the OS concepts*** 1) OS (17ECSC203) ***Action Item No.2: Mathematics courses to be co-related with real time engineering examples*** 1) Applied Statistics(15EMAB209) ***Action Item No.3: Enhancing of Programming and algorithmic analysis Skill :*** 1) Data structures and algorithms (17ECSC204) 2) Algorithmic Problem Solving (17ECSE309) ***Action Item No.4: Skill improvement to inculcate implementing change in the requirements during project implementation.*** 1) Mini Project (15ECSW301) ***Action Item No.5: Students need to work on open source project and contribute to GitHub*** 1) Machine Learning (17ECSC306) ***Action Item No.6: PL/SQL and DB security concepts need to be introduced in DBMS course*** 1) DBMS (15ECSC208) ***Action Item No.7: The course contents needs to be relevant with current knowledge and practices in the industry like DCC.*** 1) CN (15ECSP302) 2) DCC (17ECSC305) ***Action Item No.8: Identify the courses for Minor Degree Program for other branches***. 1) Data Structures and Algorithms 2) OOP with Python

Resolution 2.4: Resolved to approve the Schemes and Syllabi of the undergraduate program B.E in Computer Science and approve the same.

a) **Scheme approval of I to VIII Semester (2016-20)**
b) **Syllabus approval of I / II Semester, Programming in C course (2016-20)**
c) **Ratification of Scheme of III to VIII Semester (2015-19)**
d) **Syllabus approval of III / IV Semester (2015-19)**
e) **Approval of Minor Program in CSE**

BoS 2.5	To consider the Schemes and Syllabi of the postgraduate program in CSE. a) Scheme approval of I to IV Semester (2016-18) b) Syllabus approval of I to IV Semester (2016-18)
	Discussion: Based on the discussions following action, items as agreed upon by everyone were finalized and the same were circulated to all the members on 02nd April 2016. Persons responsible for these action items have already initiated the actions, which will be shared in the next BoS meeting. The details of discussion are in ***Annexure 2.5***. ***Action Item No.8: As per the directions given by the Members of the BoS, the following New Courses are added for the 2016-18 batch. Importance was given to Compiler Design, Network Security, Clouding Computing, Software Testing, Graphics, Parallel Computing, Internet of Things, image and Video Processing and Wireless Networks. Also hands on experience was given through Software Testing Lab and Distributed and Cloud Computing Lab.*** 1. Compiler Design 16ECSE705

REGISTRAR
KLE Technological University
HUBBALLI-580 031

	2. Cryptography and Network Security 16ECSE707 3. Distributed and Cloud Computing 16ECSC711 4. Computer Networks 16ECSC712 5. Software Testing 16ECSC713 6. Computer Graphics 16ECSE714 7. Applied Parallel Computing 16ECSE715 8. Internet Of Things 16ECSE716 9. Software Testing Lab 16ECSP717 10. Distributed and Cloud Computing Lab 16ECSP718 11. Data Mining and Business Analytics 16ECSC801 12. Image and Video Processing 16ECSE803 13. Wireless Networks 16ECSE804

Resolution 2.5: Resolved to approve the Schemes and Syllabi of the postgraduate program subject to implementation of action points listed above:

a) **Scheme approval of I to IV Semester (2016-18)**
b) **Syllabus approval of I to IV Semester (2016-18)**

BoS 2.7	Question Paper review
	Discussion: The Question Paper along with assessment patterns with respect to Bloom's Levels and PO-PSO-PI mapping was presented.

Resolution 2.7: Resolved to approve the Question Paper Pattern

BoS 2.8	Vision, Mission, POs and PSOs of School of CSE
	Discussion: The Vision, Mission, POs and PSOs of School of CSE were presented.

Resolution 2.8: Resolved to approve the Vision, Mission, POs and PSOs of School of CSE

BoS 2.9	Any other matter for discussion with the permission of the chair
	Nil

The Chairperson thanked all the members for the fantastic contributions

Dr. Meena S.M.

Chairperson, BoS, SoCSE

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KLE Technological University
HUBBALLI-580 031

Annexure 2.1
Discussion Item

Feedback from Employee

1. Students need to understand practical application of concepts and more hands on required.
2. Enhancement and depth of programming skills.
3. Knowledge of problem solving approaches and alternate solutions.
4. The project quality and depth to be improved.
5. Skill improvement to inculcate implementing change in the requirements during project implementation.
6. Students need to work on open source project and contribute to GitHub.

Course Feedback:

1. The course contents needs to be relevant with current knowledge and practices in the industry like DCC.
2. Theoretical courses like DMS, OS need to be connected with real time examples.

Feedback from Faculty --- Pre BoS MOM

1. Hands on experience needed to understand architecture concepts and software design cycles in projects.
2. Students need to enhance problem solving abilities and hence tutorials need to be introduced.
3. PL/SQL and DB security concepts need to be introduced in DBMS course

Feedback from Alumni:

1. Exposure to recent technologies of industry like AI and ML.
2. Work on real time problems for projects.
3. Exposure to use of fundamentals of mathematics to computer science applications.

Feedback for PG

1	Observations/ Recommendations based on feedback

Feedback from Employee

1. List of Laboratories to be revised and importance is to be given to the latest technologies also hands on experience should be given lot of importance.
2. Project work and minor projects should be chosen based on the latest technology and the students should be made to work on research oriented projects.
3. Depth of the knowledge gained by PG Students should be more compared to UG Students.
4. The students should be made to publish papers in International Journals and conferences.
5. Fundamentals to be strengthened.

Feedback from Alumni:

1. The students should be Exposure to the latest technologies.
2. The students should be sent to industry to do Project Work.
3. If the students are doing fourth semester project at the university, they must choose a research oriented projects.
4. Work on real time research oriented projects.

Feedback from Faculty --- Pre BoS MOM

1. List of electives to be revised.
2. Project work and minor projects should be chosen based on the latest technology and the students should be made to work on research oriented projects.

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KLE Technological University
HUBBALLI-580 031

3. The students should be made to publish papers in an International Journals and conferences.
4. Compiler Design, Cryptography and network security, Image and video processing and wireless networks courses to be given importance and to be either core or electives.

Course Feedback:

3. The courses like Compiler Design, Cryptography and network security, Image and video processing and wireless networks to be includes in the curriculum.
4. Data Mining along with Analytics to be to be added as an elective / core course as the industry trend is moving towards Business Analytics.
5. As the Software Testing is getting more importance in the industry, a course on Software Testing to be included.
6. Internet of Things, Parallel Processing, Distributed and Cloud Computing to be given priority.
7. Computer Graphics to be included in the list of electives.

Annexure 2.4	
Discussion Item	
Actions taken: Based on the feedback from stakeholders, employers, faculty, alumni and students the following actions are initiated.	**Course Revised/ Added**
	Courses Revised:
Tutorial is introduced for DAA (17ECSC204) course with emphasis on analysis of the algorithms.	Data structures and algorithms (17ECSC204)
The contents of Applied Statistics (15EMAB209) are redesigned with supporting lab tutorials.	Applied Statistics(15EMAB209)
In DBMS (15ECSC208), Course Projects are introduced to apply ER model and normalization principles on real life problems. Presentation of the course project as well as report writing is carried out in DBA Lab course.	DBMS (15ECSC208)
CN lab (15ECSP302) is redesigned with focus towards structured enquiry and open ended problem statements for analysis of algorithms and protocols.	CN (15ECSP302)
Co-teaching of course Operating Systems (17ECSC203) by industry experts to provide practical industrial perspective to the theoretical concepts.	OS (17ECSC203)
COA Lab course (18ECSP202) is introduced with experiments and to comprehend design principles of components of computer systems.	COA (18ECSP202)
1. An elective course Algorithmic problem solving (17ECSE309) is introduced to enhance Problem solving and programming skills. 2. The Algorithmic Problem Solving course is introduced in collaboration with Samsung. It is an elective open to all departments (intake through entrance test). 3. The course is run on HackerRank / CodeChef platforms, which enables the students in building competitive programming skills.	APS (17ECSE309)
1. Blue print methodology which involves brain storming, iterative hand drawn designs, design evaluations and implementation is introduced. 2. Mini project is focused on software design life cycle (SDLC) is introduced.	Mini Project (15ECSW301)
	Courses Introduced:
1. In machine learning course, tutorial problems are taken from Kaggle and Stanford university websites. 2. Co-teaching of course Machine learning (17ECSC306) by industry experts to provide practical industrial perspective to the theoretical concepts.	ML (17ECSC306)

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HUBBALLI-580 031

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DCC course is introduced as a course subjects to enable students for employment opportunities in the area of cloud computing	DCC (17ECSC305)

Annexure 2.5	
Discussion Item	
Actions taken: Based on the feedback from stakeholders, employers, faculty, alumni and students the following actions are initiated.	**Course Revised/ Added**
Compiler Design 16ECSE705 is introduced as an elective course in the First Semester to explore the design concepts.	Compiler Design 16ECSE705
Cryptography and Network Security 16ECSE707 is introduced as an elective course in the First Semester as it is getting more importance in the industry.	Cryptography and Network Security 16ECSE707
Distributed and Cloud Computing 16ECSC711 is introduced as the Cloud Computing is getting more and more importance in the industry.	Distributed and Cloud Computing 16ECSC711
Computer Networks 16ECSC712 is introduced to strengthen the basics of computer networks and to gain the in depth knowledge of about the Computer Networks.	Computer Networks 16ECSC712
Software Testing 16ECSC713 is introduced as lot of jobs are created in the field of Software Testing. Also corresponding lab is introduced to explore the hands on experience.	Software Testing 16ECSC713
Computer Graphics 16ECSE714 is introduced as an elective to explore the possibilities of GUI Design for applications and animations.	Computer Graphics 16ECSE714
Applied Parallel Computing 16ECSE715 is introduced to explore the parallel Computing Also a High Performance Computing is getting more and more importance to reduce the execution time and to execute many applications faster.	Applied Parallel Computing 16ECSE715
Internet Of Things 16ECSE716 is introduced as an elective. The industry is moving towards IoT applications. Also many industries are going for Industry 4.0 in which IoT plays an important role. The students are exposed to Sensors, Actuators and Cloud so as to adopt to the new Technologies.	Internet Of Things 16ECSE716
Software Testing Lab 16ECSP717 is introduced as a part of Software Testing Course where the students are able to explore both theory and hands on of Software Testing.	Software Testing Lab 16ECSP717
Distributed and Cloud Computing Lab 16ECSP718 is introduced to strengthen the course on Distributed and Cloud Computing. Network, IoT and Cloud Computing are integrated in the design of the structure so as to impart the knowledge about the latest Technologies and to increase the possibilities of placement for the students.	Distributed and Cloud Computing Lab 16ECSP718
Data Mining and Business Analytics 16ECSC801 is introduced as a core course in the third semester. To improve the analytical skills of the students. Also Job opportunities are increasing in the area of Data Mining and Business Analytics.	Data Mining and Business Analytics 16ECSC801
Image and Video Processing 16ECSE803 is introduced as an elective course as lot of research work is going on in this area. Many companies not only the software companies are making use of the image and video processing for automation, reduce the man power for production and so on. Also AI and ML algorithms are used to develop many applications using image and video processing.	Image and Video Processing 16ECSE803
Wireless Networks 16ECSE804 is introduced to impart an in depth knowledge about wireless networks. Also Wireless Networks are getting more and more importance in the industry. Also more jobs are available if	Wireless Networks 16ECSE804

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the student is having good depth of the wireless networks.	

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