SRI MANAKULA VINAYAGAR ENGINEERING COLLEGE
(An Autonomous Institution)
(Approved by AICTE, New Delhi & Affiliated to Pondicherry University)
(Accredited by NBA-AICTE, New Delhi, ISO 9001:2000 Certified Institution &
Accredited by NAAC with "A" Grade)
Madagadipet, Puducherry - 605 107

Department of Information Technology

MINUTES OF THIRD BOS MEETING

Venue

Seminar Hall, Department of IT
Sri Manakula Vinayagar Engineering College
Madagadipet, Puducherry – 605 107

Date &Time

18.8.21 & 10 A.M.

Department of Information Technology

Minutes of Board of Studies

The Third Board of Studies meeting for B.Tech Programme of Department of Information Technology was held on 18th August 2021 from 10:00 A.M to 12:30 P.M in the Seminar Hall, Department of IT with the Head of the Department as the Chair.

The following members were present for the BoS meeting.

Sl.No	Name of the Member with Designation and official Address	Members as Per University norms
1	**Dr. R. Raju, M.Tech, Ph.D** Professor & Head Department of IT, SMVEC	Chairman
2	**Dr. R. Geetha Ramani, M.Tech, Ph.D** Professor, Department of Information Science and Technology, College of Engineering Guindy, Anna University, Chennai	Subject Expert (University Nominee)
3	**Dr. A.S. Anakath, M.E, Ph.D** Professor, Department of IT, E.G.S. Pillay Engineering College, Nagapattinam	Subject Expert (Academic Council Nominee)
4	**Dr. S. Padmavathi, M.E, Ph.D** Professor, Department of IT, Thiagarajar College of Engg., Madurai	Subject Expert (Academic Council Nominee)
5	**Mr. L. Ashok** CEO - Futurenet Technologies (India) Private Limited, Chennai.	Representative from Industry
6	**Dr. G. Arun Kumar** Associate Professor, Department of CSE, Mandanapalli Institute of Technology and Science, Andhara Pradesh	Post Graduate Alumnus (nominated by Principal)
7	**Dr. C. Punitha Devi, M.Tech, Ph.D** Professor Department of IT, SMVEC.	Internal Member
8	**Dr. S. Geetha, M.Tech, Ph.D** Associate Professor Department of IT, SMVEC	Internal Member
9	**Dr. S. Balaji, M.Tech, Ph.D** Associate Professor Department of IT, SMVEC	Internal Member

10	**Dr.N.S.N. Cailassame** Professor& Head, Department of Management Studies, SMVEC	Internal Member
11	**Dr. K. Karthikeyan** Associate Professor , Department. of Chemistry, SMVEC	Internal Member
12	**Prof. M. Devanathan** Assistant Professor, Department of Mathematics, SMVEC	Internal Member
13	**Prof. G. Namitha** Assistant Professor, Department of English, SMVEC	Internal Member
14	**Prof. C. Bhavani** Assistant Professor , Department. of Physics, SMVEC	Internal Member

Agenda of the Meeting

1) Welcome Address, Confirmation of minutes of the second BoS meeting held on 8.4.2021.
2) Briefing the Achievements of Academic year 2020-21
3) To discuss, approve and recommend the syllabi for VII and VIII Semesters under R2019 regulations for UG Programme: B.Tech. Information Technology
4) To appraise and approve the modifications in Mandatory and Skill development courses for students admitted in 2021
5) To appraise the Extracurricular Activities - Technical Events and Internships
6) To appraise the conduction of End Semester Examination through blended mode.
7) To appraise and discuss the Strategic plan of the department for next five years
8) To discuss and approve the Foundation Course to be offered for Future IT Graduates
9) Any other item with the permission of chair

Minutes of the Meeting

Dr. R. Raju, Chairman, BoS / B.Tech Information Technology officially announced the opening of the meeting and welcomed the members. He also thanked them for accepting the invitation. The meeting thereafter deliberated on agenda items that had been approved by the Chairman.

BOS/2021/IT/UG/3.1	**Welcome Address & Confirmation of minutes of the second BoS meeting held on 8.4.2021**
	• The Second BoS was held on 8.4.21 and the points discussed were reviewed and confirmed by the members. • The Curriculum of Regulation 2019 and Regulation 2020 were revised as per members' suggestions, the same was approved by the academic council and confirmed by the BoS members.
BOS/2021/IT/UG/3.2	**Briefing the Achievements of Academic year 2020-2021**
	The Board of Studies Chairman briefed the achievements of the faculty and students of the Department in the Academic Year 2020-2021 and the members appreciate the department achievements.

BOS/2021/IT/UG/3.3	**To discuss, approve and recommend the syllabi for VII and VIII Semesters under R2019 regulations for UG Programme: B.Tech. Information Technology**

The following suggestions are recommended by the BoS members to the Academic Council regarding the syllabi for VII and VIII Semesters under R2019 regulations for UG Programme.

Sl. No	Regulation	Sem	Subject Name with Code	Unit	Particulars
1	R-2019	VII	U19ITT72/ Data Science and Anaytics	I, II, III	The topic Role of Big data in data science to be included in Unit 1. Swap Unit 2 to 3 and vice versa to maintain the flow in the course.
2	R-2019	VII	U19ITP72/ Cloud Computing Laboratory	Lab	Change the Knowledge Level of Course Outcome 5. Rephrase the first lab exercise. Can include exercises related to Open Source platforms like Eucalyptus, OpenStack, etc An exercise on private cloud configuration can be included. The last exercise can be a case study on Cloud Computing in Social Network.
3	R-2019	VII	U19ITP73/ Data Science Laboratory	Lab	Provide Generic Use cases For exercise 5, do not specify dataset directly, it should be generic. For exercise 8, do not specify csv file since the file format will be of that type only. Make exercise 11 as implementation of bagging and boosting techniques.
4	R-2019	VII	U19ITE71/ Machine Learning	V	Case Studies and Mini Projects can be included in the syllabus.

	5	R-2019	VII	U19ITE73/ Robotic Process Automation	-	UI Path being a specific tool shall be changed to a generic study of various tools and applications. Compare the syllabus of this course with the same in Mechanical Engineering department to find rooms for improvement.
	6	R-2019	VII	U19ITP71/ Business Basics for Entrepreneurs	-	Make the number of course outcomes as minimum 5 to maintain uniformity in the curriculum. The outcomes need not to be unit specific. Case studies of successful entrepreneurs shall be included and may be delivered as seminar or submitted as assignment.
	7	R-2019	VIII	U19ITP81/ Entrepreneurship Management	V	Business Model Canvas tool can be included. Design Thinking workshops can be incorporated for this course to get an edge over the concept of entrepreneurship.

The general suggestions towards the syllabi are

- Use appropriate Bloom's Taxonomy verbs while framing outcomes.
- Ensure the correctness of CO-PO Mapping and the Knowledge levels of each outcome throughout the syllabi of all courses.
- Web References alone can be present in Lab Syllabus
- Text and Reference Books shall be mentioned in the lab Manual

The recommended suggestions were updated in the syllabi and was approved by the BoS members.

However the suggestions towards U19ITP71- Business Basics for Entrepreneurs and U19ITP81-Entrepreneurship Management were submitted to the Department of Management Studies for consideration and further action thereafter. **(Annexure I)**

BOS/2021/IT/UG/3.4	**To appraise and approve the modifications in Mandatory and Skill development courses for students admitted in 2021**
	The BoS Members approved and recommended the reviewed list of skill development courses for the students admitted in 2020 and

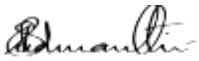
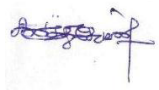
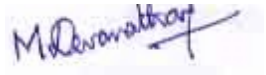
	following the R2020 regulations, curriculum and syllabi**. (Annexure II)**
BOS/2021/IT/UG/3.5	**To appraise the Extracurricular Activities - Technical Events and Internships**
	The BoS members approved and recommended the list of activities in the years of 2021 and 2022 leading to internships offers. Newer Opportunities for the Students towards internships and Placement **BATCH 2023** • ZINGLIN - Apply Now (2022 & 2023 Batch) • TENHARD- Internship Opportunity (2023 Batch) **BATCH 2022** • Flipkart (Internship) - For 2021 & 2022 Batch • INDIAN NAVY - RECRUITMENT OPPORTUNITY • EDCIL - Internship Opportunity COGNIZANT • Leader Connect • Out Systems - App Development Workshop • VE Commercial - Internship Opportunity (2022 Batch) • CISCO - Resonance • VERITAS Webinar • FINASTRA HACKATHON 2020
BOS/2021/IT/UG/3.6	**To Appraise the conduction of End Semester Examination through blended mode**
	The BoS members approved the conduction of examination in the blended mode and appreciated the initiative for conduction of online proctored examination.
BOS/2021/IT/UG/3.7	**To appraise and discuss the Strategic plan of the department for next five years**
	The BoS members recommended to approve the strategic plan of the department designed with respect to next five years with the following suggestions • SWOC analysis of the department has to be included in the strategic plan immediately after the Vision and the Mission statements. • In the focal point Research & Innovation, initiatives related to consultancy work shall be included. • Steps can be taken for the establishment of domain specific Center of Excellence that aligns with the thrust areas of research in the department. The suggestions were included in the strategic plan and submitted to academic council for approval. **(Annexure III)**
BOS/2021/IT/UG/3.8	**To discuss and approve the Foundation Course to be offered for Future IT Graduates**

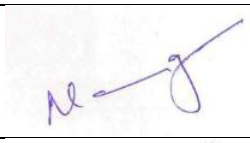
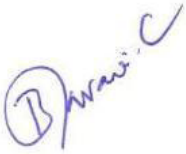
	The Bos Memebers recommended to approve the Foundation Course to be offered for Future IT Graduates with the following suggestions carried out in it.
	• Fundamental Mathematics and Windows Operating Environment could be separated and renamed as two topics
	  o Mathematical Foundations for IT and
	  o Operating Systems and Environment
	The suggestions were incorporated in the syllabus and the topics were rearranged for better understanding. **(Annexure IV)**

BOS/2021/IT/UG/3.9	**Any other item**
	• At the outset the curriculum and Syllabi fulfilled the expectations of the BoS members • Experts suggested to keep the number of course objectives and course outcomes to be uniform (probably five) irrespective of number of units or credits. • The members suggested that the lab experiments may be specified in general without specifying a tool or list of tools may be suggested. • The higher order knowledge levels may be included in the courses pertaining to higher semesters in order to show attainment of all POs while completion of the program. • Industry expert suggested to consider real time examples and case studies wherever necessary in the syllabi • Text and Reference Books may not be specified in Lab Syllabus, if needed it could be included in the Lab Manual • The Publication of the major project work need not be made mandatory for UG

The meeting for the above Agenda regarding B.Tech – Information Technology was concluded by 12:30 pm with Vote of Thanks by **Dr. R.Raju**, Chairman-BOS and Head of Department, Department of Information Technology, Sri Manakula Vinayagar Engineering College.

Members Present:

Sl.No	Name of the Member with Designation and official Address	Responsibility in the BoS	Signature
1	**Dr. R. Raju, M.Tech, Ph.D** Professor & Head Department of IT, SMVEC	Chairman	
External Members			
2	**Dr. R. Geetha Ramani, M.Tech, Ph.D** Professor, Department of Information Science and Technology, College of Engineering Guindy, Anna University, Chennai	Subject Expert	
3	**Dr. A.S. Anakath, M.E, Ph.D** Professor, Department of IT, E.G.S. Pillay Engineering College, Nagapattinam	Subject Expert	
4	**Dr. S. Padmavathi, M.E, Ph.D** Professor, Department of IT, Thiagarajar College of Engg., Madurai	Subject Expert	
5	**Mr. L. Ashok** CEO - Futurenet Technologies (India) Private Limited, Chennai.	Member from Industry	
6	**Dr. G. Arun Kumar** Associate Professor, Department of CSE, Mandanapalli Institute of Technology and Science, Andhara Pradesh	Member from Meritorious Alumni	
Internal Members			
7	**Dr. C. Punitha Devi, M.Tech, Ph.D** Professor Department of IT, SMVEC.	Member	
8	**Dr. S. Geetha, M.Tech, Ph.D** Associate Professor Department of IT, SMVEC	Member	
9	**Dr. S. Balaji, M.Tech, Ph.D** Associate Professor Department of IT, SMVEC	Member	
Co-opted Members			
10	**Dr.N.S.N. Cailassame** Professor& Head, Department of Management Studies, SMVEC	Member	
11	**Dr. K. Karthikeyan** Associate Professor , Department. of Chemistry, SMVEC	Member	
12	**Prof. M. Devanathan** Assistant Professor, Department of Mathematics, SMVEC	Member	

13	**Prof. G. Namitha** Assistant Professor, Department of English, SMVEC	Member	
14	**Prof. C. Bhavani** Assistant Professor , Department. of Physics, SMVEC	Member	

Chairman- BoS (IT)

(Dr. R. Raju)

Department of Information Technology
Minutes of Board of Studies

The Board of Studies Third meeting for M.Tech and Ph.D Programmes Department of Information Technology was held on 18th August 2021 from 12:30 P.M to 1:30 P.M in the Seminar Hall, Department of IT with the Head of the Department as the Chair.
The following members were present for the BoS meeting.

Sl.No	Name of the Member with Designation and official Address	Members as Per University norms
1	**Dr. R. Raju, M.Tech, Ph.D** Professor & Head Department of IT, SMVEC	Chairman
2	**Dr. R. Geetha Ramani, M.Tech, Ph.D** Professor, Department of Information Science and Technology, College of Engineering Guindy, Anna University, Chennai	Subject Expert (University Nominee)
3	**Dr. A.S. Anakath, M.E, Ph.D** Professor, Department of IT, E.G.S. Pillay Engineering College, Nagapattinam	Subject Expert (Academic Council Nominee)
4	**Dr. S. Padmavathi, M.E, Ph.D** Professor, Department of IT, Thiagarajar College of Engg., Madurai	Subject Expert (Academic Council Nominee)
5	**Mr. L. Ashok** CEO - Futurenet Technologies (India) Private Limited, Chennai.	Representative from Industry
6	**Dr. G. Arun Kumar** Associate Professor, Department of CSE, Mandanapalli Institute of Technology and Science, Andhara Pradesh	Post Graduate Alumnus (nominated by Principal)
7	**Dr. C. Punitha Devi, M.Tech, Ph.D** Professor Department of IT, SMVEC.	Internal Member
8	**Dr. S. Geetha, M.Tech, Ph.D** Associate Professor Department of IT, SMVEC	Internal Member
9	**Dr. S. Balaji, M.Tech, Ph.D** Associate Professor Department of IT, SMVEC	Internal Member
10	**Dr.N.S.N. Cailassame** Professor& Head, Department of Management Studies, SMVEC	Internal Member
11	**Dr. K. Karthikeyan** Associate Professor , Department. of Chemistry, SMVEC	Internal Member

12	**Prof. M. Devanathan** Assistant Professor, Department of Mathematics, SMVEC	Internal Member
13	**Prof. G. Namitha** Assistant Professor, Department of English, SMVEC	Internal Member
14	**Prof. C. Bhavani** Assistant Professor , Department. of Physics, SMVEC	Internal Member

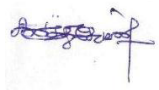
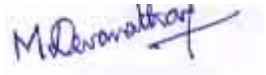
Agenda of the Meeting
1) Welcome Address, Confirmation of minutes of the second BoS meeting held on 8.4.2021. 2) Review of the R2020 Curriculum and Syllabi for the students admitted in 2021-2022 3) Review of the Value added and Skill Development courses for the students admitted in 2021-22 4) To discuss and approve the a. Ph.D. admission criteria b. Course work structure and c. To appraise the list of Research Supervisors 5) Conduct of examination in blended mode 6) Any other item with the permission of chair
Minutes of the Meeting
Dr. R. Raju, Chairman, BoS / B.Tech Information Technology officially announced the opening of the meeting and welcomed the members. He also thanked them for accepting the invitation and giving us their valuable time. The meeting thereafter deliberated on agenda items that had been approved by the Chairman.

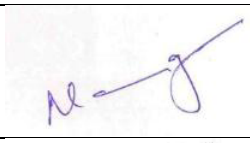
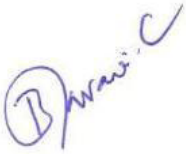
BOS/2021/IT/PG/3.1	**Welcome Address & Confirmation of minutes of the second BoS meeting held on 8.4.2021**
	The Second BoS was held on 8.4.21 and the points discussed were reviewed by the members. • The Curriculum and Syllabi of R2020 Semester III and IV was recommended and approved • The evaluation system and the results were appreciated by the members • For Ph.D, the Course work credits and the number of courses both mandatory and electives was discussed and approved The minutes was approved by the academic council and confirmed by the BoS members.
BOS/2021/IT/PG/3.2	**To Review of the R2020 Curriculum and Syllabi for the students admitted since 2020**
	The curriculum and syllabi following the Regulations 2020 was approved as such without any changes for students admitted since 2020
BOS/2021/IT/PG/3.3	**To review the Skill development courses for students admitted in 2021**
	The BoS Members approved and recommended the value added and skill development courses without any changes for the students

	admitted in 2021 and following the R2020 regulations, curriculum and syllabi**.**
BOS/2021/IT/PG/3.4	**To discuss and approve the** • **Ph.D. admission criteria** • **Course work structure and** • **To appraise the list of Research Supervisors**
	The BoS members recommended to approve the Ph.D Regulations based on UGC Ph.D Guidelines with the following suggestions • Admission Eligibility To adopt Pondicherry University norms for the following o List of PG programmes eligible for admission into Ph.D – IT to be adopted from Ph.D CSE o Eligibility criteria for candidates with industry experience • Course work structure o Approved Research Methodology and publication ethics to be mandatory course for all scholars o One Subject specific elective course shall be one of the courses offered in the PG courses/ NPTEL/ MOOC not studied in either UG or PG course of study, with the approval of the Guide and DC Members • The list of supervisors and the viability of the applied for supervisorship was recommended for approval by the academic council. The above said points were taken into consideration and submitted to Dean – R & D, SMVEC for further action and approval.
BOS/2021/IT/PG/3.5	**To Appraise the conduction of End Semester Examination through blended mode**
	The BoS members approved the conduction of examination in the blended mode and appreciated the initiative for conduction of online proctored examination.
BOS/2021/IT/PG/3.6	**Any other item**
	• At the outset the curriculum and Syllabi fulfilled the expectations of the BoS members • The higher order knowledge levels may be included in the courses pertaining to higher semesters in order to show attainment of all POs while completion of the program. • Industry expert suggested to consider real time examples and case studies wherever necessary in the syllabi • Text and Reference Books may not be specified in Lab Syllabus, if needed it could be included in the Lab Manual

The meeting for the above Agenda regarding M.Tech – Networking and Ph.D Inofrmation Technology was concluded by 1:30 pm with Vote of Thanks by **Dr. R.Raju**, Chairman-BOS and Head of Department, Department of Information Technology, Sri Manakula Vinayagar Engineering College.

Members Present:

Sl.No	Name of the Member with Designation and official Address	Responsibility in the BoS	Signature
1	**Dr. R. Raju, M.Tech, Ph.D** Professor & Head Department of IT, SMVEC	Chairman	
External Members			
2	**Dr. R. Geetha Ramani, M.Tech, Ph.D** Professor, Department of Information Science and Technology, College of Engineering Guindy, Anna University, Chennai	Subject Expert	
3	**Dr. A.S. Anakath, M.E, Ph.D** Professor, Department of IT, E.G.S. Pillay Engineering College, Nagapattinam	Subject Expert	
4	**Dr. S. Padmavathi, M.E, Ph.D** Professor, Department of IT, Thiagarajar College of Engg., Madurai	Subject Expert	
5	**Mr. L. Ashok** CEO - Futurenet Technologies (India) Private Limited, Chennai.	Member from Industry	
6	**Dr. G. Arun Kumar** Associate Professor, Department of CSE, Mandanapalli Institute of Technology and Science, Andhara Pradesh	Member from Meritorious Alumni	
Internal Members			
7	**Dr. C. Punitha Devi, M.Tech, Ph.D** Professor Department of IT, SMVEC.	Member	
8	**Dr. S. Geetha, M.Tech, Ph.D** Associate Professor Department of IT, SMVEC	Member	
9	**Dr. S. Balaji, M.Tech, Ph.D** Associate Professor Department of IT, SMVEC	Member	
Co-opted Members			
10	**Dr.N.S.N. Cailassame** Professor& Head, Department of Management Studies, SMVEC	Member	
11	**Dr. K. Karthikeyan** Associate Professor , Department. of Chemistry, SMVEC	Member	
12	**Prof. M. Devanathan** Assistant Professor, Department of Mathematics, SMVEC	Member	

13	**Prof. G. Namitha** Assistant Professor, Department of English, SMVEC	Member	
14	**Prof. C. Bhavani** Assistant Professor , Department. of Physics, SMVEC	Member	

Chairman- BoS (IT)

(Dr. R. Raju)

ANNEXURE I

U19ITT72	DATA SCIENCE AND ANALYTICS	L	T	P	C	Hrs
		3	0	0	3	45

Course Objectives

- To gain knowledge about the concepts involved in data analytics.
- To discover insights in data using R programming.
- To summarize the operations involved in Hadoop Map Reduce.
- To make use of algorithms related to regression and classification.
- To examine data using time series analysis and text analysis

Course Outcomes

After completion of the course, the students will be able to

CO1 - Experiment with data analytics using R language**. (K3)**

CO2 - Demonstrate clustering algorithms and association rules. **(K2)**

CO3 - Use algorithms related to regression and classification. **(K3)**

CO4 - Examine data using time series analysis and text analysis. **(K2)**

CO5 - Utilize Hadoop platform to solve map reduce problems. **(K3)**

UNIT I DATA ANALYTICS USING R (9 Hrs)

Big Data Overview- Big Data Vs Data Science -Examples of Big Data Analytics-Data Analytics Lifecycle overview-Phases in the lifecycle-GINA Case Study-Introduction to R programming-Exploratory Data Analysis-Statistical Methods for Evaluation.

UNIT II REGRESSION AND CLASSIFICATION (9 Hrs)

Scope of Regression Techniques-Linear Regression-Logistic Regression-Additional Regression models-Scope of Classification Techniques-Decision Trees-Naïve Bayes-Diagnostics of Classifiers-Additional Classification Methods-Applications: Prediction of crop yield

UNIT III CLUSTERING AND ASSOCIATION RULES (9 Hrs)

Overview of clustering-Scope of Clustering Techniques- K Means clustering- Additional Algorithms-Clustering in practise: Fake news identification-Overview of Association rules-Apriori Algorithm-Evaluation of Candidate Rules-Applications of Association Rules-An Example: Transactions in a grocery store-Validation and Testing-Diagnosis

UNIT IV TIME SERIES ANALYSIS AND TEXT ANALYSIS (9 Hrs)

Overview of Time Series Analysis-ARIMA Model-Additional Methods-Text Analysis Steps-A Text Analysis Example-Collecting Raw Text-Representing Texts-TFIDF-Categorizing documents by topics-Determining Sentiments-Gaining Insights.

UNIT V HADOOP MAP REDUCE AND DATA ANALYTICS (9 Hrs)

Installing and Understanding Hadoop-HDFS and Map Reduce Architecture-Hadoop Map Reduce Example-Hadoop Map Reduce in R-Data Analytics Problems: Exploring web pages categorization - Computing the frequency of stock market change-Real Time Recommender model using Apache Spark.

Text Books

1. David Dietrich, Barry Heller and Beibei Yang, “Data Science and Big Data Analytics: Discovering, Analyzing, Visualizing and Presenting Data”, EMC Education Services, Reprint 2015, Wiley, ISBN: 9788126556533.
2. VigneshPrajapathi, “Big Data Analytics with R and Hadoop”, Packt Publishing, 2013, Birmingham, Mumbai.

Reference Books

1. Roger D. Peng, “R Programming for Data Science”, LeanPub, 2015.
2. Bart Baesens , “Analytics in a Big Data World: The Essential Guide to Data Science and its Applications“, Wiley Publishers, 2014.
3. Bill Franks, “Taming the Big Data Tidal Wave: Finding opportunities in Huge DataStreams with Advanced Analytics”, John Wiley & sons, 2012.

Web References

1. www.ibm.com/Data Analytics/
2. https://www.ijser.org/researchpaper/Importance-of-Clustering-in-Data-Mining.pdf
3. https://datafloq.com/read/7-innovative-uses-of-clustering-algorithms/6224
4. https://publications.waset.org/10011058/improving-fake-news-detection-using-k-means-and-support-vector-machine-approaches
5. https://statisticsbyjim.com/regression/when-use-regression-analysis/

COs/POs/PSOs Mapping

COs	Program Outcomes (POs)												Program Specific Outcomes (PSOs)		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
1	2	2	3	1	2	-	-	-	-	-	-	2	2	2	3
2	2	1	**2**	-	2	-	-	-	-	-	-	1	2	2	3
3	2	2	3	1	2	-	-	-	-	-	-	2	2	2	3
4	2	1	2	-	2	-	-	-	-	-	-	1	2	2	3
5	2	1	3	1	2	-	-	-	-	-	-	2	2	2	3

Correlation Level: 1-Low, 2-Medium, 3- High

U19ITP71	BUSINESS BASICS FOR ENTREPRENEURS	L	T	P	C
		0	0	2	1

Course Objectives

- To develop a clear understanding on Business Plans and their significance.
- To be familiar with various forms of business appropriate for an individual entrepreneur
- To understand various ways of judging a successful opportunity for an entrepreneur
- To know the ways to formulate a successful Operation Plan
- To be aware of things to know to prepare effective financial and marketing plans

Course Outcomes

After completion of the course, the students will be able to

CO1 - Impact comprehensive knowledge of an entrepreneurial ecosystem**. (K6)**

CO2 - Understand the need and significance of Business Plan in the success of an Enterprise. **(K2)**

CO3 - Understand the ways to judge the economic and business viability of proposed venture. **(K2)**

UNIT I: THE ENTREPRENEURIAL PERSPECTIVE (10 Hrs)

Entrepreneurship and Family Business Management, Entrepreneurship theory and practice, The Nature and Importance of Entrepreneurs, The Entrepreneurial and Intrapreneurial Mind, The Individual Entrepreneur, International Entrepreneurship Opportunities

UNIT II: CREATING AND STARTING THE VENTURE (10 Hrs)

Creativity and the Business Idea, Legal Issues for the Entrepreneur, the Business Plan, the Marketing Plan, the Financial Plan, the Organizational Plan

UNIT III: FINANCING THE VENTURE (10 Hrs)

Raising Finance, scaling up the venture, NDA'S and term sheet, Sources of the Capital, Informal Risk Capital and Venture Capital

Report Submission:

- Grooming Entrepreneurial Mind-set
- Interaction with Business Leaders/Bankers/Venture Capitalists
- Finding and evaluating an idea
- Develop a business plan
- Financing for a company start-up
- Setting up a company-legal entity
- Entrepreneurial development and employment creation
- Effects of creativity and innovation on the entrepreneurial performance of family business

Reference Books

1. Friend, G., & Zehle, S. (2004). *Guide to business planning*. Profile Books Limited.
2. Lasher, W. (2010). *The Perfect Business Plan Made Simple: The best guide to writing a plan that will secure financial backing for your bus iness*. Broadway Books.
3. Alexander Osterwalder and Yves Pigneur – Business Model Generation.
4. Arthur R. DeThomas – Writing a Convincing Business Plan.
5. Ben Horowitz – The Hard Thing About Hard Things.
6. Guy Kawasaki – The Art of Start 2.0
7. Hal Shelton – The Secrets to Writing a Successful Business Plan.

Web References

1. https://www.waveapps.com/blog/entrepreneurship/importance-of-a-business-plan

2. https://www.entrepreneur.com/article/200516
3. https://smallbusinessbc.ca/article/how-to-use-viability-to-test-if-you-should-invest-in-your-business/
4. https://www.infoentrepreneurs.org/en/guides/strategic-planning/
5. http://www.marketingmo.com/strategic-planning/marketing-plans-budgets/

COs/POs/PSOs Mapping

COs	Program Outcomes (POs)												Program Specific Outcomes (PSOs)		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
1	1	2	1	2	2	1	2	1	1	1	1	1	-	-	-
2	1	1	2	2	1	1	3	2	2	2	1	1	-	-	-
3	1	2	1	1	1	2	2	2	2	1	1	1	-	-	-

Correlation Level: 1-Low, 2-Medium, 3- High

U19ITP72	CLOUD COMPUTING LABORATORY	L	T	P	C	Hrs
		0	0	3	1	45

Course Objectives

- To develop and install Virtual Machine.
- To develop cloud based web applications.
- To familiarize the basics of Cloud Platforms and services.
- To learn the design and development process involved in creating a cloud based application.
- To learn and use parallel programming using Hadoop.

Course Outcomes

After completion of the course, the students will be able to

CO1 - Configure various virtualization tools such as Virtual Box, VMware workstation. **(K5)**

CO2 - Design and deploy a web application in a PaaS environment. **(K6)**

CO3 - Simulate a cloud environment to implement new schedulers. **(K6)**

CO4 - Install and use a generic cloud environment that can be used as a private cloud. **(K6)**

CO5 - Manipulate large data sets in a parallel environment. **(K2)**

LIST OF EXPERIMENTS

1. Install Virtual box/VMware Workstation with windows OS on top of windows8 and Higher.
2. Creating a Warehouse Application in SalesForce.com.
3. Install Google App Engine. Create hello world app and a simple web applications using python/java.
4. Simulate a cloud scenario using CloudSim and run a scheduling algorithm in CloudSim.
    i. Space Shared - Batch Process scheduling.
    ii. Time Shared - Round-Robin scheduling.
5. Implementation of Para-Virtualization using VM Ware‘s Workstation/ Oracle‘s Virtual Box and Guest O.S.
6. Transfer the files from one virtual machine to another virtual machine.
7. Find a procedure to launch virtual machine using trystack/Amazon Web Service (Online Open stack/AWS Demo Version).
8. Installation and Configuration of Hadoop.
9. Create an application (Ex: Word Count) using Hadoop Map/Reduce.
10. Case study on Paas(Facebook) and AWS.

Reference Books

1. Tim Cerfing, Jeff Buller, Chuck Enstall, Richard Ruiz, “Mastering Microsoft Virtualization”, Wiley publications, 2010.

Web References

1. https://aws.amazon.com/getting-started/hands-on/launch-windows-vm/
1. https://cloud.google.com/appengine/docs/standard/nodejs/building-app/creating-project
2. https://www.cloudsimtutorials.online/cloudsim-simulation-toolkit-an-introduction

COs/POs/PSOs Mapping

COs	Program Outcomes (POs)												Program Specific Outcomes (PSOs)		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
1	3	3	2	1	2	-	-	-	-	-	-	-	2	2	3
2	3	3	2	1	2	-	-	-	-	-	-	-	2	2	3
3	3	3	2	1	2	-	-	-	-	-	-	-	2	2	3
4	3	3	2	1	2	-	-	-	-	-	-	-	2	2	3
5	2	1	-	-	2	-	-	-	-	-	-	-	2	2	3

Correlation Level: 1-Low, 2-Medium, 3- High

U19ITP73	DATA SCIENCE LABORATORY	L	T	P	C	Hrs
		0	0	3	1	45

Course Objectives

- To introduce the basic concepts of Machine Learning and Python / R.
- To apply supervised learning techniques.
- To implement unsupervised learning algorithms.
- To visualize the graphical models of machine learning algorithms.
- To implement advancement learning techniques.

Course Outcomes

After completion of the course, the students will be able to

CO1 - Elaborate program in Python / R for various Learning algorithms. **(K2)**
CO2 - Design and implement various machine learning algorithms in a range of real-world applications. **(K3)**
CO3 - Evaluate and interpret the results of Algorithms **(K5)**
C**O4** - Explore graphical models of machine learning algorithms **(K4)**
CO5 - Summarize the various learning techniques. **(K2)**

LIST OF EXPERIMENTS

1. Study and usage of python and R language.
2. Explore the packages required for machine learning including numpy, scikit-learn, and matplotlib and pgmpy.
3. Implement FIND-S algorithm, for finding the most specific hypothesis.
4. Implement Regression to predict the house price from training data. The input variables will be locality, size of a house, etc.
5. Implement SVM for any Dataset.
6. Implement the Decision Tree based ID3 algorithm. Use an appropriate data set for building the decision tree and apply this knowledge to classify a new sample.
7. Implement EM algorithm to cluster a set of data stored in a file. Use the same data set for clustering using k-Means algorithm. Compare the results of these two algorithms and comment on the quality of clustering.
8. Implement the Naive Bayesian classifier for a sample training data set.
9. Implement Naive Bayes classifier for credit card analysis.
10. Implement HMM for an application.
11. Implement bagging and boosting techniques
12. Implement reinforcement learning and develop a game of your own.

Data Sets: https://www.kaggle.com and http://archive.ics.uci.edu/ml/datasets.html

Reference Books

1. EthemAlpaydin, —Introduction to Machine Learning 3E (Adaptive Computation and Machine Learning Series), Third Edition, MIT Press, 2014
2. Jason Bell, —Machine learning – Hands on for Developers and Technical Professionals, First Edition, Wiley, 2014.
3. Stephen Marsland, —Machine Learning – An Algorithmic Perspective‖, Second Edition, Chapman and Hall/CRC Machine Learning and Pattern Recognition Series, 2014.
4. Tom M Mitchell, —Machine Learning‖, First Edition, McGraw Hill Education, 2013.

Web References

1. https://towardsdatascience.com/machine-learning/home/
2. https://www.geeksforgeeks.org /machine-learning/

COs/POs/PSOs Mapping

COs	Program Outcomes (POs)												Program Specific Outcomes (PSOs)		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
1	2	1	1	-	3	-	1	-	1	1	2	1	2	2	3
2	3	2	2	1	3	-	1	-	1	1	2	1	2	2	3
3	2	2	2	1	3	-	1	-	1	1	2	1	2	2	3
4	2	2	2	1	3	-	1	-	1	1	2	1	2	2	3
5	2	1	1	-	3	-	1	-	1	1	2	1	2	2	3

Correlation Level: 1-Low, 2-Medium, 3- High

		L	T	P	C	Hrs
U19ITE71	**MACHINE LEARNING**	**3**	**0**	**0**	**3**	**45**

Course Objectives

- To understand the basic concepts of machine learning and probability theory.
- To understand supervised learning techniques.
- To understand unsupervised learning techniques.
- To understand the theoretical and practical aspects of probabilistic graphical models.
- To learn advanced machine learning aspects.

Course Outcomes

After completion of the course, the students will be able to

CO1 - Elucidate the basic concepts of machine learning and probability theory. **(K2)**
CO2 - Use supervised learning techniques for different types of applications. **(K3)**
CO3 - Design and implement unsupervised learning algorithms. **(K3)**
CO4 - Apply appropriate graph models for any real time application. **(K3)**
CO5 - Explain advanced learning techniques. **(K2)**

UNIT I INTRODUCTION (9 Hrs)

Machine Learning – Types of Machine Learning – Basic Concepts of Machine Learning - Machine Learning Process – Weight Space - Testing Machine Learning Algorithms - Turning Data into Probabilities – The Bias-Variance Trade off – Concept Learning and General-to-Specific Ordering.

UNIT II SUPERVISED LEARNING (9 Hrs)

Linear Discriminants – Perceptron – Linear Separability – Linear Regression - Multi Layer Perceptron – Going Forward – Going Backward - Support Vector Machine Algorithm - Decision Tree Learning – Random Forest Model.

UNIT III UNSUPERVISED LEARNING (9 Hrs)

K-means Algorithm –Hierarchical clustering - EM algorithm – Dimensionality Reduction Techniques - Vector Quantization – Self Organising Feature Map.

UNIT IV GRAPHICAL MODELS (9 Hrs)

Bayesian Networks – Conditional Independence - Markov Random Fields – Naive Bayes Classifier - Hidden Markov Model – Tracking Methods.

UNIT V ADVANCED LEARNING (9 Hrs)

Reinforcement Learning – The Learning Task – Q Learning – Temporal Difference Learning – Generalization – Relationship to Dynamic Programming - Ensemble Learning – Boosting – Bagging – Deep Learning - Case studies on Machine learning.

Text Books

1. Stephen Marsland,"Machine Learning – An Algorithmic Perspective", Second Edition,
2. Chapman ,"Machine Learning and Pattern Recognition Series", 2014.
3. Tom M Mitchell, "Machine Learning", McGraw Hill Education, First Edition, 2013

Reference Books

1. Ethem Alpaydin,"Introduction to Machine Learning 3E (Adaptive Computation and Machine Learning Series), MIT Press, Third Edition, 2014.
2. Miroslav Kubat, " An Introduction to Machine Learning", Springer Publications, 2nd Edition, 2017.
3. Peter Flach, "Machine Learning: The Art and Science of Algorithms that Make Sense of Data", Cambridge University Press, First Edition, 2012.

4. Jason Bell,"Machine learning – Hands on for Developers and Technical Professionals", Wiley, First Edition, 2014.

Web References

1. https://nptel.ac.in/courses/106/105/106105152/
2. https://www.coursera.org/learn/machine-learning
3. https://machinelearningmastery.com/
4. https://towardsdatascience.com/machine-learning/home/
5. https://www.analyticsvidhya.com/blog/2017/09/common-machine-learning-algorithms/

COs/POs/PSOs Mapping

COs	Program Outcomes (POs)												Program Specific Outcomes (PSOs)		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
1	2	1	-	-	2	-	-	-	-	-	-	2	2	2	3
2	3	2	1	1	2	-	-	-	-	-	-	2	2	2	3
3	3	2	1	1	2	1	-	-	1	1	-	2	2	2	3
4	3	2	1	1	2	1	-	-	1	1	-	2	2	2	3
5	2	1	1	1	2	-	-	-	-	-	-	2	2	2	3

Correlation Level: 1-Low, 2-Medium, 3- High

U19ITE73	ROBOTICS PROCESS AUTOMATION	L	T	P	C	Hrs
		3	0	0	3	45

Course Objectives

- To understand the role of the Artificial Intelligence in Automation
- To learn the evolution and future of Robotic Process Automation
- To Learn Web, Windows, Email, Excel, PDF, Database, API and Image Automation using UI path
- To learn Blue Prism process and operations for operating system of Digital Workforce.
- To learn Automation Anywhere and automate any business process with intelligent, scalable software robots

Course Outcomes

After completion of the course, the students will be able to

CO1 - Apply basic principles of AI in solutions that require problem solving, knowledge and automation **(K3)**

CO2 - Identify processes suitable for RPA and recognize how RPA is transforming businesses **(K2)**

CO3 - Design automation strategy using orchestrator, queues, and bots **(K3)**

CO4 - Illustrate cost-effective through automation and with improved accuracy by creating a virtual workforce. **(K2)**

CO5 - Explore process team's consistency, automate workflows, create IQ bots and manage them effectively**. (K2)**

UNIT I AI AND AUTOMATION (9 Hrs)

AI Foundations- AI Data, AI Capabilities framework- Associated Technologies of AI - AI Prototyping- Industrialising AI - Cognitive Automation tools- Natural language processing- AI Resources -Future of AI.

UNIT II INTRODUCTION TO RPA (9 Hrs)

RPA Foundations- History of RPA-Difference between RPA and AI- Benefits of RPA-Components of RPA- RPA Architecture- RPA Skills- Process Methodologies in RPA- Planning for RPA-RPA Platforms- Types of Bots- Deployment platforms- Future of RPA.

UNIT III UI PATH (9 Hrs)

Introduction to UI Path: UI Path Studio-UI Path Robot-UI path Orchestrator-Task Recorder- Sequence, Flowchart, and Control Flow- Sequencing the workflow- Data Manipulation- Application with Plug-ins and Extensions Terminal Plug-in- Handling User Events and Assistant Bots- Deploying and Maintaining the Bot.

UNIT IV BLUE PRISM (9 Hrs)

Introduction-Process Studio- Pages, Actions, Decisions, Choices and collections-Implementing business objects-Spying Elements-Working with excel –Sending and receiving email, Control room and work queues-Exception Handling

UNIT -V AUTOMATION ANYWHERE (9 Hrs)

Introduction of Automation Anywhere-Tasks-Tasks Editors-Integration and collaboration with Automation Anywhere- working with web pages and JSON Data- Citrix Automation- E-mail Automation- PDF integration- Web Recorder-Creating IQ bots -Deploying and Maintaining the Bot.

Text Books

1. Tom Taulli ,"Artificial Intelligence Basics: A Non-Technical Introduction ",First Edition,Apress,2019
2. Alok Mani Tripathi ,"Learning Robotic Process Automation Create Software robots and automate business processes with the leading RPA tool – UiPath", First Edition, Packt Publishing ,2018

3. Lim Mei Ying ,"Robotic Process Automation with Blue Prism Quick Start Guide ",First Edition ,Packt Publishing ,2018
4. Tom Taulli ,"The Robotic Process Automation Handbook: A Guide to Implementing RPA Systems", First Edition,Apress,2020

Reference Books

1. Palgrave Macmillan," The Executive Guide to Artificial Intelligence: How to identify and impement application for AI in your organization", Springer press ,2018
2. Jonathan Sireci ,"The Practitioner's Guide to RPA: A Practical Guide for Deploying Robotics Process Automation,Kindle Edition,2020

Web References

1. https://www.uipath.com/solutions/technology/web-automation
2. https://www.uipath.com/developers/video-tutorials/web-data-extraction-automation
3. https://community.blueprism.com/communities/community-home/
4. https://www.blueprism.com/
5. https://www.automationanywhere.com/in/

COs/POs/PSOs Mapping

COs	Program Outcomes (POs)												Program Specific Outcomes (PSOs)		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
1	3	2	1	1	2	-	-	-	1	1	1	1	2	2	3
2	2	1	-	-	2	-	-	-	1	1	1	1	2	2	3
3	3	2	1	1	2	-	2	-	1	1	1	1	2	2	3
4	2	1	-	-	2	-	-	-	1	1	1	1	2	2	3
5	2	1	-	-	2	-	-	-	1	1	1	1	2	2	3

Correlation Level: 1-Low, 2-Medium, 3- High

U19ITP81	ENTREPRENEURSHIP MANAGEMENT	L	T	P	C
		0	0	2	1

Course Objectives

- To develop an ability to identify the critical challenges hindering growth of entrepreneurs
- To understand the significance of Finance Skills, Branding, and Sales Skills for an Entrepreneur
- To be aware of various Government Schemes and Subsidies available for Entrepreneurs

Course Outcomes

After completion of the course, the students will be able to

CO1: Develop and demonstrate the business models. **(K2)**

CO2: Practice cash management, brand building and enhancing turnover. **(K6)**

CO3: Understand various schemes and subsidies that are offered by various Government agencies for the benefit of entrepreneurs in general, and women entrepreneurs in particular. **(K2)**

UNIT I: ENTRPRENEURIAL SKILLS 1 (10 Hrs)

Introduction to Business Model Generation , Developing Lean Business Model for the Business Idea, Developing Prototype and Evaluating assumptions in Business Model using prototype cheaply, Presentation of Business Model, Business Fair

UNIT II: ENTREPRENEURIAL SKILLS 2 (10 Hrs)

Financial Skills – Cash Management – Problems of Poor Cash Management – Learning to be Frugal. Branding – Building a 'niche' follower for your product/service – Developing and Establishing a Brand, Sales skills – KPI of Success of Entrepreneurship – Ensuring Growth in Turnover

UNIT III: ENTREPRENEURIAL OPPORTUNITIES (10 Hrs)

Awareness of Government Schemes and Subsidies for various Entrepreneurial Categories – Special Schemes for Women Entrepreneurs – Understanding the Procedure and Documentation Process for availing the Government Schemes – Venture Capital – Crowdfunding – Angel Investors.

Report Submission:

1. How can I get first 100 customers to pay for my products/services?
2. Information technology as a resource
3. Marketing skill and promotion for entrepreneurs
4. Assessment of factors affecting performance of women entrepreneurs
5. Entrepreneurship as a tool for sustainable employment
6. Examination of problem facing small scale business
7. Survival strategies in small business
8. The role of insurance in minimizing business risk

Reference Books

1. Storey, D. J., & Greene, F. J. (2010). *Small business and entrepreneurship*. Financial Times/Prentice Hall.
2. Scarborough, N. M. (2011). *Essentials of entrepreneurship and small business management*. publishing as Prentice Hall, One Lake Street, Upper Saddle River, New Jersey 07458..
3. Brian Tracy – The Psychology of Selling.
4. Dale Carnegie – How to Win Friends & Influence People.
5. Robert Kiyosaki and Sharon Lechter – Rich Dad, Poor Dad.
6. Reid Hoffman – The Startup of You: Adapt to the Future, Invest in Yourself, and Transform Your Career.
7. Michael E. Gerber – The E-Myth Revisited.
8. Chris Guillebeau – The Art of Non-Conformity.
9. Eric Ries – The Lean Startup.
10. Kevin D. Johnson – The Entrepreneur Mind.

Web References

1. https://www.helpguide.org/articles/stress/stress-management.htm
2. https://bscdesigner.com/8-entrepreneurial-kpis.htm
3. https://www.inc.com/ilya-pozin/5-problems-most-entrepreneurs-face.html
4. https://www.inc.com/jessica-stillman/how-to-network-with-super-successful-people.html
5. https://www.entrepreneur.com/article/251603
6. https://seraf-investor.com/compass/article/understanding-crowdfunding

COs/POs/PSOs Mapping

COs	Program Outcomes (POs)												Program Specific Outcomes (PSOs)		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
1	1	3	1	2	2	1	3	1	1	1	1	2	-	-	-
2	1	1	2	2	1	1	3	2	2	2	1	2	-	-	-
3	1	2	1	1	1	2	3	2	2	1	1	2	-	-	-

Correlation Level: 1-Low, 2-Medium, 3- High

ANNEXURE - II

CURRICULUM 2020 - LIST OF REVISED SKILL DEVELOPMENT COURSES

Sl. No.	Course Code	Course Title
1.	U20ITS201	Skill Development Course 1 :Demonstration of Workshop Practices
2.	U20ITS302	Skill Development Course 2 *
		1) Hardware and Troubleshooting
		2) Electronic Devices and Circuits
		3) **General Aptitude 1**
3.	U20ITS403	Skill Development Course 3 *
		1) Graphic Design
		2) Networking
		3) **General Aptitude 2**
4.	U20ITS504	Skill Development Course 4 : Foreign Language/ IELTS –I
5.	U20ITS505	Skill Development Course 5 : Presentation Skills using ICT
6.	U20ITS606	Skill Development Course 6 : Foreign Language/ IELTS – II
7.	U20ITS607	Skill Development Course 7 : Technical Seminar
8.	U20ITS608	Skill Development Course 8 : NPTEL / MOOC - I
9.	U20ITS809	Skill Development Course 9 : NPTEL / MOOC-II

ANNEXURE - III

DEPARTMENT OF INFORMATION TECHNOLOGY
STRATEGIC PLAN 2021-2025

Vision

To be a pioneer in the field of Information Technology by achieving academic excellence, involving in research & development and promoting technical & professional expertise

Mission

Expertise: To impart quality education and create excellent engineers with strong analytical, Programming and Problem solving Skills to meet the ever changing demands of IT industry

Eminence: To kindle creative thinking, innovation and foster value-based research in the field of information technology

Complaisant: To enrich the employability skills, inculcate entrepreneurial ideology and promote professional expertise

Exemplar: To instil human values, ethical responsibilities and empowering graduates to be socially responsible and technically competent

SWOC Analysis

Strength

- Good infrastructure with Internet Facility & WI-FI connection
- The percentage of students admitted is greater even during recession period
- Well experienced and dedicated staff members
- Good placement records
- Access to journals like IEEE, Springer, DELNET, etc

Weakness

- R&D Projects & Consultancy work
- Research Proposals and Funded Projects
- Less number of students for higher studies and Entrepreneurs.

Opportunities

- Higher investments in the corporate due to recent government policies is expected to lead a quantum for placement opportunities.
- Encouragement on academic as well as social enrichment program.
- Advocating participation in intercollegiate National and state level competitions.
- Scope for the indulgence in research and development for hands on exposure.

Challenges

- Enhancing communication skills to face the job market and competitive examinations like GATE/ CAT/GRE and for Govt. / public sectors.
- Facing problems in getting fund from the funding agencies towards research projects.

To meet out the challenges and to overcome the weakness of the department a strategic plan has been designed and targeted towards the next five yeas

Strategic Plan

Strategic plan is an important tool for a department to manage itself effectively because it

- Provides a framework for effectiveness and sense of direction
- Outlines the goals and measurable targets
- Useful for guiding day-to-day actions
- Helps in evaluating progress and changing approaches when moving forward

It is an iterative process at both the stages, i.e., while framing and when implementing as well.

Strategic Goal

The strategic goals are broad outcome statements that represent meaningful planning challenges reflecting the expectation of the stakeholders and are consistent with accomplishing our mission.

Focal Points

FP 1: Academic Excellence

FP 2: Research and Innovation

FP 3: Resources and Infrastructures

FP 4: Employability and Entrepreneurship

FP 5: Community Outreach

FP 6: Ethics and Social Responsibility

ACADEMIC EXCELLENCE

Objectives

- To provide learner-centric quality technical education
- To adopt technology enabled pedagogy for teaching learning process
- To make the learning environment more vibrant and congenial

Strategic Initiatives

SI 1: Strengthening the programme by enriching course curriculum with global benchmarks and industry requirements.

SI 2: Use of blended teaching methodology involving traditional, interactive, and ICT enabled pedagogical techniques.

SI 3: Regular feedback on teaching learning process, curriculum to ensure quality control.

SI 4: Establishment of student success centre

Assessment Metrics

# of alternate teaching methodologies – 3 per year

% of internships – Min 25% of the student strength

RESEARCH AND INNOVATION

Objectives

- To promote multidisciplinary research in thrust areas.
- To create facilities and environment for interdisciplinary research.

Strategic Initiatives

SI 1: Creating and supporting a research environment for high quality research by students and faculty.

SI 2: Encouraging quality research in intradisciplinary and interdisciplinary areas.

SI 3: Undertaking research with industry collaboration focussing on practical problems and applications in real life situations.

SI 4: Identifying thrust areas and issues for fundamental and applied research.

SI 5: Facilitating faculty publications as books, monographs, working papers, case studies, study material and other academic literature through in house publication facilities.

SI 6: Establishing MoU's and improving Consultancy projects in terms of funds

Assessment Metrics

# of publications in reputed journal – 2 per year per faculty

# of proposals submitted – 3 per year / faculty as Principal Investigator

minimum of two consultancy grants per year

RESOURCES & INFRASTRUCTURE

Objectives

- To recruit and retain prospective, proactive faculty and staff
- To modernize the department infrastructure

Strategic Initiatives

SI 1: Use appropriate benchmarks while hiring faculty and staff.

SI 2: Increase professional development for all employees and recognize the same.

SI 3: Optimize faculty workload and create an environment where faculty can achieve their potential.

SI 4: Renovate existing facilities and obtain funding for new infrastructure.

SI 5: Add research lab space

Outcome

- Industry sponsored Lab every 2 years
- Creating Center of Excellence based on the specialization of Faculty in the Department

EMPLOYABILITY & ENTREPRENEURSHIP

Objectives

- To sustain the overall quality of graduates.
- To increase the incorporation of Employability-related transferable skills training throughout the curriculum.
- To create the ground for entrepreneurial thinking by training and encouraging students to build self-confidence and instill leadership attitude.

Strategic Initiatives

SI 1: A Graduate Employment and Achievement Report (GEAR) will be released to showcase the happenings in employment, higher education, entrepreneurship, recognitions, etc.

SI 2: Residential Entrepreneurship programs will be developed to facilitate the students to work with successful entrepreneurs and start-ups.

SI 3: Inspirational alumni can be invited to share success stories and discuss industry trends.

SI 4: Frequent update in curriculum will be done and promising trends can be made aware to students by means of short term courses too.

Assessment Metrics

# of students getting placed – 90 % of the student strength

# of students turning to entrepreneurs or opting higher education – 10 % of the student strength

COMMUNITY OUTREACH

Objectives

- To strengthen relationship with other institutions, labs, funding agencies and industries.
- To promote the department through development activities.
- To become a recognized resource for the region.

Strategic Initiatives

SI 1: Nurture relation with government labs and other agencies

SI 2: Increase in funded research projects and consultancy related works.

SI 3: Design and implement promotional campaigns that highlight the department and its people.

SI 4: Increase the visibility of the department.

SI 5: Elevate as a significant contributor to workforce development and the society.

SI 6: Increase the student involvement with local industry.

Assessment Metrics

Media presence – increase one every year

# of visits to community schools – Min 5 per year

department publications (annual reports/magazines)online and hard copy – increase by 1 every year

ETHICS AND SOCIAL RESPONSIBILITY

Objectives

- To create guidelines and ensure that they bind the entire department as a common thread.
- To ensure that the policies are framed in accordance with the best interest of all the stakeholders.

Strategic Initiatives

SI 1: Establish explicit ethical goals, criteria and demonstrate commitment towards them.

SI 2: Train workforce to enact ethical goals.

SI 3: Assess and monitor behavior and decisions taken by both faculty as well as students to put forth social responsibility in to practice.

Outcome

- Faculty to attend a course on Universal Human Values - 1 course per faculty
- Universal Human values to be included in the curriculum
- Minimum 10% of the students project per year should to be related to social problems

<u>Key Factors to succeed in strategic planning</u>

1) Vision – that defines the strategic position in the future within a timeframe.
2) Commitment – the credibility of the process and meaningful participation from the department will be ensured.

3) Communication – every change, improvement, implementation will be communicated effectively with every stakeholder frequently
4) Metrics – Focus on SMART approach: Specific, Measurable, Attainable, Related and Time Bound.
5) Responsive – Ensuring a dynamic strategic plan is put in to practice so that fruitful results are obtained

ANNEXURE - IV

BOS/2021/IT/UG/3.9	
	To discuss and approve the Foundation Course to be offered for B,Tech-IT freshers

Foundation Courses help students to understand the fundamentals of advanced technology skills. These foundation courses would add value to their career, improve their profile and develop their skills to the industry standards.

Foundation Skills for IT Freshers 30 hours

Course Objective:

- The course is designed to aim at imparting a basic understanding of computers.
- This course imparts knowledge on basic windows operating environment.
- To understand the basic concepts of mathematics for IT students
- To understand the basic concepts of Networks, Internet, www and Web Browsers
- To understand the basic concepts of DBMS and OS
- To know the basics of Algorithm , Flowchart and Pseudocode
- To understand the key concepts of Programming
- To know the recent trends in software

Exploring a Computer

Introduction-Characteristics of Computers-Generations of Computer (I-V) -Block Diagram of a Computer- Functions of the Different Units :Input unit, Output unit, Memory unit, CPU (ALU+CU) -Input & Output Devices Input Devices- Registers [Types of Registers] -Cache Memory -Primary Memory - Secondary Memories -System Software- Application Software -Computer Languages.

Windows operating Environment

Windows Operating Environment: Microsoft Windows Features-Windows Accessories- Editors and Word Processors- Spreadsheets- MS Power Point.

Mathematics for IT Freshers

Fundamental mathematics: Introduction to Arithmetic operations, Relational Operations, Logical Operations. Introduction to Number system: Decimal-Binary-Octal-Hexadecimal.

Introduction to Computer Networks, Internet, www and Web Browsers

Basic of Computer Networks -Local Area Network (LAN)- Wide Area Network (WAN) , Internet - Concept of Internet- Applications of Internet - Connecting to the Internet -World Wide Web (WWW) - Web Browsing Softwares -Search Engines -Accessing Web Browser -Understanding URL - Surfing the web

Introduction to Database Management system and Operating system

DBMS: Data, information, data base and Database Management System-File Organization. OS: components of OS, Goals and Objectives of OS, Functions of OS, Different types of OS.

Problem solving Aspects

Concept of problem solving-Algorithms: Definition, Characteristics, Advantages and disadvantages, Examples. Flowchart: Definition, Define symbols of flowchart, Advantages and disadvantages, Examples. Pseudocode: Definition, Advantages and disadvantages, Examples.

Introduction to Programming

Understanding programming concepts-Algorithmic approach to programming-Variables and Data Types-Operators -Data Structures-Flow Control Statements: Conditional Statements-Looping and Iteration-Functions-Object oriented programming.

Recent trends and innovation in software

Machine Learning -Speech Recognition-Automation & Digitization-Services on Demand- Intelligent Assistants & Chatbots-Data Science & Analytics-Blockchain Applications-IoT Applications

Course Outcome

- Students can describe the fundamental concepts of computer.
- Students able to practice in windows operating environment.
- Students can solve basic mathematical concepts in Information Technology.
- Students can explain the concepts of Computer Networks, Internet, www and Web Browsers.
- Students can explain the concepts of Database Management system and Operating system.
- Apply the knowledge of How human beings solve problems manually, strategies for translating manual strategies to computer programs
- Apply the knowledge of the fundamental programming concepts, such as Flow control Statements, Functions, and Object-Oriented Programming.
- Students able to discuss the recent trends in software.