1.1.2 Details of Programmes where syllabus revision was carried out during the year

1.2.2 Details of Programmes offered through Choice Based Credit System (CBCS)/Elective Course System

Programme Code	Programme Name	Year of introduction (Date)	Status of implemetation of CBCS / Elective Course System (Yes/No)	Year of implemetation of CBCS / Elective Course System	Year of revision, if any	If revision has been carried out in the syllabus during the year, percentage of content added or replaced	Link to the relevant document
1	B.Tech-CE	2014	YES	2017	2023	10	**https://svce.edu.in/files/naac/2023-24/crt1/1.1.2.pdf**
2	B.Tech-EEE	2007	YES	2010	2023	10	**https://svce.edu.in/files/naac/2023-24/crt1/1.2.2.pdf**
3	B.Tech-ME	2011	YES	2014	2023	10	
4	B.Tech-ECE	2007	YES	2011	2023	5	
57	PG-M.Tech (VLSID	2013	YES	2014	2020	25	
5	B.Tech-CSE	2007	YES	2010	2023	10	
58	PG-M.Tech (CSE)	2011	YES	2012	2020	25	
12	B.Tech-IT	2007	YES	2012	2023	5	
33	B.Tech(AI&ML)	2020	YES	2021	2023	5	
37	B.Tech(CS)	2021	YES	2022	2023	5	
32	B.Tech(DS)	2021	YES	2022	2023	5	
F	PG-MCA	2008	YES	2009	2020	20	
E	MBA	2009	YES	2010	2020	20	

SRI VENKATESWARA COLLEGE OF ENGINEERING

(AUTONOMOUS)

(Affiliated to J.N.T. University Anantapur, Ananthapuramu)

Karakambadi Road Tirupati-517 507

BoS Minutes of Meeting

On

13-09-2022

DEPARTMENT OF ELECTRONICS&COMMUNICATION ENGINEERING

BOARD OF STUDIES MEETING

Mode	Online
Platform	Google Meet
Meeting Link	**https://meet.google.com/oap-zmjt-cqx**
Venue	Sri Venkateswara College of Engineering, Tirupati
Date	13-09-2022
Time	10:30 AM

Minutes of the Meeting

DEPARTMENT OF ECE – BoS MEMBERS

S.No.	Name of the Member	Designation & Address	Role
1.	Dr.D.Srinivasulu Reddy	Professor &HOD Department of ECE SV College of Engineering, Tirupati Mobile No.: 8074436276 Email: hod_ece@svce.edu.in	Chairman
2.	Dr.R.Ramana Reddy	Professor & HOD, Department of ECE JNTUA College of Engineering, Pullivendula Mobile No.: 7670902305 Email: rrreddy.ece@jntua.ac.in	Subject Expert nominated by JNTUA.
3.	Dr.N.BheemaRao	Professor, Department of ECE NIT Warangal. Mobile No.: 9492909194 Email: nbr.rao@gmail.com	Subject Expert nominated by Academic Council.
4.	Dr.S.Varadarajan	Professor, Department of ECE S.V. U.C.E.,S. V. University, Tirupati Mobile No: 9949300990 Email: varadasouri@gmail.com	Subject Expert nominated by Academic Council.
5.	Mr.M.Narasimham	Lead Consultant, Wipro Technologies, Bengaluru Mobile No. :8618381438 Email: n_simham@yahoo.com	Industry Expert nominated by Academic Council.
6.	Mr.M.JagannadhaRao	IT Operations Professional, Siemens HealthineersPvt. Ltd., Bengaluru. Mobile No. : 8861227894 Email: jagannadhsap.m@gmail.com	PG Alumni nominated by Academic Council.

7.	Dr.K.Lokesh Krishna	Professor Department of ECE SV College of Engineering, Tirupati Mobile No.: 8309974328 Email: lokeshkrishna.k@svcolleges.edu.in	Member
8.	Dr.C.Chandrasekar	Professor Department of ECE SV College of Engineering, Tirupati Mobile No.: 9177217190 Email: dr.chandrasekhar.c@svcolleges.edu.in	Member
9.	Dr.T.ChandrasekarRao	Professor Department of ECE SV College of Engineering, Tirupati Mobile No: 94413363390 Email: chandrasekhar.t@svcolleges.edu.in	Member
10.	Dr.B.Sudha Rani	Associate Professor Department of ECE SV College of Engineering, Tirupati Mobile No.: 7981738522 Email: sudharani.b@svcolleges.edu.in	Member
11.	Dr.G.Sujatha	Associate Professor Department of ECE SV College of Engineering, Tirupati Mobile No.: 9959505760 Email: sujatha.g@svcolleges.edu.in	Member
12.	Dr.K.MaheshBabu	Associate Professor Deartment of ECE SV College of Engineering, Tirupati Mobile No.: 8179762414 Email: maheshbabu.kt@svcolleges.edu.in	Member
13.	Dr.G.PadmaPriya	Associate Professor Department of ECE SV College of Engineering, Tirupati Mobile No.: 9502020187 Email: padmapriya.gudiyatham@svcolleges.edu.in	Member
14.	Dr.M.Suresh Kumar	Associate Professor Department of ECE SV College of Engineering, Tirupati Mobile No.: 7010984375 Email: suresh.mohan@svcolleges.edu.in	Member
15.	A.Krishna Mohan	Professor Department of ECE SV College of Engineering, Tirupati Mobile No.: 9949983365 Email: krishnamohan.A@svcolleges.edu.in	Member
16.	K.UpendraRaju	Associate Professor Department of ECE SV College of Engineering, Tirupati Mobile No.: 9182146045 Email: upendraraju.k@svcolleges.edu.in	Member

17.	V.Madhurima	Associate Professor Department of ECE SV College of Engineering, Tirupati Mobile No.: 7661995600 Email: madhurima.v@svcolleges.edu.in	Member
18.	Sk.Allabaksh	Associate Professor Department of ECE SV College of Engineering, Tirupati Mobile No.: 9700644100 Email: allabaksh.sk@svcolleges.edu.in	Member

DEPARTMENT OF ECE – BoS MEMBERS (ATTENDANCE)

S.No.	Name of the Member	Attendance
1	Dr.D.Srinivasulu Reddy	Attended
2	Dr. R.Ramana Reddy	Attended
3	Dr.N.BheemaRao	Not Attended
4	Dr.S.Varadarajan	Attended
5	Mr.M.Narasimham	Attended
6	Mr.M.JagannadhaRao	Attended
7	Dr.K.Lokesh Krishna	Attended
8	Dr.C.Chandrasekar	Attended
9	Dr.T.ChandrasekarRao	Attended
10	Dr.B.Sudha Rani	Attended
11	Dr.G.Sujatha	Attended
12	Dr.K.MaheshBabu	Attended
13	Dr.G.PadmaPriya	Attended
14	Dr.M.Suresh Kumar	Attended

15	A.Krishna Mohan	Attended
16	K.UpendraRaju	Attended
17	V.Madhurima	Attended
18	Sk.Allabaksh	Attended

Agenda:

1. Introduction of newly nominated members to the BoS committee.
2. About the B.Tech 3rd and 4th year Course Structure and syllabi.
3. Minor and Honor Degree courses.
4. Suggestions from BOS Members.

Order of events:

1. The meeting was held online via Google Meet platform.
2. Welcome address by Dr.D.Srinivasulu Reddy, Professor & HOD of ECE,SVCE.
3. Presentation by Dr.D.Srinivasulu Reddy, Professor & HOD of ECE, SVCE.
4. Discussion on III& IV Year B. Tech ECE Course Structure & Syllabus.
5. Discussion on Open Elective Courses & Professional Elective Courses and concerned Syllabus.
6. Discussion on Honor/Minor degree course structure and guidelines.
7. Review &Suggestions from BoS Academic Experts.
8. Vote of thanks by chairman.

Minutes of Meeting:

1. Proceedings of the 3rdBoS meeting held on 13/09/2022

2. BoS Chairman presided over the meeting and cordially welcomed all the members of BoS to the meeting.

3. The meeting held in virtual platform(Google Meet) and commenced at about 10.40 AM on 13-09-2022

4. Dr.D.SrinivasuluReddy, Chairman BoS ECE introduced Dr R Ramana Reddy, Professor & HOD, JNTUCEP, Pulivendula newly nominated academic expert in place of Dr M.N.Giriprasad, Professor, JNTUA Ananthapuramu to the members of BoS committee.

5. Dr. D.Srinivasulu Reddy, Chairman BoS ECE introduced newly included internal BoS Committee members Dr C.Chandrasekar ,Professor ,Dr.T.ChandrasekarRao, Professor, Dr K.MaheshBabu, Associate Professor, Mrs V.Madhurima, Assistant Professor to BoS Committee.

6. Dr K.Saivenupratap, left the department and hence BoS committee is reconstituted with newly joined members.

- Dr. N. BheemaRao, Professor, NIT Warangal (nominated by Academic Council).
- Dr. S. Varadarajan, Professor, SVUCE, Tirupati (nominated by Academic Council).
- Dr. M. Narasimham, Lead Consultant, Wipro Technologies, Bengaluru (nominated by Academic Council).
- Dr.R.Ramana Reddy, Professor & HOD, Department of ECE,JNTUA College of Engineering, Pullivendula, JNTUA College of Engineering (nominated by JNTUA).
- Mr.M.JagannadhaRao, IT Operations Professional, Siemens Healthineers Pvt. Ltd., Bengaluru.

  The presentation includes genesis of the department, B.Tech3rd and 4th year Course Structure along with the detailed syllabi.

The following are the few suggestions and feedback given by the academic experts

1. **Dr.N.BheemaRao** from NIT Warangal, He suggested to include experiments in the last two units of the skill oriented Course

2. **Dr.S.Varadarajan** from S.V.U.C.E., S.V.University Tirupati. He suggested to include industry oriented courses in the curriculum through MOU's.

3. **Dr.R.Ramana Reddy,** Professor & HOD, Department of ECE, JNTUA College of Engineering, Pullivendula has suggested the following points. The relevance and worth of suggestions are valuable in revising and restructuring the syllabus.

   - He suggested to conduct Digital Communication Lab related Hardware and Software experiments in the same lab slot so that no. of experiments can be increased and effectively utilize the Lab time. There should be atleast 10 or 12 hardware experiments, software simulation can be done for few experiments.
   - He advised to mention a clause to develop at least one experiment as proto type model in skill oriented course PCB Design of 5th semester syllabus.
   - He suggested to modify in the 1st unit syllabus of Micro Wave Engineering and optical communication course.
   - He suggested to modify some of the Subject Titles and Subject Codes such as Basics of VLSI Design & Electronic Measurements and Instrumentation offered to other departments and also advised to revise the concerned syllabus accordingly.

4. **Mr.M.Narasimham** from Wipro Technologies, Bangalore, agreed to look into the aspect of industrial tie up (MoU) with VLSI related industries to provide internships to our PG students.
   - He suggested for job oriented purpose add syllabus regarding Artificial Intelligence and Cyber security skill development subjects.
   - He accepted the remarks made by chairman to conduct workshops and seminars related to cutting edge technologies by experts
   - Chairman also requested to suggest industry experts who can act as resource persons to enlighten students.

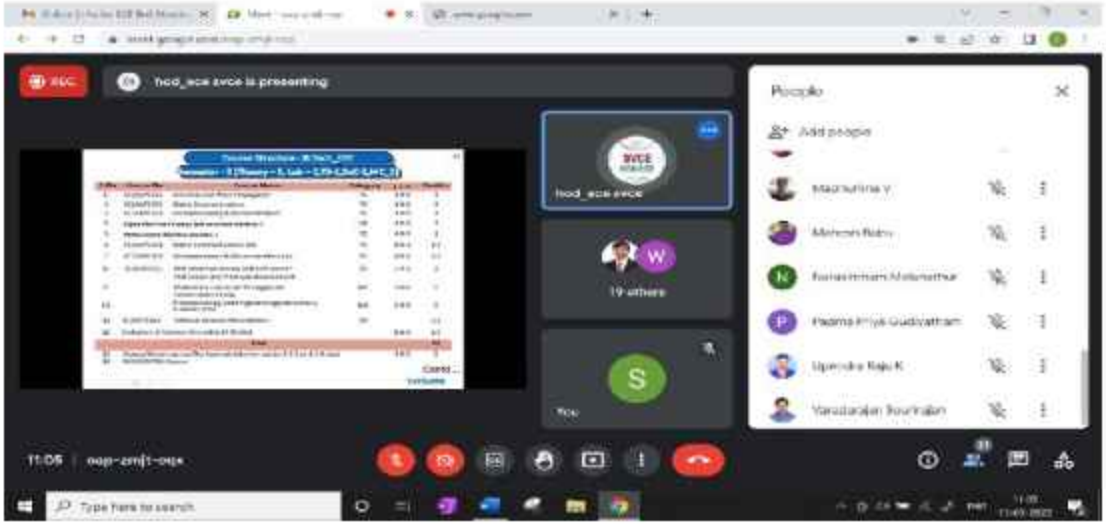
5. **Mr.M.JagannadhaRao,** IT Operations Professional, Siemens Healthineers Pvt. Ltd., Bengaluru expressed satisfaction with the course structure and syllabus of ECE related subjects and ECE course structure is almost meeting the requirements of industry needs.

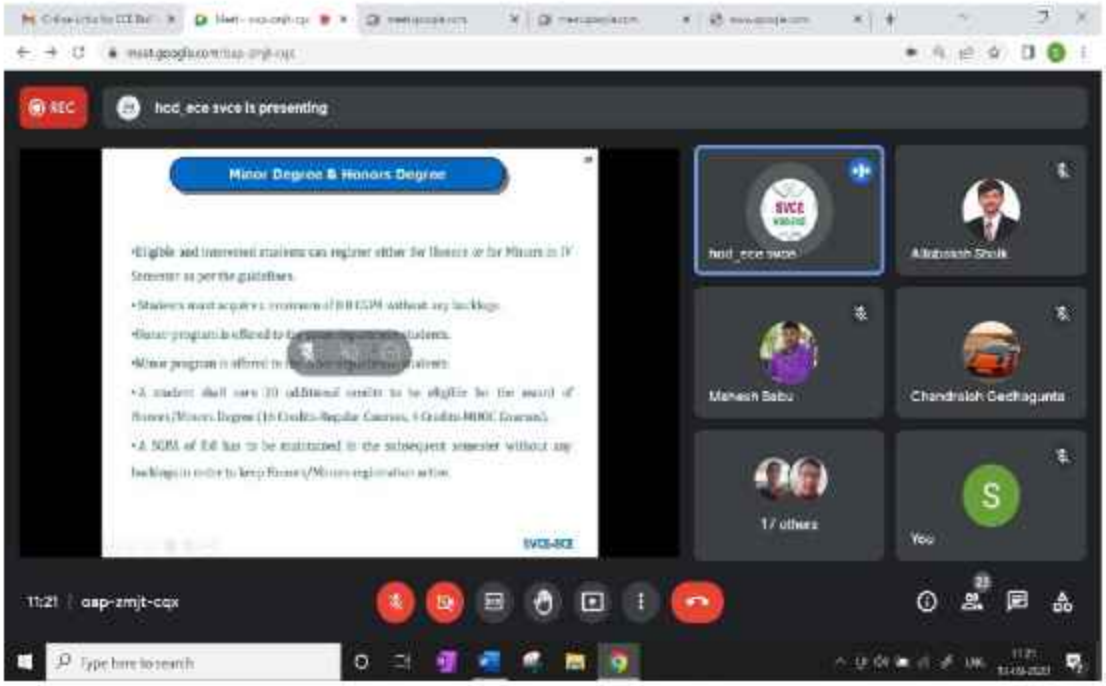
6. **Dr.D.SrinivasuluReddy** concluded the meeting by giving vote of thanks to all the BoS members. He thanked all the members for their kind presence and support.

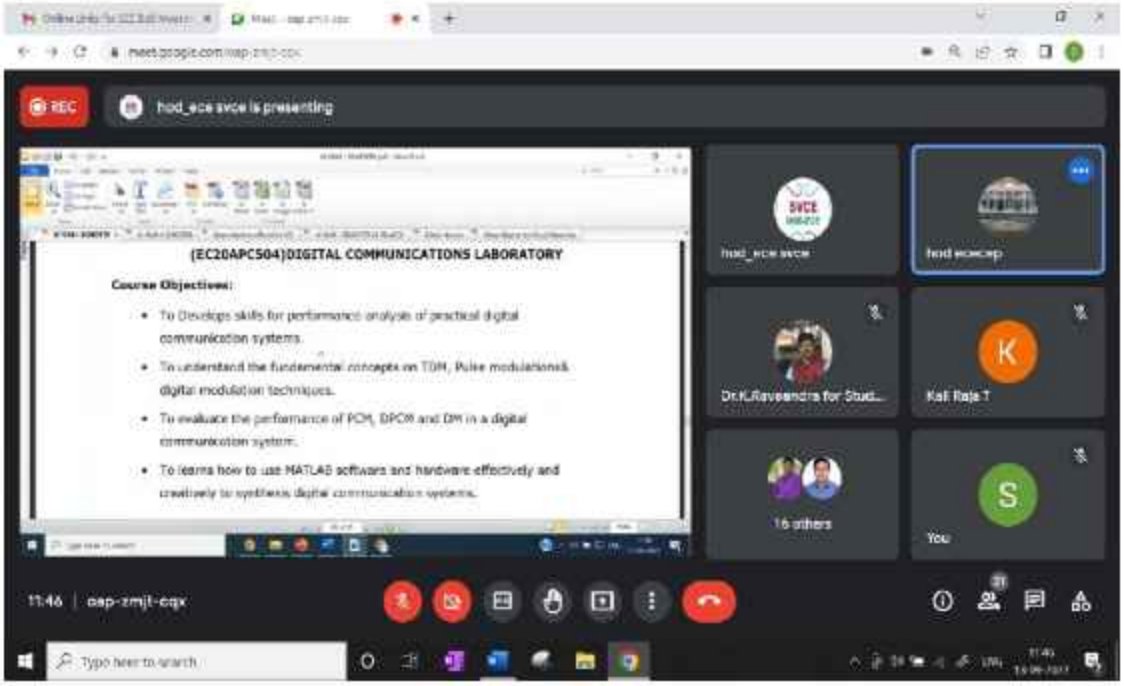
7. At the end it is decided to incorporate modifications as suggested by academic experts and share it all members for further approval process.

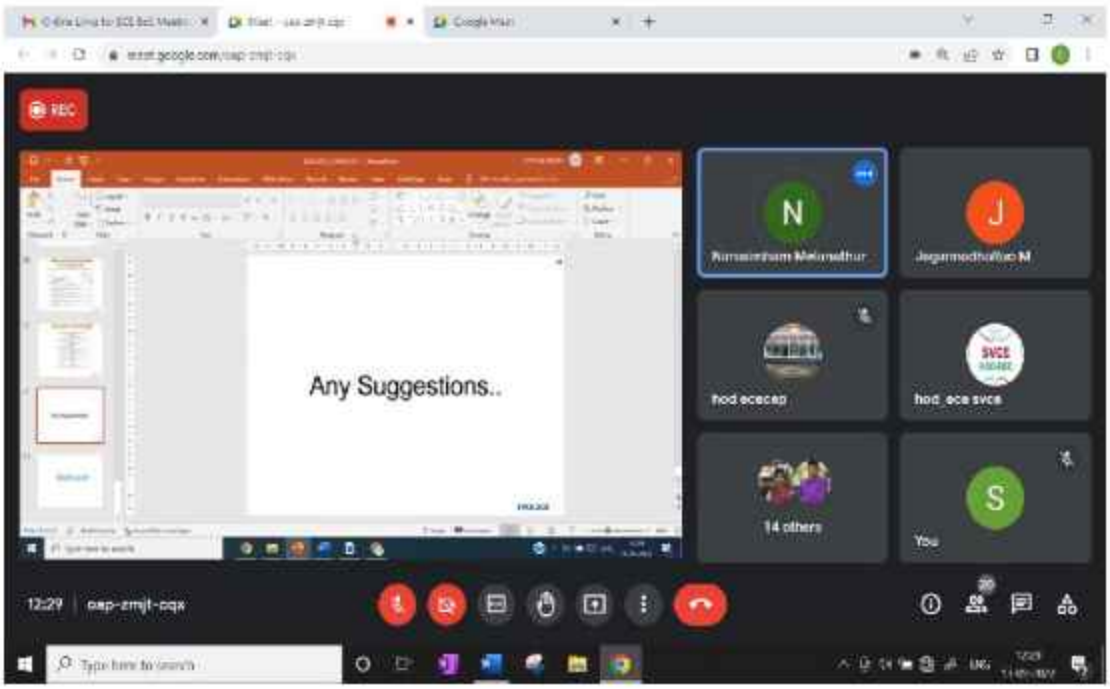
8. The meeting ended with the wishes by BoS members at 12:40pm.

Snap shots of Third BOS Meeting:









Dr.D.Srinivasulu Reddy
(HOD of ECE)
&
Chairman, BoS(ECE)

Copy to

Principal,
Chairman,
BoS Members,
To file

SRI VENKATESWARA COLLEGE OF ENGINEERING

(AUTONOMOUS)

(Affiliated to J.N.T. University Anantapur, Ananthapuramu)

Karakambadi Road Tirupati-517 507

Third BOS Minutes of Meeting

DEPARTMENT OF CIVIL ENGINEERING

FIRST BOARD OF STUDIES MEETING

Minutes of the Meeting

Mode	Online
Platform	Google Meet
Meeting Link	https://meet.google.com/idq-zcev-yrp (Video Recording option not available so the following Webinar link of civil department is used to conduct Third BOS Meeting) meet.google.com/voh-gbmg-gik
Venue	Sri Venkateswara College of Engineering, Tirupati
Date	09-09-2022
Time	11:00 IST

DEPARTMENT OF Civil Engineering – BOS MEMBERS:

Board of studies – Civil Engineering			
S. No.	**Name of the member**	**Designation & Address**	**Role**
1	Dr.M.Chittaranjan	Professor & HOD Department of Civil Engineering SV College of Engineering, Tirupati Mobile No. 9908329848 E-Mail ID : hod_ce@svce.edu.in	Chairman
2	Prof. P. R. Bhanu Murthy	Director, Academic Audit Professor of Civil Engineering Jawaharlal Nehru Technological University Anantapur Mobile: +91-9246579066 prbhanumurthy@yahoo.co.in (Personal) doaa@jntua.ac.in (Official)	Subject Expert nominated by JNTUA
3	Dr.I V Ramana Reddy	Professor of Civil Engineering SV University College of Engineering Tirupati. Mobile: 9849678039 Email : ivrreddy63@gmail.com	Subject Expert Nominated by Academic Council
4	Dr.A.Murali Krishna	Professor Dept. of Civil Engineering Indian Institute of Technology, Tirupati Mobile: 7086046500 Email: amk@iittp.ac.in	Subject Expert Nominated by Academic Council
5	Murali Naidu Talapaneni	Vice President GRE – Head India Design & Construction JP Morgan Chase & Co. Bangalore-560075 Mobile: 99000 94530 Email: muralinaidu.t@gmail.com	Industry Expert Nominated by Academic Council
6	G.Sai Abhishek	Managing Director Lm enterprises, Space craft interiors. Mobile: 9652146202, 8500005590 Email:spacecraftinteriors.tpt@gmail.com	Meritorius Alumni Nominated by Academic Council

7	G.Anusha	Assistant Professor Department of Civil Engineering SV College of Engineering, Tirupati Mobile: 9440232503 Email: anusha.g@svcolleges.edu.in	Member
8	V. Mahesh	Assistant Professor Department of Civil Engineering SV College of Engineering, Tirupati Mobile: 9652963387 Email: mahesh.v@svcolleges.edu.in	Member
9	V.R. Sai Devayani	Assistant Professor Department of Civil Engineering SV College of Engineering, Tirupati Mobile: 8639634524 Email: devayani.vr@svcolleges.edu.in	Member
12	J.Harish	Assistant Professor Department of Civil Engineering SV College of Engineering, Tirupati Mobile: 9052238069 Email: harish.jattum@svcolleges.edu.in	Member
13	K.Muniswamy	Assistant Professor Department of Civil Engineering SV College of Engineering, Tirupati Mobile: 8297041611 Email:	Member
14	A.Usha	Assistant Professor Department of Civil Engineering SV College of Engineering, Tirupati Mobile: 8330947971 Email: usha.a@svcolleges.edu.in	Member
15.	T. Pakkirappa	Assistant Professor Department of Civil Engineering SV College of Engineering, Tirupati Mobile: 8374158011 Email: pakkirappa.p@svcolleges.edu.in	Member
16.	C.M. Prakash	Assistant Professor Department of Civil Engineering SV College of Engineering, Tirupati Mobile: 9400753357 Email: prakash.cm@svcolleges.edu.in	Member

Agenda:

1) Welcome to all Members of Board of Studies of Civil Engineering department.
2) Approval for the proposed changes in Course Structure Regulations (R20) to be followed by the students admitted in the year 2020 pertaining to B.Tech
3) Approval for the III & IV B.Tech Syllabus to be followed by 2020 admitted students.
4) Approval for the panel of examiners for setting the Question papers
5) Any other item with the permission of chair.

Order of events:

1. The meeting started with joining of BOS members to the online meeting in Google Meet platform.
2. Welcome address by Dr.M.Chittaranjan, HoD of CE, SVCE.
3. Presentation by Dr.M.Chittaranjan, HoD of CE, SVCE
4. Discussion on Proposed changes in Course Structure
5. Discussion on proposed syllabus for III & IV year B.Tech
6. Discussion on Panel of Examiners for question Paper Setting.
7. Suggestions from BOS members
8. Vote of thanks.

Minutes of Meeting:

1. Dr.M.Chittaranjan welcomed all the BOS members to the review meeting and reviewed the agenda.
2. Dr.M.Chittaranjan discussed the agenda of the 3rd BOS meeting held on 09/09/2022.
3. Dr.M.Chittaranjan discussed the finalized points of 2nd BOS meeting (II year Course Structure & II-I, II-II Syllabus).
4. Dr.M.Chittaranjan, presented to all BOS members about proposed changes in course structure for 3rd & 4th year B. Tech Civil Engineering
5. Dr.M.Chittaranjan, proposed to include Universal Human Values as 3 credit course in 4th semester as per Amendment in B.Tech R20 Regulations of JNTU Ananthapur. By including this subject the total credits increase from 160 to 163 for regular students and 121 to 124 for Lateral Entry students. All BOS Members approved the proposal raised by BOS Chairman.
6. Dr.M.Chittaranjan proposed to change the duration of Industrial Training & Industrial Project/Research Project from 2 months to 4 to 6 weeks. All BOS Members approved the proposal raised by BOS Chairman and suggested that if it is online mode (Internship / Industrial Training) it can be considered even it is 2 months.

7. Dr.M.Chittaranjan proposed to include Technical Seminar-I in 5th semester, Technical Seminar-II in 6th semester, Technical Seminar-III and Project Work Stage-I in 7th semester the 0.5 credits is given for each Technical Seminar so that 1.5 credits goes to 3 Technical Seminars and 2 credits given for Project Work Stage-I in order to compensate addition of these 4.5 credits is deducted from Project Work in 8th semester. 8.5 credits given for Project Work. All BOS Members approved the proposal raised by BOS Chairman.
8. Dr.M.Chittaranjan proposed list of Open Electives offered by the Civil Department to other department. But all BOS members suggested to include any other subjects which doesn't require any pre-requisites in place of Ground Improvement and Rehabilitation and Retrofitting of Structures.
9. Dr.M.Chittaranjan proposed to add Enhancing English Language Skills in 3rd semester, Engineering Mathematics in 4th semester, Problem Solving and Programming in 5th semester and AI Tools Techniques and Applications in 6th semester for Lateral Students only as per R20 Regulations approved by Academic Council of SVCE Tirupathi. All BOS Members appreciated the proposal but suggested to change the category as MCLE instead of MC. After making discussion with Controller of Examination of SVCE it was decided to make it as MC because it is common for all branches and approved by BOS Members of other departments.
10. Dr.P.R.Bhanu Murthy suggested that the Mandatory Course for Lateral Entry students can be considered as Audit Courses because the marks of mandatory course may influence the CGPA of students and suggested BOS Chairman to discuss with Controller of Examination to take decision. After making discussion with Controller of Examination of SVCE it was cleared that the marks of mandatory course for lateral entry students not considered in the calculation of CGPA. Hence BOS Chairman decided it will be considered as Mandatory Courses instead of Audit Courses.
11. Dr.A.Murali Krishna suggested to change the Foundation Engineering title as Geotechnical Engineering.
12. Dr.M.Chittaranjan proposed the list of Open Electives offered by other department to Civil Engineering department. He informed to all BOS members that the respective department will get approval for all subjects and syllabus of Open Electives from their BOS members.
13. Dr.A.Murali Krishna regarding Foundation Engineering subject he suggested to include IS Code recommendations in 1st unit, Wedge Method in unit 2, Design aspects of Retaining wall, Introduction to Reinforced Earth in unit 3 and suggested to move settlement analysis before allowable bearing pressure.
14. Dr.A.Murali Krishna regarding Foundation Engineering subject he suggested to use

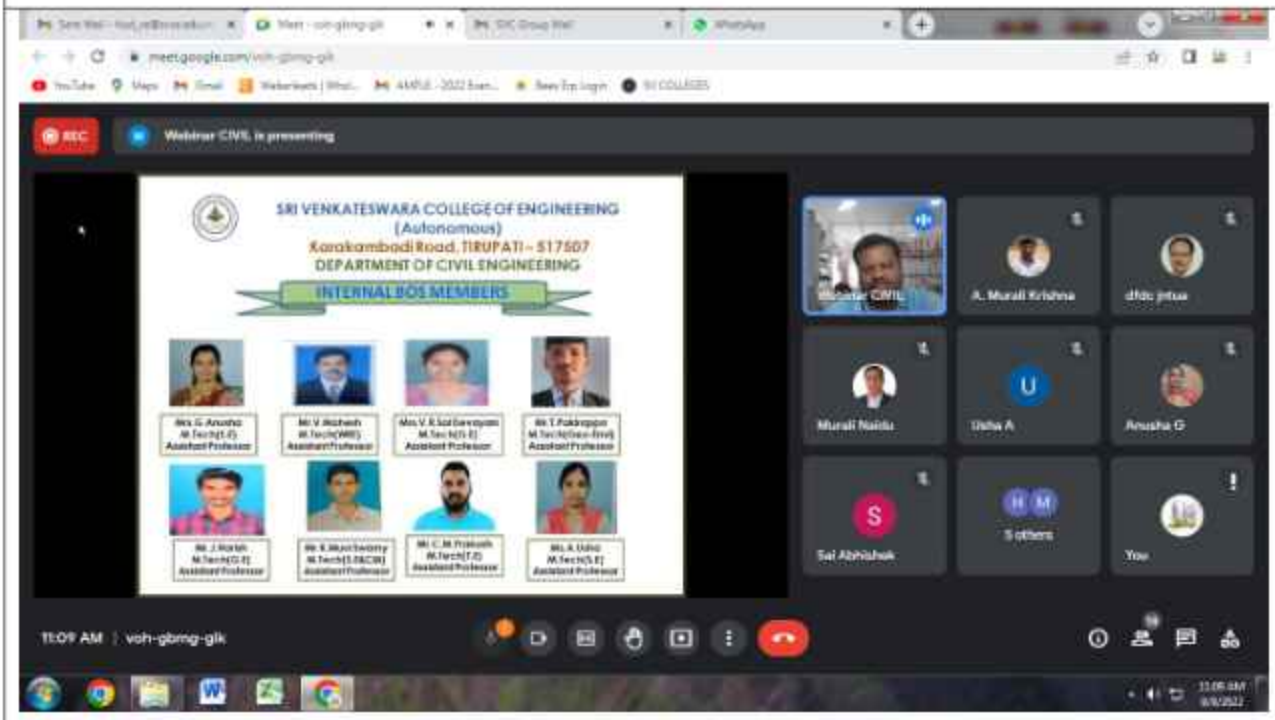
appropriate terms in place of Static and Dynamic formula by referring standard Textbooks and instructed to remove Swedish arc method from unit 2.

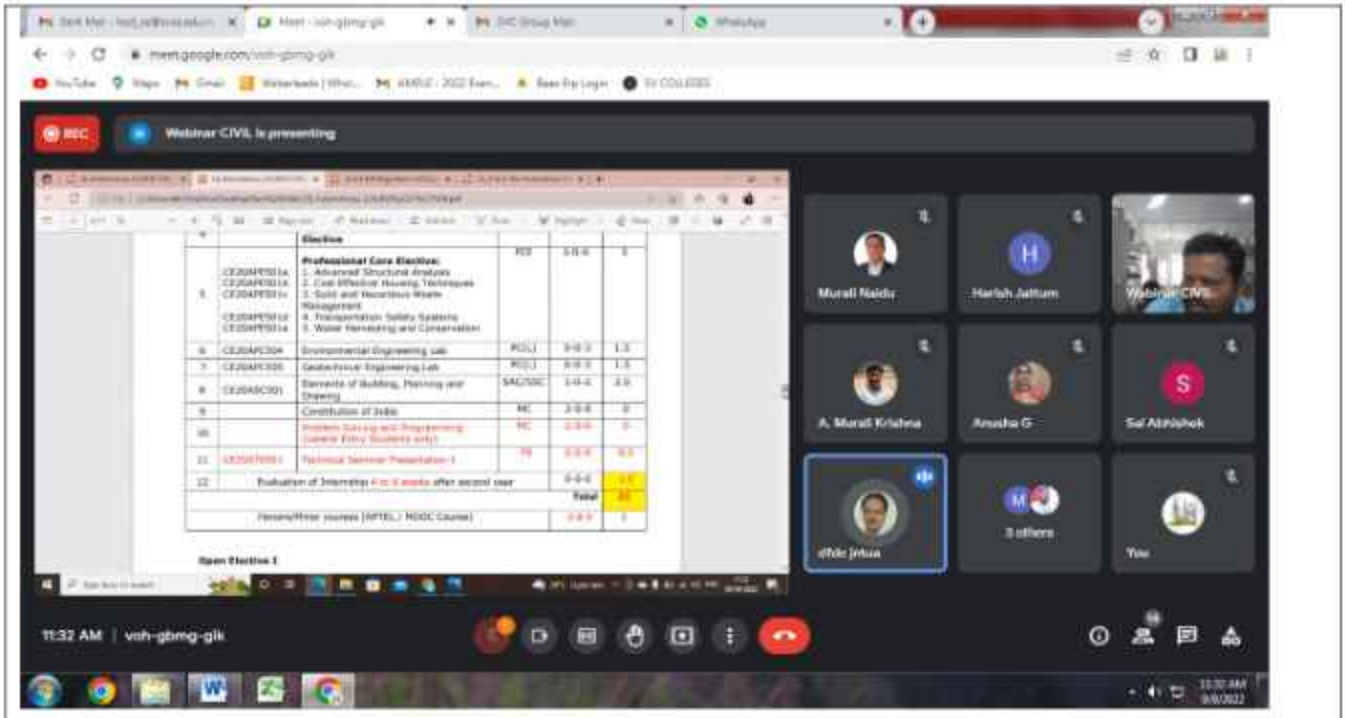
15. Dr.A.Murali Krishna suggested to follow a standard format for Text Books and References for all Subjects. He suggested to mention Editions and Publications for all Text Books.
16. Dr.A.Murali Krishna suggested to remove Standard Penetration Test in Geotechnical Engineering Lab. He mentioned that it is an application not a test.
17. Dr.A.Murali Krishna regarding Ground Improvement Techniques he suggested to change the title of 4th unit as Geosynthics and Soil Reinforcement and instructed to introduce Geosynthics topic first then Reinforced Earth topic.
18. Dr.A.Murali Krishna regarding Ground Improvement Techniques subject he suggested to change the title of 5th unit as Stabilization of Expansive Soils.
19. Dr. P.R Bhanu Murthy reviewed and accepted the syllabus for highway engineering.
20. Dr. M. Chittaranjan proposed the change in subject title from Railways and Dock engineering to "Railway, Airport and Harbour Engineering". Dr. P.R Bhanu Murthy reviewed the syllabus and accepted to add airport engineering in this subject.
21. Dr. P.R Bhanu Murthy regarding Traffic Engineering & Management subject suggested to remove some topics from unit-1 as the topics mentioned in syllabus are vague. He, also Suggested to add very basics of traffic engineering in Unit-1 like vehicle characteristics, driver characteristics and road characteristics etc.
22. Dr. P.R Bhanu Murthy regarding Traffic Engineering & Management subject suggested to remove land use characteristics, skid resistance and breaking efficiency (problems) in the in introduction to Traffic engineering.
23. Dr. P.R Bhanu Murthy suggested to remove computer applications to signal design and signal coordination topics in unit-3 of traffic management.
24. Dr. P.R Bhanu Murthy said that unit-4 syllabus in highway engineering and traffic management is almost same. Later, He suggested to add design of traffic facilities like intersections and rotaries.
25. Dr. P.R Bhanu Murthy suggested to remove the Traffic System Management (TSM) and Travel Demand Management (TDM) topics in unit-5 of traffic management.
26. Dr. P.R Bhanu Murthy commented that the syllabus in unit-1 of transportation safety systems contains vast content and more topics. So, he suggested to confine the syllabus to basic concepts of traffic engineering, as the unit1 is introduction to traffic engineering.
27. Dr. P.R Bhanu Murthy suggested to remove crash investigations and analysis topic in unit-4 of transportation systems and safety subject.
28. Dr. P.R Bhanu Murthy suggested to add the topics like need of crash mitigation measures

and the problems due to improper traffic management in unit-5 of transportation systems and safety.

29. Dr.I.V.Ramana Reddy regarding Design of Reinforced Concrete Structure subject suggested to include the topic - Design of Singly Reinforced Beam under working stress method in Unit 1, Pad and Sloped footings and Different types of Stair Cases in unit 5.
30. Dr.I.V.Ramana Reddy regarding Design of Reinforced Concrete Structure subject suggested to remove varying term and replace it as different in 3rd Learning Outcome of unit 1, remove under due to term and replaced it as subjected to in 3rd Learning Outcome of unit 2, remove classify term in 1st Learning Outcome of unit 3, remove the term Design reinforced concrete slabs and replaced it as understand serviceability concepts 3rd Learning Outcome of unit 3.
31. Dr.I.V.Ramana Reddy regarding Advanced Structural Analysis subject suggested to remove Flexibility matrix method topic of unit 4.
32. Dr.I.V.Ramana Reddy regarding Design of Steel Structures subject suggested to remove the term bending of unit 2, to remove the term allowable stresses of unit 4.
33. Dr.I.V.Ramana Reddy regarding Advanced RCC Design subject suggested to remove the bunkers and silos and include Shear walls in unit 2.
34. Dr.I.V.Ramana Reddy suggested to change the lab name of Structural Designing Using STADD PRO to Computer Aided Design of Structures.
35. Dr.I.V.Ramana Reddy suggested to include 4 different specialization subjects in Professional Elective Courses.
36. All BOS members given approval for the panel of examiners for setting the Question papers proposed by BOS Chairman.

Snap shots of First BOS Meeting

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REC
Webinar CIVIL is presenting
Murali Naidu
Harish Jattum
A. Murali Krishna
Anusha G
Sai Abhishek
dfdc jntua
3 others
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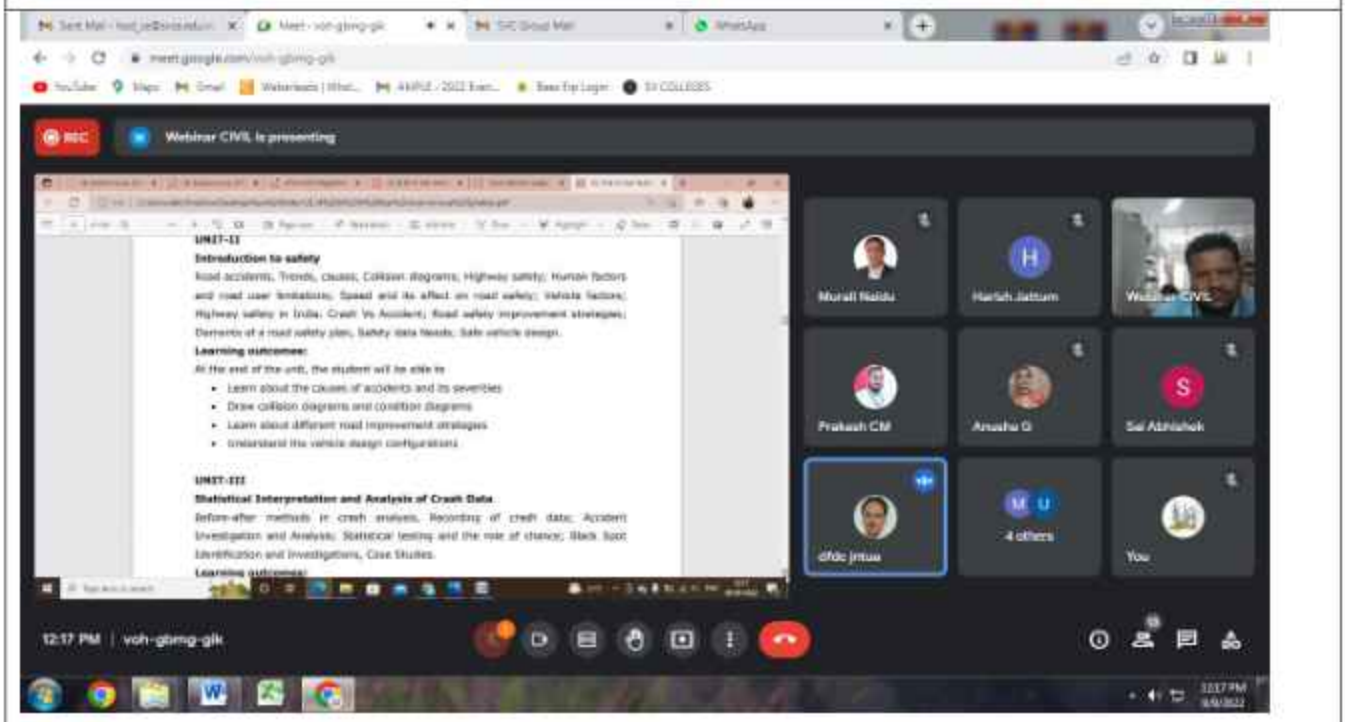
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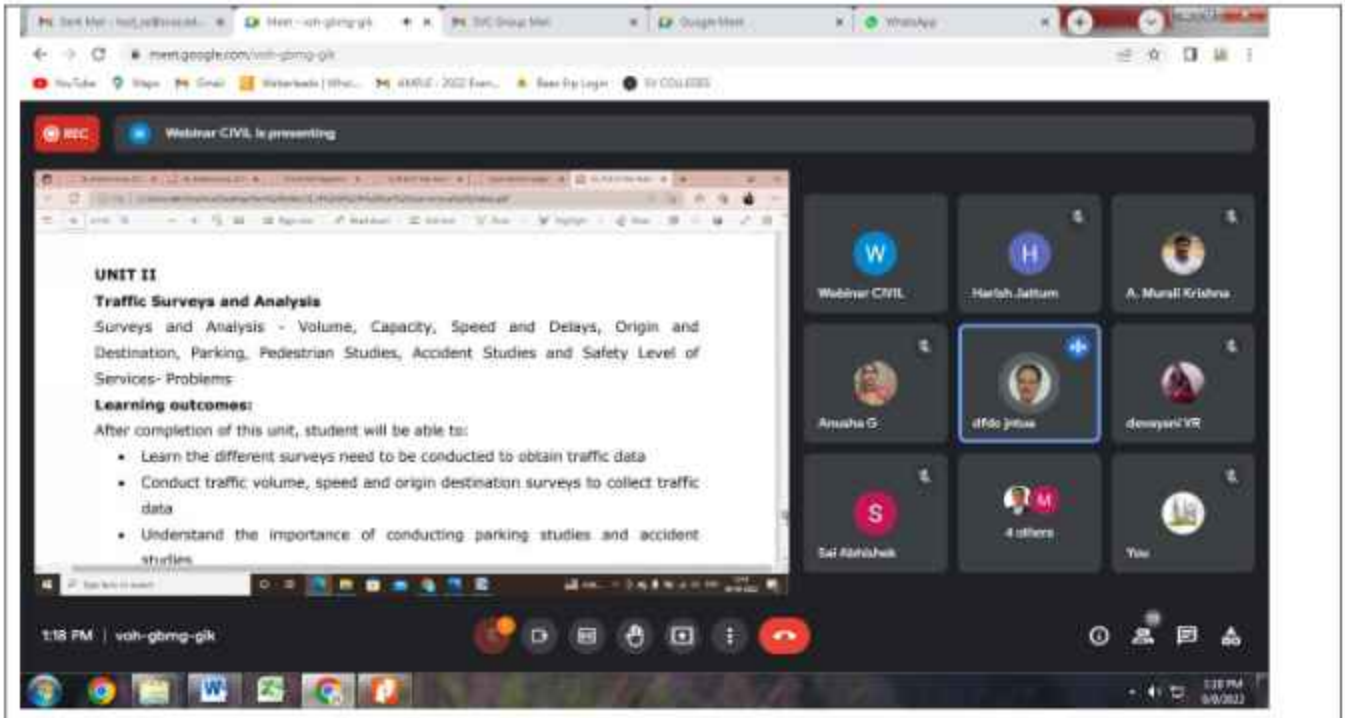
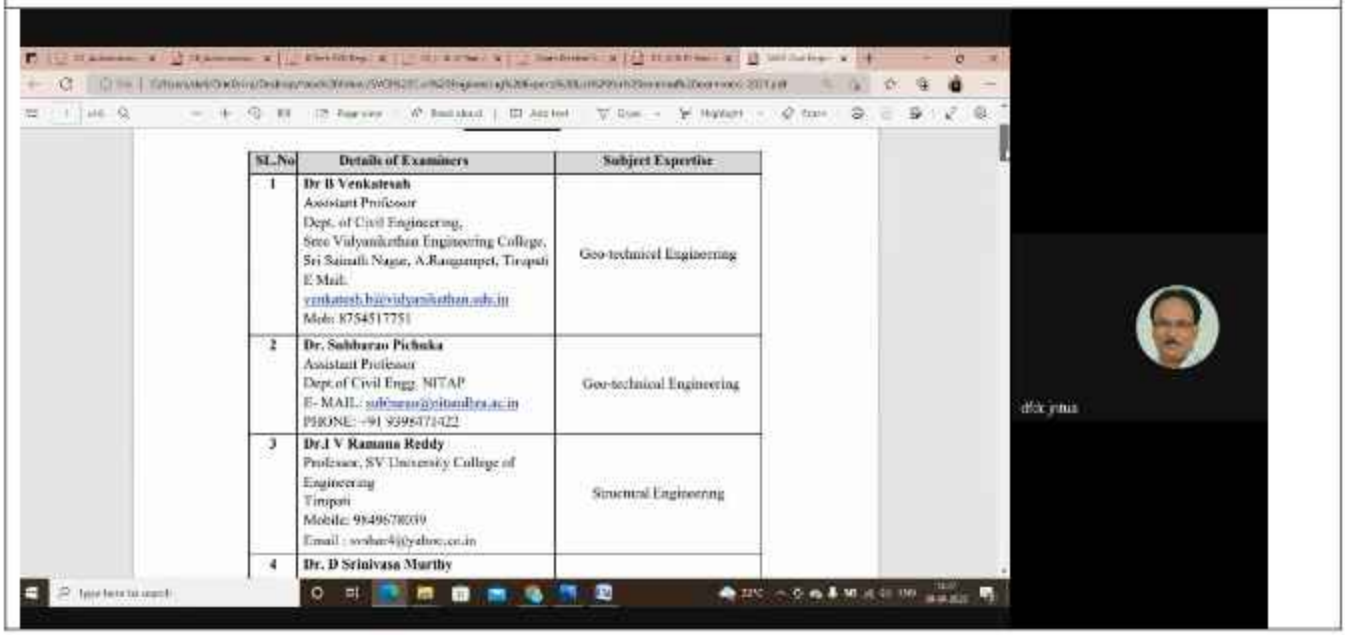
REC
Webinar CIVIL is presenting
UNIT-II
Introduction to safety
Learning outcomes:
At the end of the unit, the student will be able to
Learn about the causes of accidents and its severities
Draw collision diagrams and condition diagrams
Learn about different road improvement strategies
Understand the vehicle design configurations
UNIT-III
Statistical Interpretation and Analysis of Crash Data
Murali Naidu
Harish Jattum
Prakash CM
Anusha G
Sai Abhishek
dfdc jntua
4 others
You
12:17 PM | voh-gbmg-gik





SL.No	Details of Examiners	Subject Expertise
1	**Dr B Venkatesah** Assistant Professor Dept. of Civil Engineering, Sree Vidyanikethan Engineering College, Sri Sainath Nagar, A.Rangampet, Tirupati E Mail: venkatesh.b@vidyanikethan.edu.in Mob: 8754517751	Geo-technical Engineering
2	**Dr. Subbarao Pichuka** Assistant Professor Dept.of Civil Engg. NITAP E- MAIL: subbarao@nitandhra.ac.in PHONE: +91 9396371422	Geo-technical Engineering
3	**Dr.I V Ramana Reddy** Professor, SV University College of Engineering Tirupati Mobile: 9849678039 Email : svuhec4@yahoo.co.in	Structural Engineering
4	**Dr. D Srinivasa Murthy**	

M. C

Dr.M.Chittaranjan
(**HOD, CE**)

SRI VENKATESWARA COLLEGE OF ENGINEERING

(AUTONOMOUS)

(Affiliated to J.N.T. University Anantapur, Ananthapuramu)

Karakambadi Road Tirupati-517 507

BoS Minutes of Meeting

On

06-09-2022

DEPARTMENT OF INFORMATION TECHNOLOGY

BOARD OF STUDIES MEETING

Mode	Online
Platform	Google Meet
Meeting Link	https://meet.google.com/csj-iebz-wiq
Venue	Sri Venkateswara College of Engineering, Tirupati
Date	06-09-2022
Time	2:30 PM

Minutes of the Meeting

DEPARTMENT OF IT – BOS MEMBERS

Board of studies - Information Technology			
S. No.	**Name of the member**	**Designation & Address**	**Role**
1	Dr S. Murali Krishna	Professor & HOD Department of Information Technology SV College of Engineering, Tirupati Mobile No. 9849356444 E-Mail ID : hod_it@svce.edu.in	Chairman
2	Dr A. Suresh Babu	Professor in CSE JNTUA College of Engineering JNTUA-Anantapuramu Mobile No: 9440388093 E-mail-id: sureshalladi.cse@jntua.ac.in	Subject Expert nominated by JNTUA
3	Dr P. Venkata Krishna	Professor and BOS Chairman Dept. of Computer Science, Sri Padmavati Mahila University, Tirupati, Mobile No:9443215749 E-mail-id: parimalavk@gmail.com	Subject Expert Nominated by Academic Council
4	Dr D. Vivekananda Reddy	Associate Professor Dept. of CSE Sri Venkateswara University Tirupati Mobile no: 9441005225 E-mail: svuvivek@gmail.com	Subject Expert Nominated by Academic Council

5	C Yuktesh	Smart Bridge Director-Academic Initiatives, Hyderabad. Mobile no: 8008432121 Email-id: Yuktesh@thesmartbridge.com	Industry Expert
6	Mr. Lateef Parlapalli	Assistant vice President, Automation lead Synchrony (formerly known as GE Capital) Mobile no: 9666628565 Email id : dreamtoaim.lateef@gmail.com	Alumni nominated by Academic Council.
7	C Raja	Assistant Professor Department of IT Department of Information Technology SV College of Engineering, Tirupati Mobile No.8897778957 E-mail-id: Rajachejarla85@gmail.com	Member
8	A Basi Reddy	Assistant Professor Department of IT Department of Information Technology SV College of Engineering, Tirupati Mobile No.9703474541 E-mail-id: basireddy.a@svcolleges.edu.in	Member
9	N.Nalini	Assistant Professor Department of IT Department of Information Technology SV College of Engineering, Tirupati Mobile No.8985322122 E-mail-id: nalini.nara@svcolleges.edu.in	Member
10	P Jaya Prakash	Assistant Professor Department of IT Department of Information Technology SV College of Engineering, Tirupati Mobile No.9908876781 E-mail-id:jayaprakash.p1@svcolleges.edu.in	Member
11	G Tagore Sai Prasad	Assistant Professor Department of IT Department of Information Technology SV College of Engineering, Tirupati Mobile No.9502013685 E-mail-id: tagore.g@svcolleges.edu.in	Member

12	R Raja Kumar	Assistant Professor Department of IT Department of Information Technology SV College of Engineering, Tirupati Mobile No.6309550260 E-mail-id: rajakumar.r@svcolleges.edu.in	Member
13	K Naresh	Assistant Professor Department of IT Department of Information Technology SV College of Engineering, Tirupati Mobile No.9959249971 E-mail-id: naresh.k@svcolleges.edu.in	Member

DEPARTMENT OF IT – BOS MEMBERS (ATTENDANCE)

S.No.	Name of the Member	Attendance
1	Dr S. Murali Krishna	Attended
2	Dr A. Suresh Babu	Attended
3	Dr P. Venkata Krishna	Attended
4	Dr D. Vivekananda Reddy	Attended
5	Mr C Yuktesh	Attended
6	Mr. Lateef Parlapalli	Attended
7	C Raja	Attended
8	A Basi Reddy	Attended
9	N.Nalini	Attended
10	P Jaya Prakash	Attended
11	G Tagore Sai Prasad	Attended
12	R Raja Kumar	Attended
13	K Naresh	Attended

Agenda:

1. Introduction of newly nominated members to the BoS committee.
2. About the B.Tech 3rd and 4th year Course Structure and syllabi.
3. Minor and Honor Degree courses.
4. Suggestions from BOS Members.

Order of events:

1. The meeting was held online via Google Meet platform.
2. Welcome address by Dr.S Murali Krishna, Professor & HOD of IT,SVCE.
3. Presentation by Dr.S Murali Krishna, Professor & HOD of IT,SVCE.
4. Discussion on III& IV Year B. Tech IT Course Structure & Syllabus.
5. Discussion on Open Elective Courses & Professional Elective Courses and concerned Syllabus.
6. Discussion on Honor/Minor degree course structure and guidelines.
7. Review &Suggestions from BOS Academic Experts.
8. Vote of thanks by chairman.

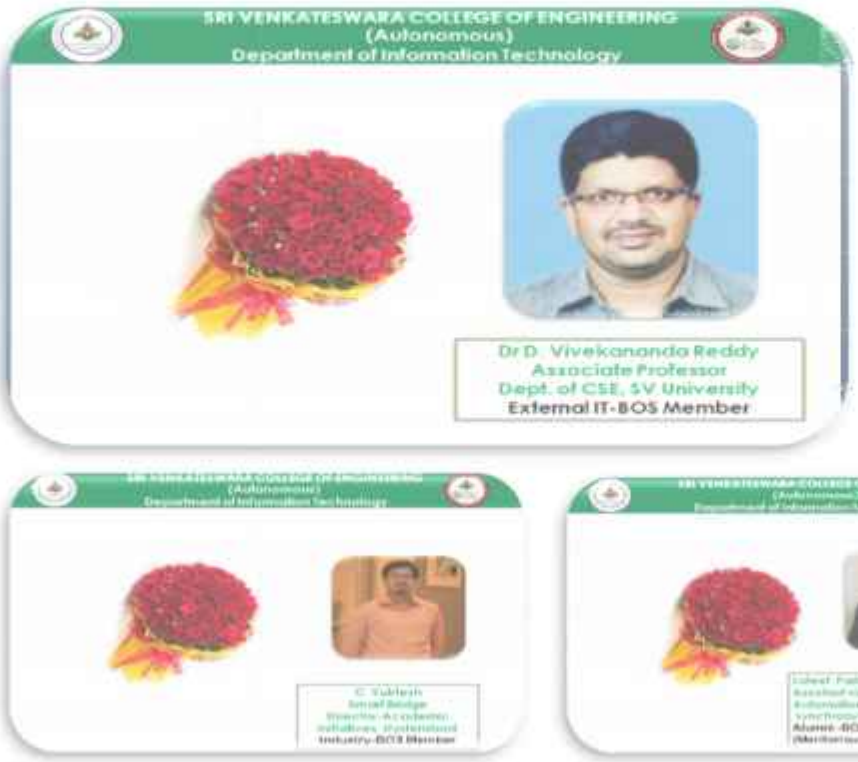
Minutes of Meeting:

1. Proceedings of the 3rd BoS meeting held on 06/09/2022

2. BoS Chairman presided over the meeting and cordially welcomed all the members of BoS to the meeting.

3. The meeting held in virtual platform(Google Meet) and commenced at about 02.30 PM on 06-09-2022

4. Dr S Murali Krishna , Chairman BoS IT introduced All BOS Members.



The presentation includes genesis of the department, B.Tech3rd and 4th year Course Structure along with the detailed syllabi.

The following are the few suggestions and feedback given by the academic experts

1 **A Suresh Babu** suggested to include more experiments in the skill oriented Course

2 **Dr. P. Venkata Krishna** suggested to include MOOC Courses in the place of skill oriented courses

3 **Dr.D Vivekananda Reddy,** suggested to conduct workshops and seminars related to core subjects.

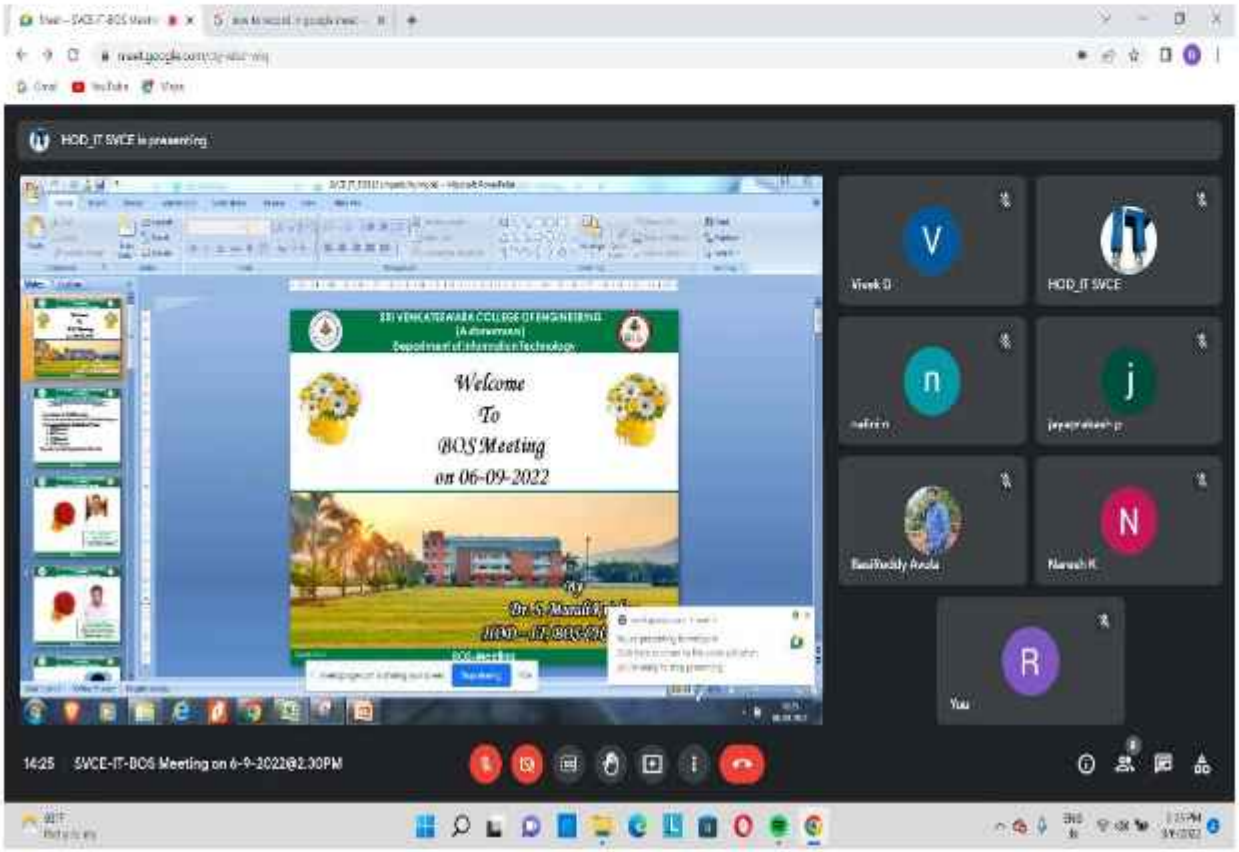
4 **C Yuktesh** and **Mr. Lateef Parlapalli** expressed satisfaction with the course structure and syllabus of IT related subjects and IT course structure is almost meeting the requirements of industry needs.

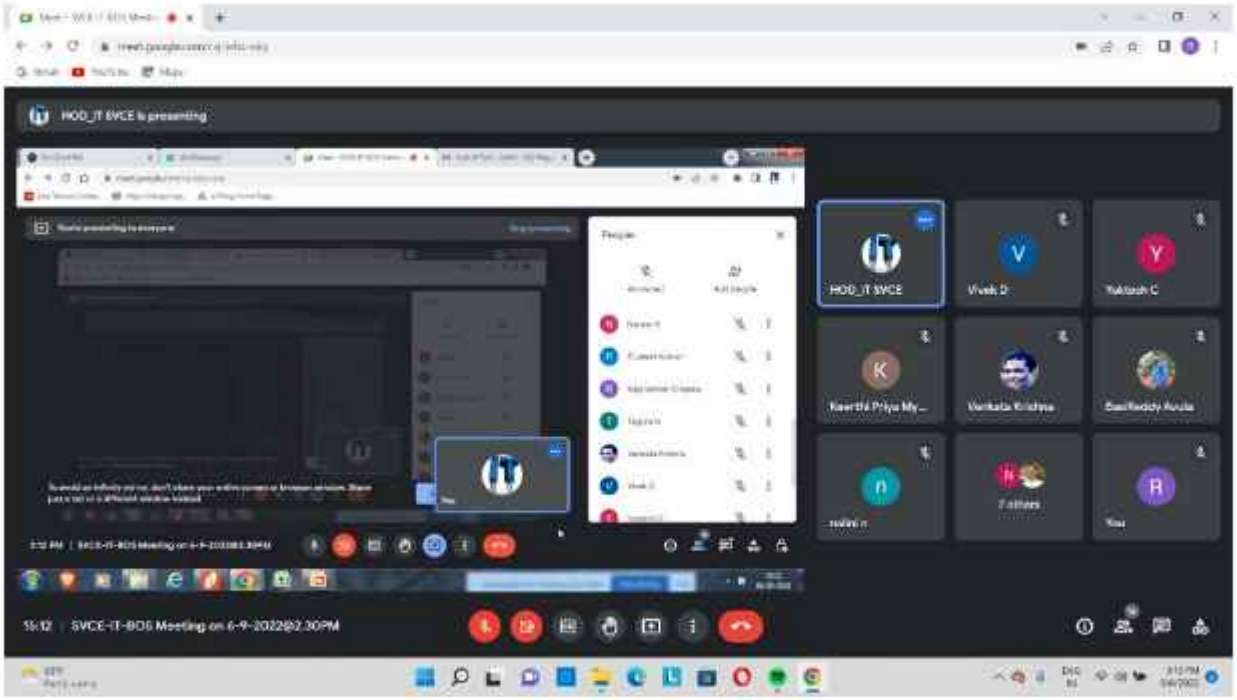
5 **Dr.S Murali Krishna** concluded the meeting by giving vote of thanks to all the BoS members. He thanked all the members for their kind presence and support.

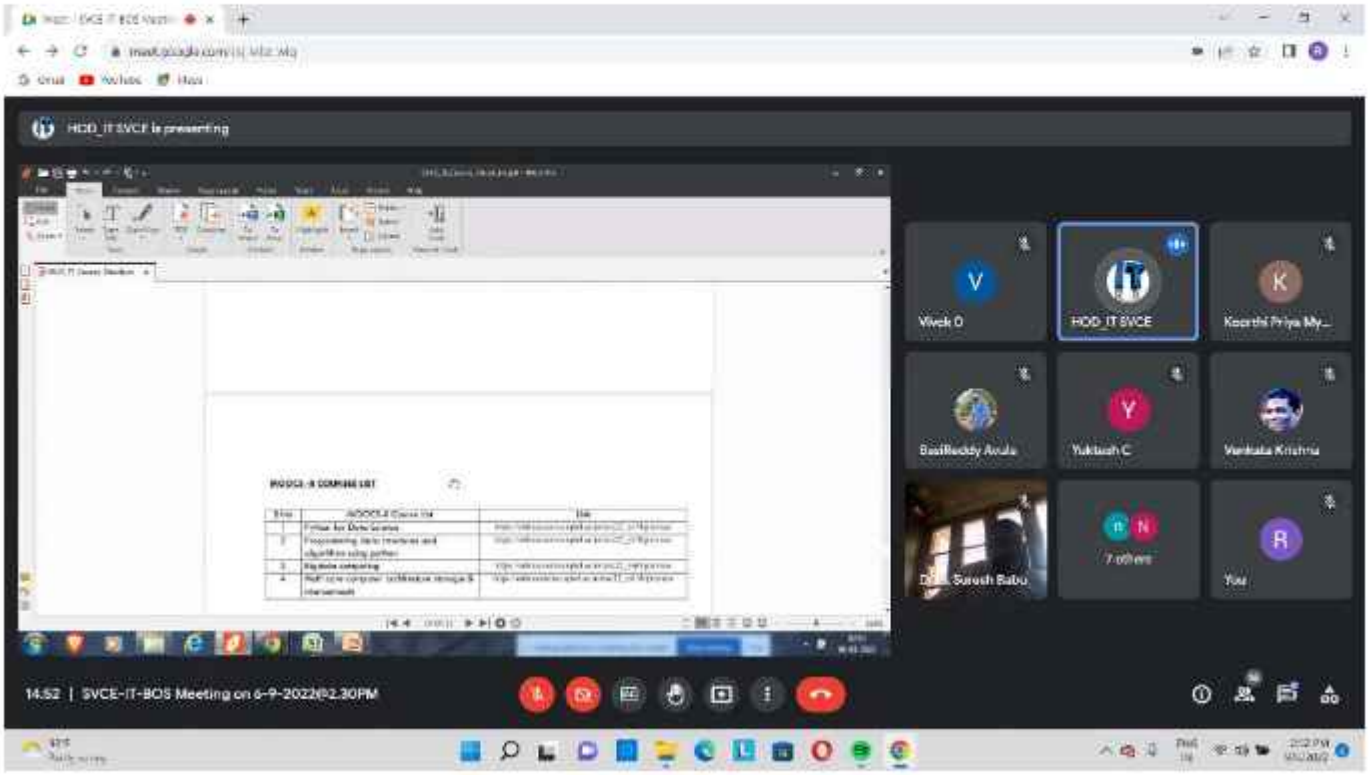
6 At the end it is decided to incorporate modifications as suggested by academic experts and share it all members for further approval process.

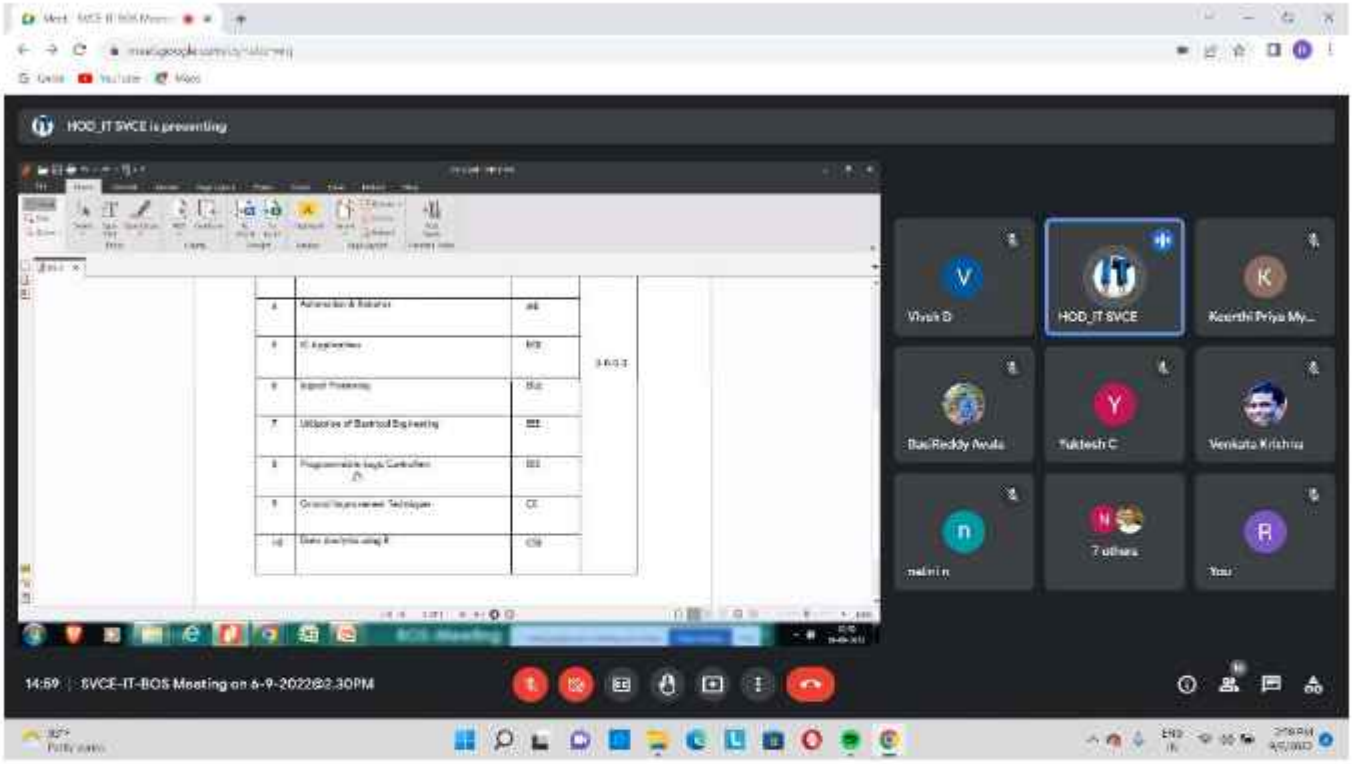
7 The meeting ended with the wishes by BoS members at 4:40pm.

Snap shots of Third BOS Meeting:






HOD_IT SVCE is presenting
Vivek D
HOD_IT SVCE
Koorthi Priya My...
BasiReddy Avula
Yuktesh C
Venkata Krishna
Suresh Babu
7 others
You
14:52 | SVCE-IT-BOS Meeting on 6-9-2022@2.30PM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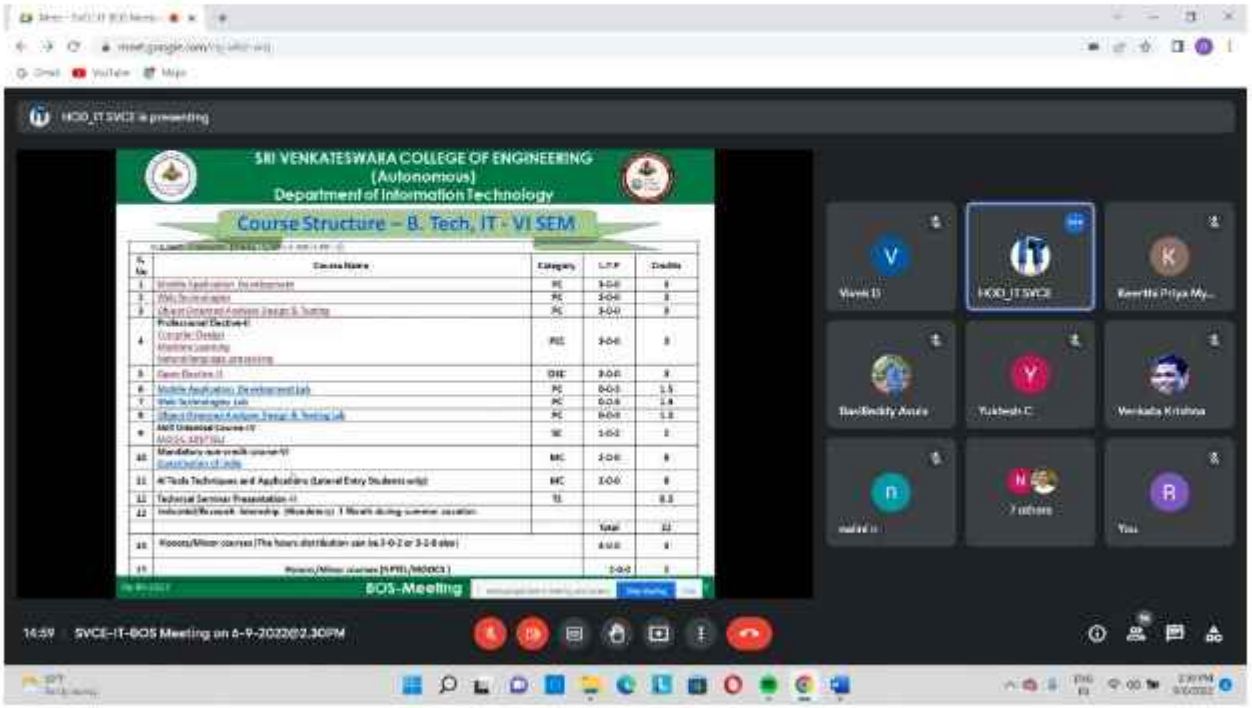
14:59 | SVCE-IT-BOS Meeting on 6-9-2022@2.30PM


HOD_IT SVCE is presenting
SRI VENKATESWARA COLLEGE OF ENGINEERING
(Autonomous)
Department of Information Technology
Course Structure – B. Tech, IT - VI SEM
BOS-Meeting
14:59 SVCE-IT-BOS Meeting on 6-9-2022@2.30PM
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HOD_IT SVCE
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Yukteh C
Venkata Krishna
7 others
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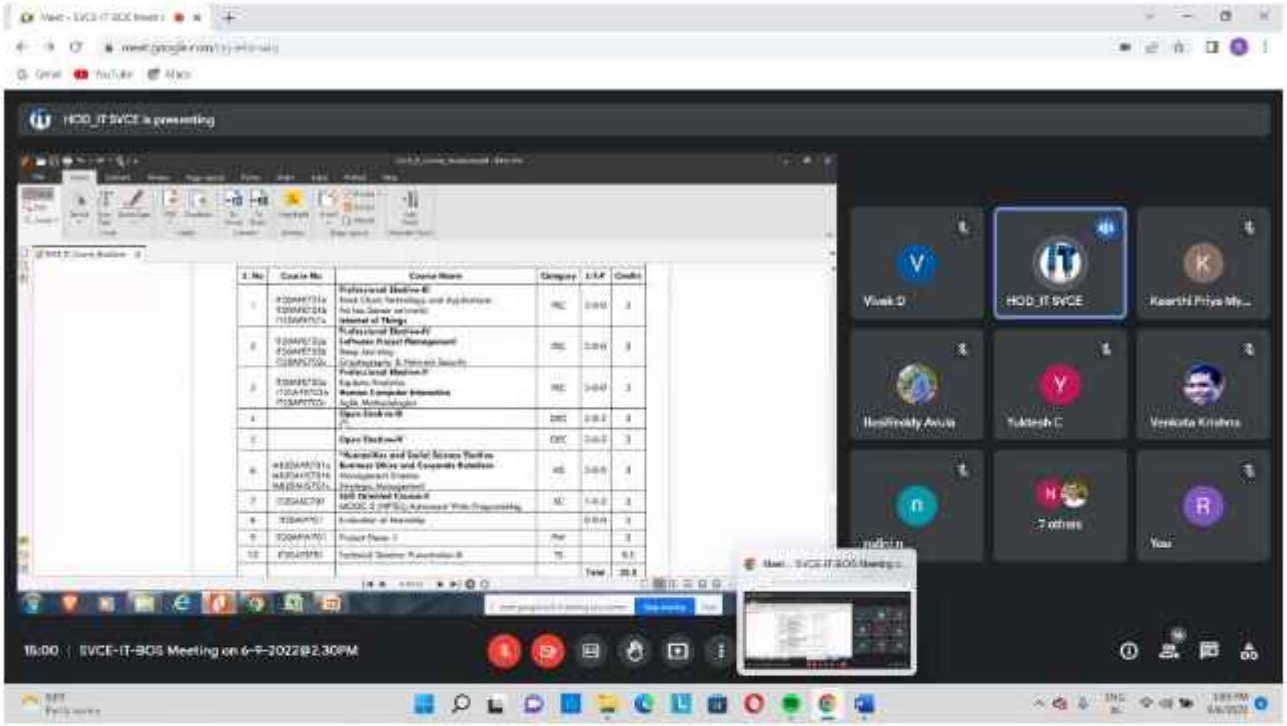
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15:00 SVCE-IT-BOS Meeting on 6-9-2022@2.30PM
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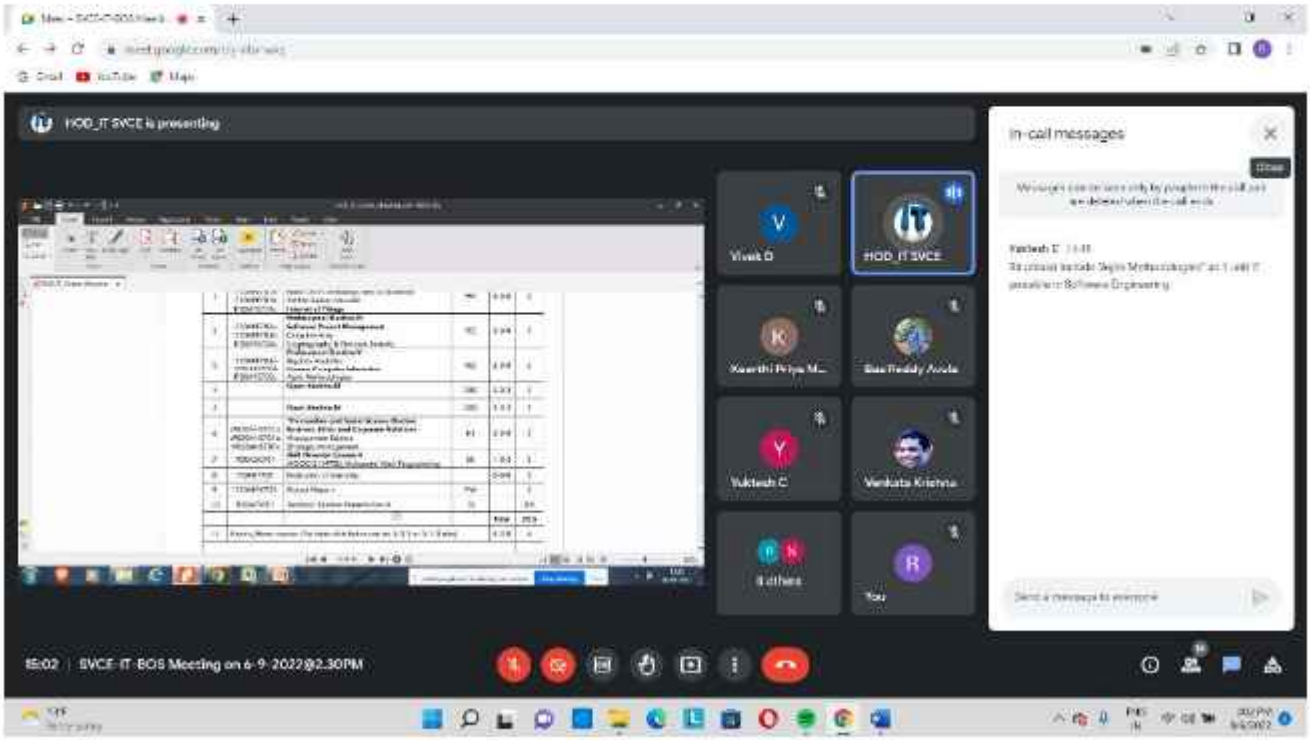
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8 others
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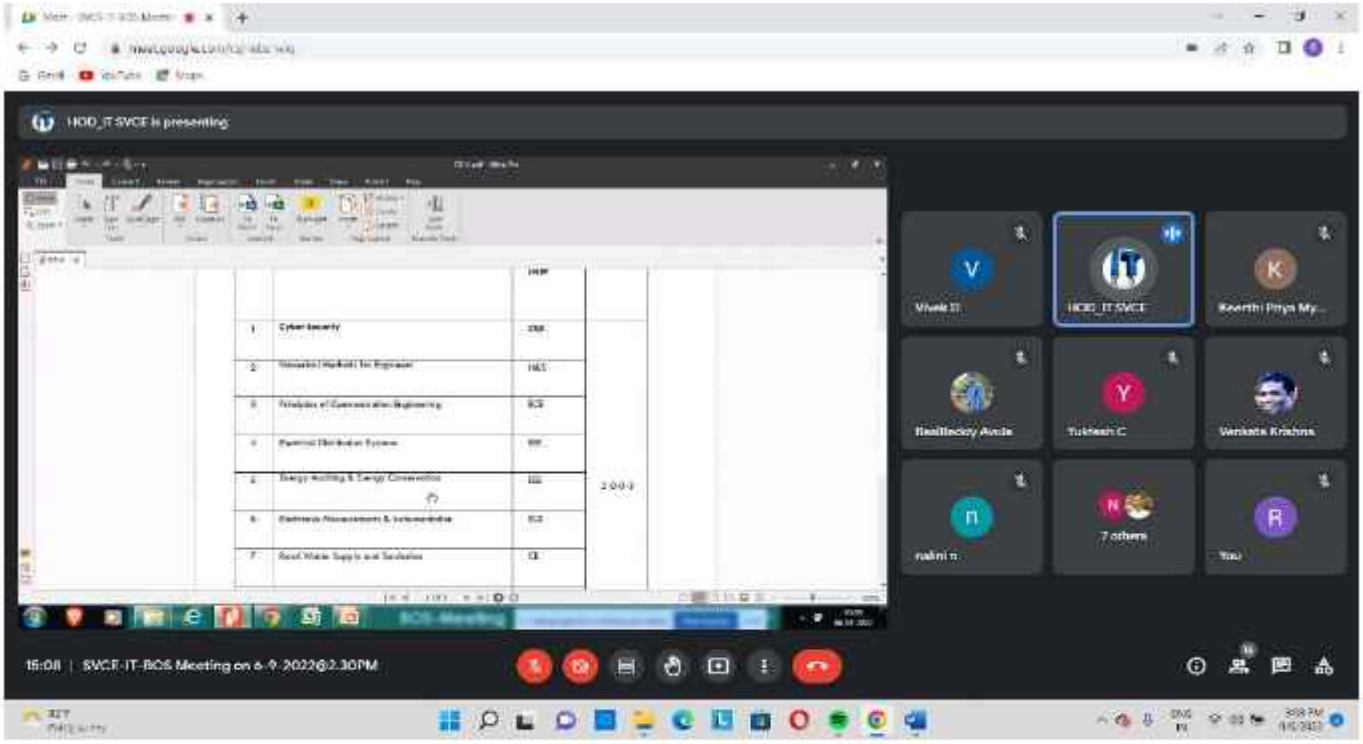
15:02 | SVCE-IT-BOS Meeting on 6-9-2022@2.30PM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7 others
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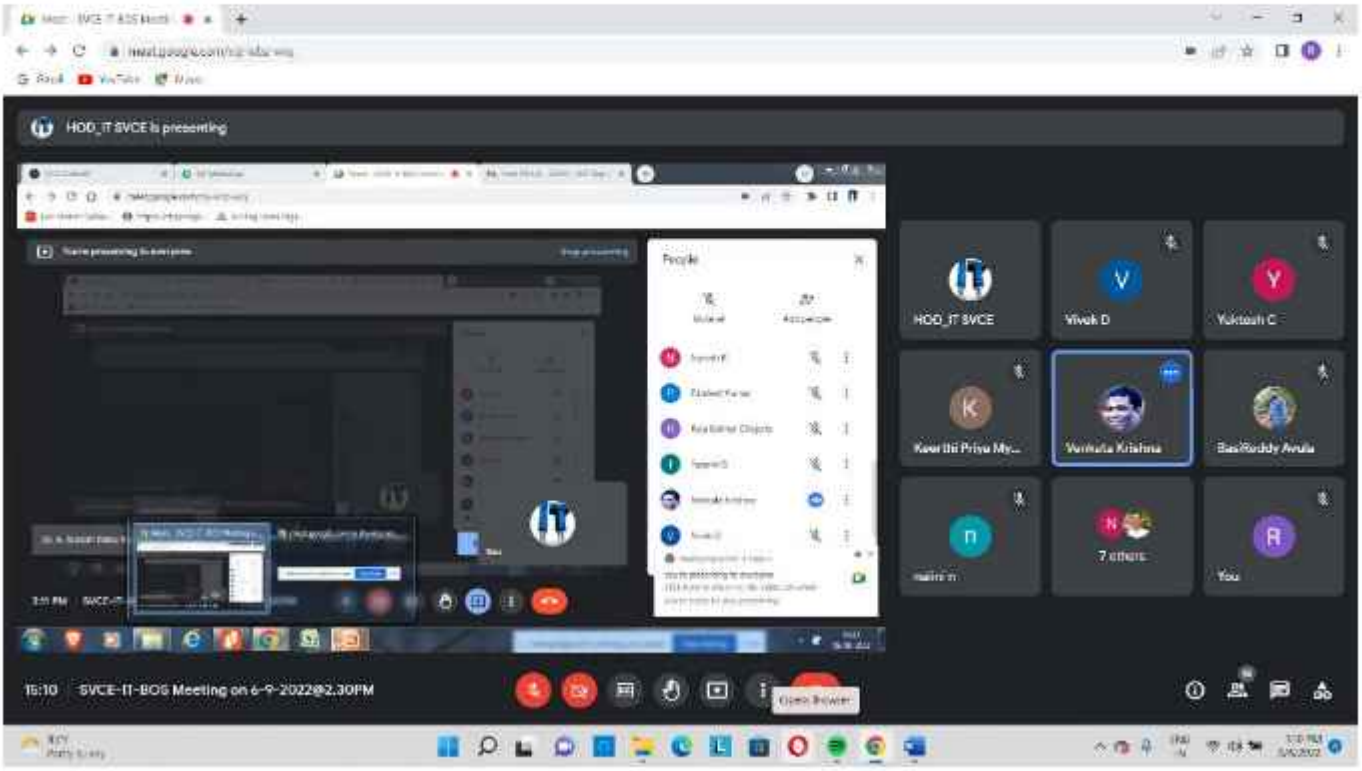
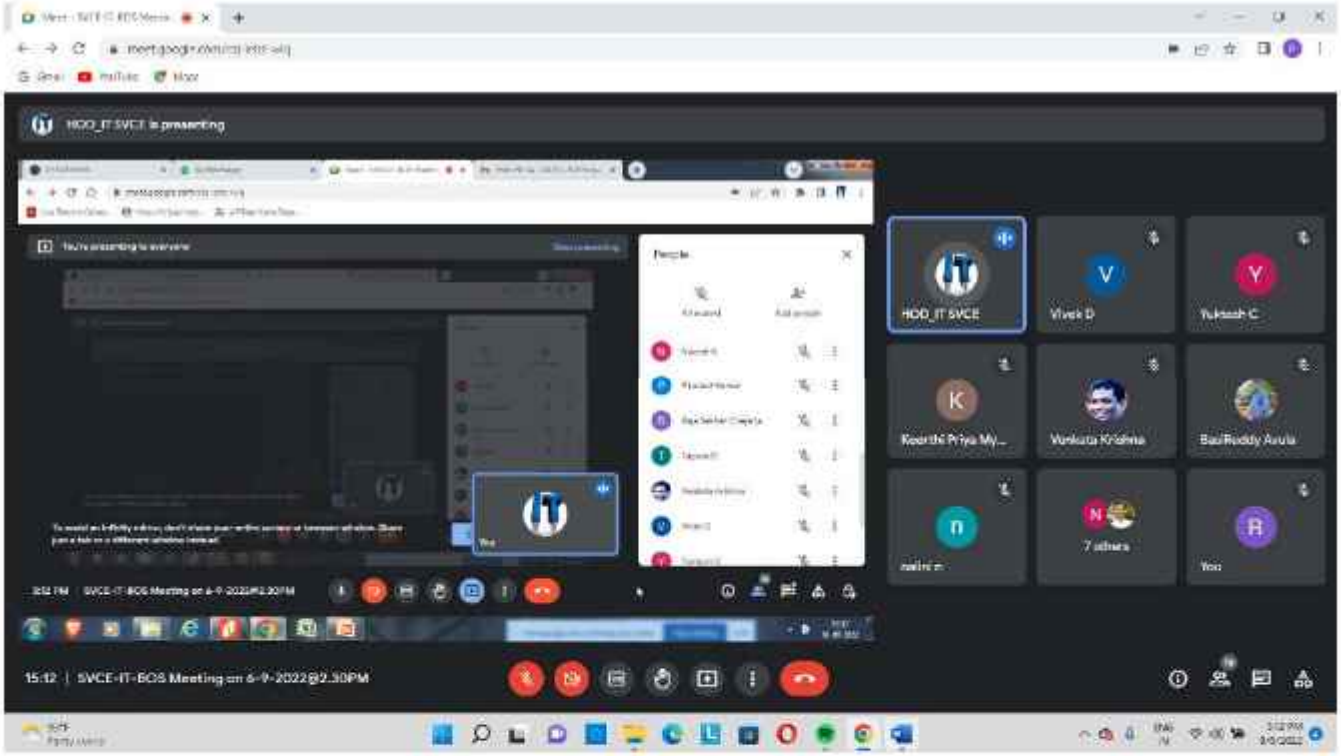
15:08 | SVCE-IT-BOS Meeting on 6-9-2022@2.30PM





Dr.S Murali Krishna

(HOD of IT & Chairman, BoS(IT)

Copy to

Principal,
Chairman, BoS
Members,To
file

SRI VENKATESWARA COLLEGE OF ENGINEERING

(AUTONOMOUS)

(Affiliated to J.N.T. University Anantapur, Anantapuramu)

Karakambadi Road Tirupati-517 507

Third BoS Minutes of Meeting

On
08-09-2022

DEPARTMENT OF MECHANICAL ENGINEERING

THIRD BOARD OF STUDIES MEETING
Minutes of the Meeting

Mode	Online
Platform	Google Meet
Meeting Link	https://meet.google.com/qxo-wymx-zgu
Venue	Sri Venkateswara College of Engineering, Tirupati
Date	08-09-2022
Time	10:00 A.M. to 12:00 P.M.
Academic Year	2021-2022

DEPARTMENT OF M.E. – BoS MEMBERS

S. No.	Name of the Member	Designation & Address	Role
1.	Dr. M. Chandrasekhara Reddy	Professor & Head Department of Mechanical Engineering, SV College of Engineering, Karakambadi Road, Tirupati – 517507, Andhra Pradesh, India. Mobile -9912243800 Mail – hod_me@svce.edu.in	Chairman
2.	Dr.B. Durga Prasad	Professor JNTUA College of Engineering Jawaharlal Nehru Technological University, Anantapur – 515 002 **E-mail:** mukdhajntu@gmail.com Phone: **9490738404.**	Subject Expert nominated by JNTUA.
3.	Dr. N. Venkaiah	Associate Professor Department of Mechanical Engineering Indian Institute of Technology Tirupati Renigunta road, Settipalli Post, Tirupati – 517506 Mobile -9441933382 Mail - venkaiah@iittp.ac.in	Subject Expert nominated by Academic Council.
4.	Dr. P. Venkata Ramaiah	Professor Department of Mechanical Engineering S V University College of Engineering Tirupati-517502 Mobile – 8523891853 Mail: pvramaiah@gmail.com	Subject Expert nominated by Academic Council.
5.	Mr. M. Sreenivasa Rao	Manufacturing Head- ASBU Amara Raja Batteries Limited, Karakambadi Road-517520, Tirupati, Andhra Pradesh, India Mobile: 9885195541 Mail: msr@amararaja.co.in	Industry Expert nominated by Academic Council.
6.	Mr. Sree Rama Madhusudan	Product Design Engineer, Knowledge Lens Pvt Ltd Plot 74/A Keonics Electronic City, Behind Cyber Park	PG Alumni nominated by Academic Council.

		Electronic City Phase 1, Bangalore 560100 Mobile Number #9030773546 Mail: madhusudhan.sreerama@knowledgelens.com	
7.	Dr. M. Vamsi Krishna	Mobile: 8978407734 Email: vamsikrishna.mamidi@svcolleges.edu.in	Member
8.	Dr. K. Madhivanan	Mobile: 9994490861 Email: madhivanan.k@svcolleges.edu.in	Member
9.	Dr. N. Rajesh	Mobile No: 9985289928 Email: rajesh.n@svcolleges.edu.in	Member
10.	Dr. E. Venkata Kondaiah	Mobile: 9866406540 Email: venkatakondaiah.e@svcolleges.edu.in	Member
11.	Dr.K. Jagath Narayana	Mobile: 9891598684 Mail: jagath.kamineni@svcolleges.edu.in	Member
12.	Dr. K. Renugadevi	Mobile: 9550802416 Mail: renugadevi.k@svcolleges.edu.in	Member
13.	Mr. D. Anjan Kumar Reddy	Mobile: 8555909344 Mail: anjankumarreddy.d1@svcolleges.edu.in	Member
14.	Mr. G. Guru Mahesh	Mobile: 9966214744 Mail: gurumahesh.g@svcolleges.edu.in	Member
15.	Mr. M. Gopala Krishna	Mobile: 9030341325 Mail: gopalakrishna.m@svcolleges.edu.in	Member
16.	Mr. P. Charan Theja	Mobile: 9985851430 Mail: charantheja.p1@svcolleges.edu.in	Member

Agenda:

1. Introduction of all the BOS Members
2. About the Department/College
3. Achievements
4. Information on Teaching Learning process.
5. Approval for the Course Structure (R20) to be followed for students admitted in the year 2020 pertaining to B. Tech (Mechanical).
6. Modification of course structure in I Year and II Year curriculum (2022-2023).
7. Allocation of credits for various courses modification and total credits from 160 credits to 163 credits.
8. Approval for the III B. Tech I & II SEM and IV B. Tech I & II SEM Syllabus of various Course.
9. MoUs
10. Information on Academic Performance of the students for the Previous academic year and Placements.
11. Valued Recruiters and Internships
12. Information on events organized for the Previous academic year and calendar of events for the upcoming months
13. Student Achievements
14. Course Structure -UG (B.Tech.-Mechanical Engineering)
15. Suggestions from BOS Members

Order of events:

1. The meeting started with joining of BOS members to the online meeting in Google Meetplatform.
2. Welcome address by Dr. M. Chandrasekhara Reddy, Professor & HoD of M.E, SVCE
3. Presentation by Dr. M. Chandrasekhara Reddy, Professor & HoD of M.E, SVCE
4. Discussion on Achievements and progress of the department
5. Discussion on B. Tech M.E Course Structure & Syllabus
6. Vote of thanks by chairman

Minutes of Meeting:

Proceedings of the Thrid BoS meeting held on 08.09.2022.

Dr. M. Chandrasekhara Reddy, Chairman BoS M.E introduced members of BOS committee nominated by JNTUA and Academic Council.

- Dr.B. Durga Prasad, Professor, JNTUA College of Engineering, Jawaharlal Nehru Technological University, Anantapur. Subject Expertnominated by JNTUA.
- Dr. N. Venkaiah, Associate Professor, Department of Mechanical Engineering, Indian Institute of Technology Tirupati. Subject Expertnominated by Academic Council.
- Dr. P. Venkata Ramaiah, Professor, Department of Mechanical Engineering, S V University College of Engineering, Tirupati. Subject Expertnominated by Academic Council.
- Mr. M. Sreenivasa Rao, Manufacturing Head- ASBU, Amara Raja Batteries Limited, Tirupati, Industry Expertnominated by Academic Council.
- Mr. Sree Rama Madhusudan, Product Design Engineer, Knowledge Lens Pvt Ltd, Bangalore, PG Alumni nominated byAcademic Council.

The presentation includes genesis of department achievements and recognitions subsequently, college recognitions and achievements subsequently the discussion shifted to review of course structure and syllabus of UG and PG.

During the presentation the feedback and remarks given by the academic experts are given below

Further, presented the course structure for B-Tech, ME, the syllabus which was prepared according to Andhra Pradesh State Council and Higher Education (APSCHE) and JNTUA-R20 regulations.

Comments/Suggestions on B-Tech courses/Syllabus:

In the beginning of the BOS meeting, all the members in BOS congratulated Dr. Durga Prasad for becoming a director OTPRI (Oil Technological and Pharmaceutical Research Institute).

Chairman of board of studies has given presentation on the department domain expertise, recognitions, and achievements etc. Subsequently, presentation moved on to the main purpose of the BOS meeting, started by presenting the overall structure on how to implement this BOS program in a systematic approach.

Further, presented the course structure for B-Tech, ME, the syllabus which was prepared according to Andhra Pradesh State Council and Higher Education (APSCHE) and JNTUA-R20 regulations.

Corrections on R-20 Course structure and Syllabus

1. Open elective mentioned as job oriented in the course structure, BOS suggested to correct as open elective only.
2. In course structure, V semester (III-I), the course title "Evaluation of internship" should be changed in line with the all-other departments

3. Correction of LTP, VI and VII semester courses should be corrected as per the course.
4. Machine drawing and DME should be interchanged form the actual semesters.
5. In open electives, AI/ML related courses should be added in the interest of students.

As per one of the BOS members, expressed those 20 credits for minor and honor degree is on higher side, better to fix in between 9-12 credits, JNTU and other statutory bodies recommended 20 credits only.

R20 Credits Modification from the A.Y 2022 – 2023

Semesters	Existing (Credits)	Proposed – Modification (Credits)
I – I	19.5	19.5
I – II	19.5	22.5
II – I	21.5	21.5
II – II	21.5	21.5
III – I	21.5	22
III –II	21.5	22
IV – I	23	25.5
IV – II	12	8.5
Total Credits	**160**	**163**

Remarks:

1. As per the previous course structure UHV is a mandatory course in I –II, now it is modified as 03 credit course in I-II.
2. Technical Seminar (I/II/III) as 0.5 credits introduced in the course structure.
3. Earlier Project work is only in IV-II, now modified as Project Phase – I in IV-I with 02 credits.

Information on Academic Performance of the students for the Previous academic years

- Identifying the courses where students are suffering and identify the slow learners and provide the remedial classes to improve the pass percentage.'
- suggested to conduct remedial classes for students who failed in the courses.

Information on placements

- Industry experts suggested improve the placements, trying to send the students to internship at the end of 2nd year. Exposure of students to industries can get an opportunity to work in core-oriented companies and encourage the students for higher studies.
- Academic expert suggested for encouraging the students to write GATE exam Also he has given the information on public sector companies gives the placements based on the GATE score only.
- Suggested to maintain the lower cap, and do not allow the companies with lower package, it will degrade the quality of placements.

Information and discussion on rubrics for Identifying best academic project.

- Academic expert also suggested giving more weightage for publication and product development
- University nominee suggested to achieve all the parameters is difficult, so take one or two parameters into consideration.

Table: Decision on BoS Agenda

S.no	Item of Agenda	Decision
1	Information on teaching learning process	Approved
2	Information on Academic performance of the students for the Previous academic years and placements	Discussed and suggested for effective implementation of remedial classes and insisted to start the training and placements activities from the II Year.
3	Information on changes in course structure and no.of credits	Approved
4	Information on events organized for the Previous academic years and calendar of Events for the upcoming months	Discussed and suggested to increase the number of activities
5	Information on R & D activities of the A.Y Previous academic years	Discussed and suggested to increase the number of publications
6	Discussion and approval of syllabi I and II semesters, and course structure	Approved with minor modifications
7	Discussion and approval of syllabi for Honor and minor programmes	Approved with minor modifications
8	Discussion on Subject Experts for External Examiners	Approved
9	Any other item with the permission of chair	-----

With the permission and acceptance of all BoS members it is decided to incorporate suggestions and modification made by academic experts and Industry experts.

The chairman, BOS thanked all the members for their active participation, constructive suggestions, and encouragement.

The meeting ended with the wishes by BoS members at 12:00pm

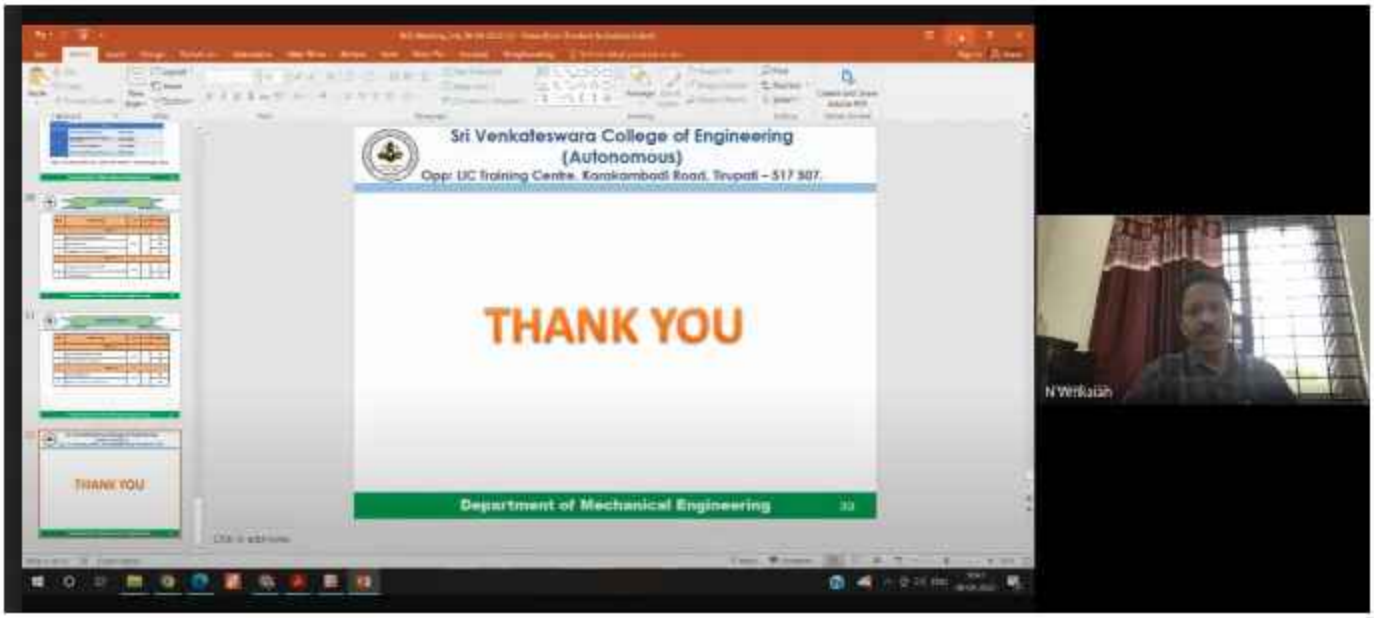
Yours sincerely,

Dr. M. Chandra Sekhara Reddy
Chairman, BOS (ME)

S. No.	Name of the Member	Signature
1.	Dr. M. Chandrasekhara Reddy	
2.	Dr.B. Durga Prasad	Approved through E-mail
3.	Dr. N. Venkaiah	Approved through E-mail
4.	Dr. P. Venkata Ramaiah	Approved through E-mail
5.	Mr. M. Sreenivasa Rao	Approved through E-mail
6.	Mr. Sree Rama Madhusudan	Approved through E-mail
7.	Dr. M. Vamsi Krishna	
8.	Dr. N. Rajesh	
9.	Dr. E. Venkata Kondaiah	

10.	Dr.K. Jagath Narayana	
11.	Dr. K. Renugadevi	
12.	Mr. D. Anjan Kumar Reddy	
13.	Mr. G. Guru Mahesh	
14.	Mr. M. Gopala Krishna	
15.	Mr. P. Charan Theja	
16.	Mr.M.Peeraiah	

Snap shots of First BOS Meeting:



Dr. M. Chandrasekhara Reddy
(HOD of M. E)
&
Chairman, BoS (M.E)

Copy to

1. **Principal, Chairman and**
2. **BoS Members To file**

SRI VENKATESWARA COLLEGE OF ENGINEERING

(AUTONOMOUS)

Karakambadi Road Tirupati-517 507

Department of Electronics & Communication Engineering

Course Structure for

I, II, III & IV Years

R 20 Regulations

SRI VENKATESWARA COLLEGE OF ENGINEERING
(Autonomous)
Karakambadi Road, TIRUPATI – 517507

Electronics and Communication Engineering

Semester - 1 (Theory - 5, Lab 4, MC-1)					
S.No	Course No	Course Name	Category	L-T-P/D	Credits
1.	MA20ABS101	Linear Algebra and Calculus	BS	3-0-0	3
2.	PH20ABS103	Applied Physics	BS	3-0-0	3
3.	EG20AHS101	Communicative English	HS	3-0-0	3
4.	EE20AES103	Fundamentals of Electrical Circuits	ES	3-0-0	3
5.	ME20AES102	Engineering Drawing	ES	1-0-0/2	2
6.	ME20AES103	Engineering Graphics Lab	ES	0-0-2	1
7.	PH20ABS104	Applied Physics Lab	BS	0-0-3	1.5
8.	EG20AHS102	Communicative English Lab	HS	0-0-3	1.5
9.	EE20AES104	Fundamentals of Electrical Circuits Lab	ES	0-0-3	1.5
10.	MA20AMC101	Logical Skills for Professionals-I	MC	2-0-0	0
Total					19.5

Semester – 2 (Theory – 4, Lab –5 , MC-2)					
S.No	Course No	Course Name	Category	L-T-P	Credits
1.	MA20ABS201	Differential Equations and Vector Calculus	BS	3-0-0	3
2.	CH20ABS103	Chemistry	BS	3-0-0	3
3.	CS20AES101	Problem Solving using C	ES	3-0-0	3
4.	EC20AES201	Electronic Devices & Circuits	ES	3-0-0	3
5.	ME20AES101	Engineering Workshop	ES	0-0-3	1.5
6.	CS20AES103	IT Workshop	ES	0-0-3	1.5
7.	CS20AES102	Problem Solving using C Lab	ES	0-0-3	1.5
8.	CH20ABS104	Chemistry Lab	BS	0-0-3	1.5
9.	EC20AES202	Electronic Devices & Circuits Lab	ES	0-0-3	1.5
10.	CH20AMC201	Environmental Science	MC	2-0-0	0
11.	EG20AMC101	Speech & Oral Communication	MC	2-0-0	0
Total					19.5

Semester – 3 (Theory –5 , Lab –3, SC -1, MC-3)					
S.No	Course No	Course Name	Category	L-T-P	Credits
1.	MA20ABS302	Complex Variables & Transforms	BS	3-0-0	3
2.	EC20APC301	Digital Logic Design	PC	3-0-0	3
3.	EC20APC302	Electronic Circuit -Analysis and Design	PC	3-0-0	3
4.	EC20APC303	Signals & Systems	PC	3-0-0	3
5.	BA20AHS301	Managerial Economics and Financial Analysis	HS	3-0-0	3
6.	EC20APC304	Basic Simulation Lab	PC	0-0-3	1.5
7.	EC20APC305	Digital Logic Design Lab	PC	0-0-3	1.5
8.	EC20APC306	Electronic Circuit -Analysis and Design Lab	PC	0-0-3	1.5
9.	IT20ASC301	Skill oriented course- Application Development using Python	SC	1-0-2	2
10.	CH20AMC301	Mandatory course (AICTE suggested): Biology For Engineers	MC	2-0-0	0.0
11.	MA20AMC301	Logical Skills for Professionals -II	MC	2-0-0	0.0
12.	EG20AMC301	Enhancing English Language Skills (Lateral Entry Students only)	MC	2-0-0	0.0
Total					21.5

Semester – 4 (Theory – 5, Lab – 3,SC-1, AC-1,MC-3,CS-1)					
S.No	Course No	Course Name	Category	L-T-P	Credits
1.	CS20AES401	Data Structures using C	ES	3-0-0	3
2	MA20ABS402	Probability Theory and Stochastic Processes	BS	3-0-0	3
3	EC20APC401	Analog Communications	PC	3-0-0	3
4	EC20APC402	Electromagnetic Waves and Transmission Lines	PC	3-0-0	3
5	EC20APC403	Linear & Digital IC Applications	PC	3-0-0	3
6	EC20APC404	Analog Communications Lab	PC	0-0-3	1.5
7	CS20AES402	Data Structures using C Lab	ES	0-0-3	1.5
8	EC20APC405	Linear & Digital IC Applications Lab	PC	0-0-3	1.5
9	EG20ASC301	Skill oriented course-Soft Skills	SC	1-0-2	2
10	SH20AAC401	Extra Academic Activities (NSS/Yoga/Cultural/Games and Sports/ Societal Relationship)	AC	0-0-2	0.0
11	BA20AMC201	Mandatory course (AICTE suggested): Universal Human Values	MC	2-0-0	0.0
11	*BA20AHS201	Mandatory course (AICTE suggested): Universal Human Values	HS	3-0-0	*3
12.	MA20AMC401	Engineering Mathematics (Lateral Entry Students only)	MC	2-0-0	0.0
Total					21.5
13.	Community Service Project – After the end of IV Semester – 4 Weeks – 1.5 Credits				
14.	Honors / Minor courses (Hours distribution can be 3-0-2 or 3-1-0 also)			4-0-0	4

*UHV is considered as Credit Based Course from 2021 Batch

Semester – 5 (Theory – 5, Lab –2,SC-1,MC-2,TS-1,IP-1)					
S.No	Course No	Course Name	Category	L-T-P	Credits
1.	EC20APC501	Antennas and Wave Propagation	PC	3-0-0	3
2	EC20APC502	Digital Communications	PC	3-0-0	3
3	EC20APC503	Microprocessors & Microcontrollers	PC	3-0-0	3
4	Open Elective Course/ Job oriented elective-1		OE	3-0-0	3
	CE20AOE502	Principles of Waste Management			
	ME20AOE501	Industrial Automation			
	EE20AOE502	Programmable Logic Controllers			
	AM20AOE501	Introduction to Operating Systems			
	CS20AOE502	Computer Architecture & Organization			
	CH20AOE501	Chemistry of Polymers & Applications			
5	Professional Elective courses-1		PE	3-0-0	3
	EE20APE502	Control System Engineering.			
	EC20APE501	Mechatronics			
	EC20APE502	Nanoelectronics			
6	EC20APC504	Digital Communications Lab	PC	0-0-3	1.5
7	EC20APC505	Microprocessors & Microcontrollers Lab	PC	0-0-3	1.5
8.	EC20ASC501	Skill advanced course/ soft skill course* PCB Design and Prototype Development	SC	1-0-2	2
9.	BA20AMC501	Mandatory course (AICTE suggested) Constitution of India	MC	2-0-0	0
10.	IT20AMC501	Problem Solving and Programming (Lateral Entry Students only)	MC	2-0-0	0
11.	EC20ATS501	Technical Seminar Presentation-I	TS	0-0-0	0.5
12.	EC20ACS501	Evaluation of Community Service Project	CS	0-0-0	1.5
Total					22
13.	Honors/Minor courses (The hours distribution can be 3-0-2 or 3-1-0 also)			4-0-0	4
14.	MOOC/NPTEL Course			0-0-0	2

Semester – 6 (Theory – 5, Lab –3,SC-1,MC-2,TS-1)					
S.No	Course No	Course Name	Category	L-T-P	Credits
1.	EC20APC601	Digital Signal Processing	PC	3-0-0	3
2.	EC20APC602	Microwave Engineering and Optical Communications	PC	3-0-0	3
3.	EC20APC603	VLSI Design	PC	3-0-0	3
4.	Professional Elective courses-2		PE	3-0-0	3
	EC20APE601	Electronic Measurements and Instrumentation			
	EC20APE602	Information Theory and Coding			
	EC20APE603	Introduction to Digital Signal Processing			
	EC20APE604	RADAR Systems.			
5.	Open Elective Course/Job oriented elective-2		OE	3-0-0	3
	CE20AOE601	Disaster Management			
	ME20AOE601	Fundamentals of Additive Manufacturing			
	EE20AOE603	Optimization Techniques through MATLAB			
	CS20AOE602	JAVA Programming			
	AM20AOE502	Web Technologies			
	EG20AOE601	Technical Communication & Presentation Skills			
6.	EC20APC604	Digital Signal Processing Lab	PC	0-0-3	1.5
7.	EC20APC605	Microwave and Optical Communications Lab	PC	0-0-3	1.5
8.	EC20APC606	VLSI Design Lab	PC	0-0-3	1.5
9.	EC20ASC601	Skill advanced course/ soft skill course* Graphical System Design Using Lab-view / CISCO	SC	1-0-2	2
10.	BA20AMC502	Mandatory course (AICTE) Intellectual Property Rights & Patents.	MC	2-0-0	0.0
11.	EC20ATS601	Technical Seminar Presentation-II	TS	0-0-0	0.5
12.	AM20AMC601	AI Tools Techniques & Applications (Lateral Entry Students only)	MC	2-0-0	0
13.	Industrial/Research Mini Project (Mandatory) 4 weeks during summer vacation.				
Total					22
14.	Honors / Minor courses (The hours distribution can be 3-0-2 or 3-1-0 also)		4-0-0		4
15.	MOOC/NPTEL Course		0-0-0		2

Semester – 7 (Theory – 6,SC-1,TS-1,PW-1,IP-1)					
S.No	Course No	Course Name	Category	L-T-P	Credits
1.	Professional Elective courses-3		PE	3-0-0	3
	EC20APE701	Analog and Digital IC Design			
	EC20APE702	FPGA Design			
	EC20APE703	Low Power VLSI Circuits and Systems			
2.	Professional Elective courses-4		PE	3-0-0	3
	EC20APE704	Digital Image Processing			
	EC20APE705	Electronic Defense Systems			
	EC20APE706	Smart Sensor Networks.			
3.	Professional Elective courses-5		PE	3-0-0	3
	EC20APE707	Data Communication and Networking			
	EC20APE708	Satellite Communications			
	EC20APE709	Wireless Sensor Networks.			
4.	Open Elective Course/Job oriented elective-3		OE	3-0-0	3
	CE20AOE701	Air Pollution and Quality Control			
	ME20AOE703	Introduction to Industrial Engineering			
	EE20AOE701	Embedded Systems			
	AM20AOE601	Machine Learning Tools & Techniques.			
	CS20AOE503	Structured Query Language			
	EE20AOE704	Introduction to Smart Grid & Electric vehicles			
	MA20AOE701	Numerical Methods for Engineers			
5.	Open Elective Course/Job oriented elective-4		OE	3-0-0	3
	CE20AOE704	Environmental Impact Analysis and Management			
	ME20AOE704	Introduction to Product Marketing			
	EE20AOE703	IoT applications in Electrical Engineering			
	AM20AOE701	Cyber Security Techniques			
	CS20AOE601	Data Analysis using 'R'			
	PH20AOE701	Nano Materials			
6.	*Humanities and Social Science Elective		HS	3-0-0	3
	BA20AHS703	Entrepreneurship & Incubation			
	BA20AHS704	Enterprise Resource Planning			
	BA20AHS705	Management Science			
7.	EC20ASC701	Skill advanced course/ soft skill course* IoT and Industrial Automation	SC	1-0-2	2
8.	EC20ATS701	Technical Seminar Presentation-III	TS	0-0-1	0.5
9.	EC20APW701	Project Work Stage-I	PW	0-0-0	2
10.	EC20AIP701	Evaluation of Industrial / Research Mini Project	IP	0-0-0	3
Total					25.5
11.	Honors/Minor courses (The hours distribution can be 3-0-2 or 3-1-0 also)			4-0-0	4

Semester – 8 (Project)					
S.No	Course No	Course Name	Category	L-T-P	Credits
1	EC20APW801	Project Work Stage-II / Full Internship in industry	PW	0-0-0	8.5
Total credits					8.5

Open Elective/ Job Oriented Elective:
(Offered by Electronics & Communication Engineering Department
to other Department students)

S.No	Course No	Course Name	Category	L-T-P/D	Credits
1	EC20AOE501	Basic VLSI design	OE/JOE	3-0-0	3
2	EC20AOE502	Digital Electronics	OE/JOE	3-0-0	3
3	EC20AOE601	Electronic Instrumentation & Measurements	OE/JOE	3-0-0	3
4	EC20AOE602	Signal Processing	OE/JOE	3-0-0	3
5	EC20AOE701	IC Applications	OE/JOE	3-0-0	3
6	EC20AOE702	Principles of Communication Engineering	OE/JOE	3-0-0	3
7	EC20AOE703	Sensors & Systems	OE/JOE	3-0-0	3
8	EC20AOE704	Internet of Things	OE/JOE	3-0-0	3
9	EC20AOE705	Introduction to Image Processing	OE/JOE	3-0-0	3
10	EC20AOE706	Microcontroller & Applications	OE/JOE	3-0-0	3

Honors / Minors
(Offered by Electronics & Communication Engineering Department)

Note: Eligible and interested students can register either for Honors or for Minors in IV Semester as per the guidelines

B.Tech HONORS

S.No	Course No	Course Name	Category	L-T-P/D	Credits
1	EC20AHO401	Electronics Packaging	HO	4-0-0	4
2	EC20AHO402	Structured Digital System Design	HO	4-0-0	4
3	EC20AHO501	MEMS Technology	HO	4-0-0	4
4	EC20AHO502	Modern Communication Systems	HO	4-0-0	4
5	EC20AHO503	MOOC/NPTEL -I	HO	0-0-0	2
6	EC20AHO601	Advanced Computer Architecture	HO	4-0-0	4
7	EC20AHO602	Digital Speech Processing	HO	4-0-0	4
8	EC20AHO603	MOOC/NPTEL -II	HO	0-0-0	2
9	EC20AHO701	Digital Video Processing	HO	4-0-0	4
10	EC20AHO702	Testing & Testability	HO	4-0-0	4

Minor Degree for Circuit Branches(EEE,CSE,CSM,CSC,CSD,IT)

S.No	Course No	Course Name	Category	L-T-P/D	Credits
1	EC20AMI401	Communication Systems-I	MI	4-0-0	4
2	EC20AMI402	Electronic Instrumentation	MI	4-0-0	4
3	EC20AMI501	Automotive Electronics	MI	4-0-0	4
4	EC20AMI502	Communication Systems-II	MI	4-0-0	4
5	EC20AMI503	MOOC/NPTEL -I	MI	0-0-0	2
6	EC20AMI601	Digital Integrated Circuits	MI	4-0-0	4
7	EC20AMI602	Nanotechnology	MI	4-0-0	4
8	EC20AMI603	MOOC/NPTEL -II	MI	0-0-0	2
9	EC20AMI701	Digital Image & VideoProcessing	MI	4-0-0	4
10	EC20AMI604	Embedded System Design	MI	4-0-0	4

Minor Degree for Non-Circuit Branches (CIV,MECH)

S.No	Course No	Course Name	Category	L-T-P/D	Credits
1	EC20AMI403	Introduction to Signal Processing	MI	4-0-0	4
2	EC20AMI402	Electronic Instrumentation	MI	4-0-0	4
3	EC20AMI401	Communication Systems-I	MI	4-0-0	4
4	EC20AMI504	MATLAB Programming	MI	4-0-0	4
5	EC20AMI505	MOOC/NPTEL -I	MI	0-0-0	2
6	EC20AMI604	Embedded System Design	MI	4-0-0	4
7	EC20AMI605	Introduction to CMOS VLSI Design	MI	4-0-0	4
8	EC20AMI606	MOOC/NPTEL -II	MI	0-0-0	2
9	EC20AMI501	Automotive Electronics	MI	4-0-0	4
10	EC20AMI702	Introduction to IoT	MI	4-0-0	4

SRI VENKATESWARA COLLEGE OF ENGINEERING

(AUTONOMOUS)

Karakambadi Road Tirupati-517 507

Department of Computer Science & Engineering

Course Structure for

I, II, III & IV Years

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SRI VENKATESWARA COLLEGE OF ENGINEERING

(Autonomous)
Karakambadi Road, TIRUPATI – 517507

Computer Science & Engineering

B.Tech I Semester

S.No	CourseNo	CourseName	Category	L-T-P	Credits
1.	MA20ABS101	Linear Algebra and Calculus	BS	3-0-0	3
2.	CH20ABS103	Chemistry	BS	3-0-0	3
3.	CS20AES101	Problem Solving using C	ES	3-0-0	3
4.	EE20AES101	Basic Electrical& Electronics Engineering	ES	3-0-0	3
5.	ME20AES101	EngineeringWorkshop	ES	0-0-3	1.5
6.	CS20AES103	ITWorkshop	ES	0-0-3	1.5
7.	CH20ABS104	ChemistryLab	BS	0-0-3	1.5
8.	CS20AES102	ProblemSolvingusingCLab	ES	0-0-3	1.5
9.	EE20AES102	BasicElectrical&Electronics EngineeringLab	ES	0-0-2	1.5
10.	EG20AMC101	Speech&OralCommunication	MC	2-0-0	0
				Total	**19.5**

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Computer Science & Engineering

B.Tech II Semester

S.No	CourseNo	CourseName	Category	L-T-P/D	Credits
1.	MA20ABS201	Differential Equations and Vector Calculus	BS	3-0-0	3
2.	PH20ABS103	Applied Physics	BS	3-0-0	3
3.	EG20AHS101	Communicative English	HS	3-0-0	3
4.	CS20AES201	Data Structures	ES	3-0-0	3
5.	ME20AES102	Engineering Drawing	ES	1-0-0/2	2
6.	ME20AES103	Engineering Graphics Lab	ES	0-0-2	1
7.	EG20AHS102	Communicative English Lab	HS	0-0-3	1.5
8.	PH20ABS104	Applied Physics Lab	BS	0-0-3	1.5
9.	CS20AES202	Data Structures Lab	ES	0-0-3	1.5
10.	BA20AMC201	Universal Human Values	MC	3-0-0	0
11	BA20AHS201	Mandatory course (AICTE Suggested): Universal Human Values	HS	3-0-0	*3
12.	MA20AMC101	Logical Skills for Professionals – I	MC	2-0-0	0
				Total	**19.5**

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Computer Science and Engineering

B. Tech III Semester

S. No	Course No	Course Name	Category	L-T-P	Credits
1	MA20ABS303	Discrete Mathematics & Graph Theory	BS	3-0-0	3
2	EC20AES301	Digital Electronics & Microprocessors	ES	3-0-0	3
3	CS20APC305	Software Engineering	PC	3-0-0	3
4	CS20APC303	Database Management Systems	PC	3-0-0	3
5	IT20APC301	Python Programming	PC	3-0-0	3
6	EC20AES302	Digital Electronics & Microprocessors Lab	ES	0-0-3	1.5
7	CS20APC304	Database Management Systems Lab	PC	0-0-3	1.5
8	IT20APC302	Python Programming Lab	PC	0-0-3	1.5
9	AM20ASC301	**Skill oriented course-I** Linux Administration	SC	1-0-2	2
10	CH20AMC201	**Mandatory non-credit course-II** Environmental Science	MC	2-0-0	0
11	EG20AMC302	Enhancing English Language Skills **(Lateral Entry Students Only)**	MC	2-0-0	0
12	BA20AHS201	Mandatory course (AICTE Suggested): Universal Human Values**(Lateral Entry Students Only)**	HS	3-0-0	*3
				Total	**21.5**

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Computer Science and Engineering

B. Tech IV Semester

S. No	Course No	Course Name	Category	L-T-P	Credits
1	MA20ABS401	Numerical Methods, Probability and Statistics	BS	3-0-0	3
2	CS20APC401	Object Oriented Programming Through Java	PC	3-0-0	3
3	CS20APC301	Computer Organization and Architecture	PC	3-0-0	3
4	AM20APC301	Design and Analysis of Algorithms	PC	3-0-0	3
5	BA20AHS301	**Humanities Elective-I** Managerial Economics and Financial Analysis	HS	3-0-0	3
	BA20AHS302	Business Environment			
	BA20AHS303	Organizational Behavior			
6	CS20APC402	Object Oriented Programming Through Java Lab	PC	0-0-3	1.5
7	CS20APC302	Computer Organization and Architecture Lab	PC	0-0-3	1.5
8	AM20APC302	Algorithms Lab	PC	0-0-3	1.5
9	IT20ASC401	**Skill Oriented Course-II** Exploratory Data Analysis With R	SC	1-0-2	2
10	CS20AMC401	**Mandatory non-credit course-III** Design Thinking for Innovation	MC	2-0-0	0
11	SH20AAC401	NSS/YOGA/Cultural Activities/Sports	AC	0-0-2	0
12	MA20AMC401	Engineering Mathematics (Lateral Entry Students Only)	MC	2-0-0	0.0
				Total	**21.5**
Community Service Project – After the end of IV Semester – 4 Weeks – 1.5 Credits					
Honors/Minor courses (The hours distribution can be 3-0-2 or 3-1-0 also)				0-0-2	0

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Computer Science and Engineering

B. Tech V Semester

IIIB. Tech-I Semester(Theory-5,lab–2,SOC-1MC-3)					
S. No	**Course No**	**Course Name**	**Category**	**L-T-P**	**Credits**
1	CS20APC501	Computer Networks	PC	3-0-0	3
2	CS20APC502	Formal Languages and Compiler Design	PC	3-0-0	3
3	CS20APC504	Operating Systems	PC	3-0-0	3
4	CE20AOE501 EC20AOE501 EE20AOE501 ME20AOE502	**Open Elective-I** Basics of civil engineering Basic VLSI Design Introduction to control Systems Solar and wind energy systems	OE	3-0-0	3
5	CS20APE501 CS20APE502 CS20APE503 CS20APE504 CS20APE505	**Professional Elective-I** Advanced Computer Architecture Data Warehousing and Data mining Digital Image Processing Object Oriented Analysis Design & Testing Principles of Programming Languages	PE	3-0-0	3
6	CS20APC503	Computer Networks Lab	PC	0-0-3	1.5
7	CS20APC505	Operating Systems Lab	PC	0-0-3	1.5
8	EG20ASC301	Skill Oriented Course-III Soft Skills	SC	1-0-2	2
9	BA20AMC502	Mandatory non-credit course-IV Intellectual Property Rights	MC	2-0-0	0
10	CH20AMC301	Mandatory non-credit course-V Biology for Engineers	MC	2-0-0	0
11	CS20AIP501	Evaluation of Summer Internship (4 Weeks)	IP		1.5
12	CS20ATS501	Technical SeminarPresentation-I	TS		0.5
13	IT20AMC501	Problem Solving and Programming **(Lateral Entry Students only)**	MC	2-0-0	0
				Total	**22**
14	Honors/Minor courses (The hours distribution can be 3-0-2 or 3-1-0 also)			**4-0-0**	**4**
15	Honors/Minor courses (NPTEL/MOOCS)			**2-0-0**	**2**

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Computer Science and Engineering

B.Tech VI Semester

IIIB.Tech-IISemester(Theory-5,lab–3,SOC-1MC-2)					
S. No	**Course No**	**Course Name**	**Category**	**L-T-P**	**Credits**
1	CS20APC601	Cryptography and Network Security	PC	3-0-0	3
2	CS20APC603	Machine Learning	PC	3-0-0	3
3	CS20APC605	Web and Internet Technologies	PC	3-0-0	3
4	CS20APE601 CS20APE602 CS20APE603 CS20APE604 CS20APE605	**Professional Elective-II** Artificial Intelligence Big Data Analytics Computer Vision Internet of Things Software Testing	PE	3-0-0	3
5	ME20AOE501 EE20AOE503 EC20AOE602 CE20AOE603	**Open Elective-II** Introduction to Automation Renewable Energy Resources Signal Processing Water Resources Planning & Management	OE	3-0-0	3
6	CS20APC602	Cryptography and Network Security Lab	PC	0-0-3	1.5
7	CS20APC604	Machine Learning Lab	PC	0-0-3	1.5
8	CS20APC606	Web and Internet Technologies Lab	PC	0-0-3	1.5
9	CS20ASC601	**Skill Oriented Course-V** Dev Ops	SC	1-0-2	2
10	BA20AMC501	**Mandatory non-credit course-V** Constitution of India	MC	2-0-0	0
11	CS20ATS601	Technical SeminarPresentation-II	TS		0.5
12	AM20AMC601	AI Tools Techniques & Applications for LE	MC	2-0-0	0
13.	MA20AMC301	LogicalSkillsforProfessionals - II	MC	2-0-0	0

Industrial/Research/Mini Project (Mandatory) 1 Monthduring summer vacation			
		Total	**22**
13	Honors / Minor courses (The hours distribution can be 3-0-2 or 3-1-0 also)	4-0-0	4
14	Honors/Minor courses (NPTEL/MOOCS)	2-0-0	2

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KarakambadiRoad, TIRUPATI–517507

Computer Science and Engineering

B. Tech VII Semester

IVB.Tech-ISemester(Theory-6,lab–0,SOC-1)					
S. No	**Course No**	**Course Name**	**Category**	**L-T-P**	**Credits**
1	CS20APE701 CS20APE702 CS20APE703 CS20APE704 CS20APE705	**Professional Elective-III** Block Chain Technologies Data Science Data Visualization Techniques Distributed Computing Service oriented Architecture	PE	3-0-0	3
2	CS20APE706 CS20APE707 CS20APE708 CS20APE709 CS20APE710	**Professional Elective-IV** Advanced Language Processors Cyber Security Deep Learning Full Stack Development Software Project Management	PE	3-0-0	3
3	CS20APE711 CS20APE712 CS20APE713 CS20APE714 CS20APE715	**Professional Elective-V** Agile Methodologies Cloud Computing Malware Analysis Natural language processing Reinforcement Learning	PE	3-0-0	3
4	CE20AOE701 EE20AOE603 ME20AOE602 EC20AOE702	**Open Elective-III** Air Pollution and Quality Control Optimization Techniques Through MATLAB Power Generation Techniques Principles of Communication Engineering	OE	3-0-0	3
5	EE20AOE701 EC20AOE705 CE20AOE705 ME20AOE702	**Open Elective-IV** Embedded Systems Introduction to Image Processing Low Cost Housing Techniques Robotics in Industrial Engineering	OE	3-0-0	3
6	BA20AHS701 BA20AHS705 BA20AHS706	**Humanities Elective-II** Business Ethics and Corporate Governance Management Science Strategic Management	HS	3-0-0	3
7	CS20ASC701	**Skill Oriented Course-V** MOOC-2 (NPTEL)/Digital Marketing	SC	1-0-2	2

8	CS20AIP701	Industrial/Research Internship 1 Month Evaluation Mini Project	IP	0-0-0	3
9	CS20APW701	Project Work Stage-I	PW		2
10	CS20ATS701	Technical SeminarPresentation- III	TS		0.5
				Total	**25.5**
11	Honors/Minor courses (The hours distribution can be 3-0-2 or 3-1-0 also)			**4-0-0**	**4**

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Computer Science and Engineering

B. Tech VIII Semester

S. No	Course No	Course Name	Category	L-T-P	Credits
1	CS20APW801	Project Work Stage – II / Full Internship in Industry	PW	0-0-0	8.5
				Total	**8.5**

SRI VENKATESWARA COLLEGE OF ENGINEERING

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(Affiliated to J.N.T. University Anantapur, Ananthapuramu)

Karakambadi Road,Tirupati - 517 507

M.Tech(VLSIDESIGN)

Course Structure & Syllabus

R20 Regulations

SRI VENKATESWARA COLLEGE OF ENGINEERING

Karakambadi Road, TIRUPATI – 517507

M.Tech-VLSI Design

Semester - I

S.No	Course No	Course Name	L-T-P	Credits
1.	EC20DPC101	CMOS Analog IC Design	3-0-0	3
2.	EC20DPC102	CMOS Digital IC Design	3-0-0	3
3.	Program Elective I		3-0-0	3
	EC20DPE103	Microchip Fabrication Techniques		
	EC20DPE104	Nanomaterials & Nanotechnology		
	EC20DPE105	CAD for VLSI		
4.	Program Elective II		3-0-0	3
	EC20DPE106	Device Modelling		
	EC20DPE107	CPLD and FPGA Architectures and Applications		
	EC20DPE108	ASIC Design		
5.	EC20DPC109	Research Methodology and IPR	2-0-0	2
6.	Audit Course- I *		2-0-0	0
	EC20DAC110	Disaster Management		
	EC20DAC111	Sanskrit for Technical Knowledge		
	EC20DAC112	Constitution of India		
	EC20DAC113	Pedagogy Studies		
7.	EC20DPC114	CMOS Analog IC Design Lab	0-0-4	2
8.	EC20DPC115	CMOS Digital IC Design Lab	0-0-4	2
			Total	18

Semester – II

S.No	Course No	Course Name	L-T-P	Credits
1.	EC20DPC201	CMOS Mixed Signal Design	3-0-0	3
2.	EC20DPC202	Physical Design Automation	3-0-0	3
3.	Program Elective III		3-0-0	3
	EC20DPE203	Design For Testability		
	EC20DPE204	Semiconductor Memory Design and Testing		
	EC20DPE205	MEMS System Design		
4.	Program Elective IV		3-0-0	3
	EC20DPE206	Low power VLSI Design		
	EC20DPE207	IOT & its Applications		
	EC20DPE208	VLSI Signal Processing		
5.	Audit Course-II *		2-0-0	0
	EC20DAC209	English for Research Paper Writing		
	EC20DAC210	Value Education		
	EC20DAC211	Stress Management by Yoga		
	EC20DAC212	Personality Development through Life Enlightenment Skills		
6.	EC20DPC213	Mixed Signal IC Design Lab	0-0-4	2
7.	EC20DPC214	Physical Design Automation Lab	0-0-4	2
8.	EC20DTS215	Technical Seminar	2-0-0	2
9.	EC20DMC216	Entrepreneurship & Incubation	2-0-0	0
			Total	18

Semester – III

S.No	Course No	Course Name	L-T-P	Credits
1.	Program Elective V		3-0-0	3
	EC20DPE301	Bi-CMOS Technology and Applications		
	EC20DPE302	Optimization Techniques and Applications in VLSI Design		
	EC20DPE303	System on Chip Architecture		
2.	Open Elective		3-0-0	3
	EC20DOE304	Business Analytics		
	EC20DOE305	Composite Materials		
	EC20DOE306	Industrial Safety		
	EC20DOE307	Human Resource Management		
3.	EC20DMC308	MOOCS(Mandatory Course)	0-0-0	0
4.	EC20DPW309	Dissertation-I /Industrial Project Stage-I	0-0-20	10
			Total	16

Semester – IV

S.No	Course No	Course Name	L-T-P	Credits
1.	EC20DPW401	Dissertation- II/ Industrial Project Stage-II	0-0-32	16
			Total	16

Project Viva Voce Grades:

A: Satisfactory

B: Not Satisfactory

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L	T	P	C
3	0	0	3

(EC20DPC101) CMOS ANALOG IC DESIGN

Course objectives:

- This course focuses on theory, analysis and design of analog integrated circuits in both Bipolar and Metal-Oxide-Silicon (MOS) technologies.
- Basic design concepts, issues and tradeoffs involved in analog IC design are explored.
- Intuitive understanding and real-life applications are emphasized throughout the course.
- To learn about Design of CMOS Op Amps, Compensation of Op Amps, Design of Two-Stage Op Amps, Power Supply Rejection Ratio of Two-Stage Op Amps, Cascade Op Amps, Measurement Techniques of OP Amp.
- To know about Characterization of Comparator, Two-Stage, Open-Loop Comparators, Improving the Performance of Open-Loop Comparators, Discrete-Time Comparators etc.

Unit 1: Basic MOS Device Physics

General Considerations, MOS I/V Characteristics, Second Order effects, MOS Device models. Short Channel Effects and Device Models. Single Stage Amplifiers – Basic Concepts, Common Source Stage, Source Follower, Common Gate Stage, Cascode Stage.

Unit 2: Differential Amplifiers

Single Ended and Differential Operation, Basic Differential Pair, Common Mode Response, Differential Pair with MOS loads, Gilbert Cell. Passive and Active Current Mirrors – Basic Current Mirrors, Cascode Current Mirrors, Active Current Mirrors.

Unit 3: Frequency Response of Amplifiers

General Considerations, Common Source Stage, Source Followers, Common Gate Stage, Cascode Stage, Differential Pair. Noise – Types of Noise, Representation of Noise in circuits, Noise in single stage amplifiers, Noise in Differential Pairs.

Unit 4: Feedback Amplifiers

General Considerations, Feedback Topologies, Effect of Loading. Operational Amplifiers – General Considerations, One Stage Op Amps, Two Stage Op Amps, Gain Boosting, Common – Mode Feedback, Input Range limitations, Slew Rate, Power Supply Rejection, Noise in Op Amps, Stability and Frequency Compensation.

Unit 5: Comparators

Characterization of comparator, Two-Stage, Open-Loop comparators, Other Open-Loop Comparators, Improving the Performance of Open-Loop Comparators, Discrete-Time Comparators.

Text Books:

1. B.Razavi, "Design of Analog CMOS Integrated Circuits", 2nd Edition, McGraw Hill Edition2016.
2. Paul.R.Gray& Robert G. Meyer, "Analysis and Design of Analog Integrated Circuits", Wiley, 5th Edition, 2009.

Reference Books:

1. T.C.Carusone, D.A.Johns&K.Martin, "Analog Integrated Circuit Design", 2nd Edition, Wiley, 2012.
2. P.E.Allen&D.R.Holberg, "CMOS Analog Circuit Design", 3rd Edition, Oxford University Press, 2011.
3. R.Jacob Baker, "CMOS Circuit Design, Layout, and Simulation", 3rd Edition, Wiley, 2010.

Course Outcomes:

At the end of the course, students will be able to:

- Design MOSFET based analog integrated circuits.
- Analyzeanalog circuits at least to the first order.
- Appreciate the trade-offs involved in analog integrated circuit design.
- Understand and appreciate the importance of noise and distortion in analog circuits.
- Analyze complex engineering problems critically in the domain of analog IC design for conducting research.
- Solve engineering problems for feasible and optimal solutions in the core area of analog ICs.

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L	T	P	C
3	0	0	3

(EC20DPC102) CMOS DIGITAL IC DESIGN

Course objectives:

- To understand the fundamental properties of digital Integrated circuits using basic MOSFET equations and to develop skills for various logic circuits using CMOS related design styles.
- The course also involves analysis of performance metrics.
- To teach fundamentals of CMOS Digital integrated circuit design such as importance of Pseudo logic, Combinational MOS logic circuits and Sequential MOS logic circuits.
- To teach the fundamentals of Dynamic logic circuits and basic semiconductor memories which are the basics for the design of high performance digital integrated circuits.

Unit 1: MOS Design Pseudo NMOS Logic

Inverter, Inverter threshold voltage, Output high voltage, Output Low voltage, Gain at gate threshold voltage, Transient response, Rise time, Fall time, Pseudo NMOS logic gates, Transistor equivalency, CMOS Inverter logic.

Unit 2: Combinational MOS Logic Circuits

MOS logic circuits with NMOS loads, Primitive CMOS logic gates–NOR & NAND gate, Complex Logic circuits design–Realizing Boolean expressions using NMOS gates and CMOS gates, AOI and OIA gates, CMOS full adder, CMOS transmission gates, Designing with Transmission gates.

Unit 3: Sequential MOS Logic Circuits

Behaviour of bistable elements, SR Latch, Clocked latch and flip flop circuits, CMOS D latch and edge triggered flip-flop.

Unit 4: Dynamic Logic Circuits

Basic principle, Voltage Bootstrapping, Synchronous dynamic pass transistor circuits, Dynamic CMOS transmission gate logic, High performance Dynamic CMOS circuits.

Unit 5: Semiconductor Memories

Types, RAM array organization, DRAM – Types, Operation, Leakage currents in DRAM cell and refresh operation, SRAM operation Leakage currents in SRAM cells, Flash Memory-NOR flash and NAND flash.

Text Books:

1. Digital Integrated Circuit Design – Ken Martin, Oxford University Press, 2011.
2. CMOS Digital Integrated Circuits Analysis and Design – Sung-Mo Kang, Yusuf Leblebici, TMH, 3rd Edition, 2011.

Reference Books:

1. Introduction to VLSI Systems: A Logic, Circuit and System Perspective – Ming-BO Lin, CRC Press, 2011
2. Digital Integrated Circuits – A Design Perspective, Jan M.Rabaey, AnanthaChandrakasan, Borivoje Nikolic, 2ndEdition, PHI.

Course Outcomes:

At the end of the course, students will be able to:

- Demonstrate advanced knowledge in Static and dynamic characteristics of CMOS,
- Estimate Delay and Power of Adders circuits.
- Classify different semiconductor memories.
- Analyze, design and implement combinational and sequential MOS logic circuits.
- Analyze complex engineering problems critically in the domain of digital IC design forconducting research.
- Solve engineering problems for feasible and optimal solutions in the core area of digital ICs

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(EC20DPE103) MICROCHIP FABRICATION TECHNIQUES

Course objectives:

- Comprehend impact of semiconductor industry on the design of development of integrated circuits.
- Acquaint with clean room technology
- Understand oxidation methods, aspects of photolithography, diffusion, ion implantation techniques.
- Specify NMOS and CMOS design rules corresponding to 180nm, 90nm and 45nm technologies
- Understand packaging principles

Unit 1: Introduction to Processing

Overview of semiconductor industry, Stages of Manufacturing, Process and product trends, Crystal growth, Basic wafer fabrication operations, process yields, Semiconductor material preparation, Yield measurement, Contamination sources, Clean room construction.

Unit 2: Photolithography

Oxidation and Photolithography, Ten step patterning process, Photoresists, physical properties of photoresists, Storage and control of photoresists, photo masking process, Hard bake, develop inspect, Dry etching Wet etching, resist stripping.

Unit 3: Diffusion & Ion Implantation

Doping and depositions: Diffusion process steps, deposition, Drive-in oxidation, Ion implantation-1, Ion implantation-2.

Unit 4: Film Depositions and Growth

Metallization, CVD basics, CVD process steps, Low pressure CVD systems, Plasma enhanced CVD systems, Vapour phase epitaxy, molecular beam epitaxy.

Unit 5: Yield

Design rules and Scaling, BICMOS ICs: Choice of transistor types, PNP transistors, Resistors, capacitors.

Packaging: Chip characteristics, package functions, package operations

Text Books:

1. Peter Van Zant, Microchip fabrication, McGraw Hill, 1997.
2. S.M. Sze, VLSI technology, McGraw-Hill Book Company, NY, 1988
3. Wani-Kai Chen (editor), The VLSI Hand book, CRI/IEEE press, 2000
4. C.Y. Chang and S.M. Sze, ULSI technology, McGraw Hill, 2000

Course Outcomes:

At the end of the course, students will be able to:

- Understand various stages of fabrication
- Understand Various packaging techniques and Design rules.
- Classify various thin films and its characteristics.

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(EC20DPE104) NANOMATERIALS AND NANOTECHNOLOGY

Unit 1

Introduction of nano materials and nanotechnologies, Features of nanostructures, Applications of nano materials and technologies. Nano dimensional Materials 0D, 1D, 2D structures – Size Effects – Fraction of Surface Atoms –Specific Surface Energy and Surface Stress – Effect on the Lattice Parameter – Phonon Density of States – the General Methods available for the Synthesis of Nanostructures – precipitate – reactive– hydrothermal/solvo thermal methods – suitability of such methods for scaling – potential Uses.

Unit 2

Fundamentals of nanomaterials, Classification, Zero-dimensional nanomaterials, One-dimensional nanomaterials, Two-dimensional nano materials, three dimensional nanomaterials.Low Dimensional Nanomaterials and its Applications, Synthesis, Properties and applications of Low Dimensional Carbon-Related Nanomaterials.

Unit 3

Micro- and Nanolithography Techniques, Emerging Applications, Introduction to Micro electro mechanical Systems (MEMS), Advantages and Challenges of MEMS, Fabrication Technologies, Surface Micromachining, Bulk Micromachining, Molding. Introduction to Nano Phonics.

Unit 4

Introduction, Synthesis of CNTs - Arc-discharge, Laser-ablation, Catalytic growth, Growth mechanisms of CNT"s - Multi-walled nanotubes, Single-walled nano tubes Optical properties of CNT"s, Electrical transport in perfect nanotubes, Applications as case studies. Synthesis and Applications of CNT's.

Unit 5

Ferroelectric materials, coating, molecular electronics and Nano electronics, biological and environmental, membrane based application, polymer based application.

Text Books:

1. Kenneth J.Klabunde and Ryan M.Richards, “Nanoscale Materials in Chemistry”, 2nd edition, John Wiley and Sons, 2009.
2. I Gusev and A Rempel, “Nanocrystalline Materials”, Cambridge International Science Publishing, 1st Indian edition by Viva Books Pvt. Ltd. 2008.
3. B.S.Murty,P.Shankar,Baldev Raj, B.B.Rath, James Murday, “Nanoscience and Nanotechnology”, Tata McGrawHill Education 2012.

Reference Books:

1. Digital Integrated Circuit Design – Ken Martin, Oxford University Press, 2011.
2. Digital Integrated Circuits - A Design Perspective, Jan M.Rabaey, AnantChandrakasan, Borvivoje Nikolic, 2nd Edition, PHI.

Course Outcomes:

At the end of the course, students will be able to:

- Understand the basic science behind the design and fabrication of nano scale systems. To understand and formulate new engineering solutions for current problems and competing technologies for future applications.
- Make inter disciplinary projects applicable to wide areas by clearing and fixing the boundaries in system development.
- Gather detailed knowledge of the operation of fabrication and characterization devices to achieve precisely designed systems.

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(EC20DPE105) CAD FOR VLSI

Unit 1: Introduction

VLSI Design Cycle, New Trends in VLSI Design Cycle, Physical Design Cycle, New Trends in Physical Design Cycle, Design Styles, System Packaging Styles.

Unit 2: Partitioning

Partitioning, Pin Assignment and Placement: Partitioning – Problem formulation, Classification of Partitioning algorithms, Kernighan-Lin Algorithm, Simulated Annealing.

Unit 3: Floor Planning

Floor Planning – Problem formulation, Classification of floor planning algorithms, constraint based floor planning, Rectangular Dualization, Pin Assignment – Problem formulation, Classification of pin assignment algorithms, General and channel Pin assignments.

Unit 4: Placement and Routing

Placement–Problem formulation, Classification of placement algorithms, Partitioning based placement algorithms.

Global Routing and Detailed Routing: Global Routing – Problem formulation, Classification of global routing algorithms, Maze routing algorithms, Detailed Routing – Problem formulation, Classification of routing algorithms, Single layer routing algorithms.

Unit 5: FPGAs and MCMs

Physical Design Automation of FPGAs and MCMs : FPGA Technologies, Physical Design cycle for FPGAs, Partitioning, Routing – Routing Algorithm for the Non-Segmented model, Routing Algorithms for the Segmented Model; Introduction to MCM Technologies, MCM Physical Design Cycle.

Text Books:

1. Algorithms for VLSI Physical Design Automation by Naveed Shervani, 3rd Edition, 2005, Springer International Edition.
2. CMOS Digital Integrated Circuits Analysis and Design – Sung-Mo Kang, Yusuf Leblebici, TMH, 3rd Ed., 2011.

Reference Books:

1. VLSI Physical Design Automation-Theory and Practice by Sadiq M Sait, Habib Youssef, World Scientific.
2. Algorithms for VLSI Design Automation, S. H. Gerez, 1999, Wiley student Edition, John Wiley and Sons (Asia) Pvt. Ltd.
3. VLSI Physical Design Automation by Sung Kyu Lim, Springer International Edition

Course Outcomes:

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

- Establish comprehensive understanding of the various phases of CAD for digital electronic systems, from digital logic simulation to physical design, including test and verification.
- Demonstrate knowledge and understanding of fundamental concepts in CAD and to establish capability for CAD tool development and enhancement.
- Practice the application of fundamentals of VLSI technologies
- Optimize the implemented design for area, timing and power by applying suitable constraints.

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(EC20DPE106) DEVICE MODELLING

Unit 1

2-terminal MOS device: threshold voltage modelling (ideal case as well as considering the effects of Qf, Φms and Dit.).

Unit 2

C-V characteristics (ideal case as well as taking into account the effects of Qf, Φms and Dit);MOS capacitor as a diagnostic tool (measurement of non-uniform doping profile, estimation of Qf, Φms and Dit)

Unit 3

4-terminal MOSFET: threshold voltage (considering the substrate bias); above threshold I-V modelling (SPICE level 1,2,3 and 4).

Unit 4

Sub threshold current model; scaling; effect of threshold tailoring implant (analytical modelling of threshold voltage using box approximation); buried channel MOSFET. Short channel, DIBL and narrow width effects; small signal analysis of MOSFETs (Meyer's model)

Unit 5

SOI MOSFET: Basic structure; threshold voltage modelling Advanced topics: hot carriers in channel; EEPROMs; CCDs; high-K gate dielectrics.

Text Books:

1. D.G.Ong , "Modern MOS Technology: Processes, Devices and Design", McGraw Hill,1984.
2. Y.Taur and T.H.Ning, "Fundamentals of modern VLSI Devices" Cambridge Univ. Press,1998.
3. S.M.Sze, "Physics of Semiconductor Devices" Wiley,1981.

Course Outcomes:

At the end of the course, students will be able to:

- Understand the physics of 2-terminal MOS operation and its characteristics
- Understand the physics of 4-terminal MOSFET operation and its characteristics.
- Analyze the SOI MOSFET electrical characteristics.

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(EC20DPE107) CPLD AND FPGA ARCHITECTURES AND APPLICATIONS

Unit 1:Introduction to Programmable Logic Devices

Introduction, Simple Programmable Logic Devices – Read Only Memories, Programmable Logic Arrays, Programmable Array Logic, Programmable Logic Devices/Generic Array Logic; Complex Programmable Logic Devices–Architecture of Xilinx Cool Runner XCR3064XL CPLD, CPLD Implementation of a Parallel Adder with Accumulation.

Unit 2: Field Programmable Gate Arrays

Organization of FPGAs, FPGA Programming Technologies, Programmable Logic Block Architectures, Programmable Interconnects, and Programmable I/O blocks in FPGAs, Dedicated Specialized Components of FPGAs, and Applications of FPGAs.

Unit 3: SRAM Programmable FPGAs

Introduction, Programming Technology, Device Architecture, the Xilinx XC2000, XC3000 and XC4000 Architectures.

Unit 4: Anti-Fuse Programmed FPGAs

Introduction, Programming Technology, Device Architecture, The Actel ACT1, ACT2 and ACT3 Architectures.

Unit 5: Design Applications

General Design Issues, Counter Examples, A Fast Video Controller, A Position Tracker for a Robot Manipulator, A Fast DMA Controller, Designing Counters with ACT devices, Designing Adders and Accumulators with the ACT Architecture.

Text Books:

1. Field Programmable Gate Array Technology - Stephen M. Trimberger, Springer International Edition.
2. Digital Systems Design - Charles H. Roth Jr, LizyKurian John, Cengage Learning.

Reference Books:

1. Field Programmable Gate Arrays-John V.Oldfield, Richard C.Dorf, Wiley India.
2. Digital Design Using Field Programmable Gate Arrays - Pak K. Chan/Samiha Mourad, Pearson Low Price Edition.
3. Digital Systems Design with FPGAs and CPLDs-Ian Grout, Elsevier,Newnes.
4. FPGA based System Design-Wayne Wolf, Prentice Hall Modern Semiconductor Design Series.

COURSE OUTCOMES

After completion of the course the students will be able to

- Acquire knowledge about various architectures and device technologies of PLD's.
- Comprehend FPGA Architectures.
- Analyze System level Design and their application for Combinational and Sequential Circuits.
- Get familiar with Anti-Fuse Programmed FPGAs.
- Apply knowledge of this subject for various design applications.

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L	T	P	C
3	0	0	3

(EC20DPE108) ASIC DESIGN

Unit 1: Introduction to ASICs

Types of ASICs, Design Flow, Case Study, Economics of ASICs, ASIC Cell Libraries, Transistors as resistors, Transistor Parasitic Capacitance, Logical Effort, Library Cell Design, Library Architecture, Gate-Array Design, Standard Cell Design, Data Path Cell Design.

Unit 2: Programmable ASICs and Programmable ASIC Logic Cells

The Anti fuse, Static Ram, EPROM and EEPROM Technology, Practical Issues, Specifications, PREDP Benchmarks, FPGA Economics, Actel ACT, Xilinx LCA, Altera Flex, Altera Max.

Unit 3: I/O Cells and Interconnects & Programmable ASIC Design Software

DC Output, AC Output, DC input, AC input, Clock input, Power input, Xilinx I/O block, Other I/O Cells, Actel ACT, Xilinx LCA, Xilinx EPLD, Altera Max 5000 and 7000, Altera Max 9000, Altera FLEX, Design Systems, Logic Synthesis, The Half gate ASIC.

Unit 4: Low Level Design Entry and Logic Synthesis

Schematic Entry, Low level Design Languages, PLA Tools, EDIF, A logic synthesis example, A Comparator/MUX, Inside a Logic Synthesizer, Synthesis of Viterbi Decoder, Verilog and Logic synthesis, VHDL and Logic Synthesis, Finite State Machine Synthesis, Memory Synthesis, The Engine Controller, Performance Driven Synthesis, Optimization of the viterbi decoder.

Unit 5: Simulation, Test and ASIC Construction

Types of Simulation, The Comparator/MUX Example, Logic Systems, How Logic Simulation Works, Cell Models, Delay Models, Static Timing Analysis, Formal Verification, Switch Level Simulation, Transistor Level Simulation, The importance of test, Boundary Scan Test, Faults, Faults Simulation, Automatic Test Pattern Generator, Scan Test, Built in Self-Test, A simple test Example, Physical Design, CAD Tools, System Partitioning, Estimating ASIC Size, Power Dissipation, FPGA Partitioning, Partitioning Methods

Text Books:

1. Michael John Sebastian Smith, “Application Specific Integrated Circuits”, Pearson Education, 2003.
2. L.J.Herbst, “Integrated Circuit Engineering”, Oxford Science Publications, 1996.

Reference Books:

1. Himanshu Bhatnagar, “Advanced ASIC Chip Synthesis using Synopsis Design Compiler”, 2nd Edition, Kluwer Academic, 2001.

Course Outcomes:

After completion of the course the student will be able to:

- Understand different types of ASICs and their libraries.
- Understand about programmable ASICs, I/O modules and their interconnects.
- Gets complete knowledge regarding different methods of software ASIC design their simulation, testing and construction of ASICs.

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L	T	P	C
2	0	0	2

(EC20DPC109) RESEARCH METHODOLOGY AND IPR

Unit 1

Meaning of research problem, Sources of research problem, Criteria Characteristics ofa good research problem, Errors in selecting a research problem, Scope and objectives of research problem. Approaches of investigation of solutions for research problem, data collection, analysis, interpretation and Necessary instrumentations.

Unit 2

Effective literature studies approaches, analysis Plagiarism, and Research ethics. Effective technical writing, how to write report, Paper Developing a Research Proposal, Format of research proposal, a presentation and assessment by a review committee

Unit 3

Nature of Intellectual Property: Patents, Designs, Trade and Copyright. Process of Patenting and Development: technological research, innovation, patenting, development. International Scenario: International cooperation on Intellectual Property. Procedure for grants of patents, Patenting under PCT.

Unit 4

Patent Rights: Scope of Patent Rights. Licensing and transfer of technology. Patent information and databases. Geographical Indications.

Unit 5

New Developments in IPR: Administration of Patent System. New developments in IPR; IPR of Biological Systems, Computer Software etc. Traditional knowledge Case Studies, IPR and IITs.

Text Books:

1. Stuart Melville and Wayne Goddard, “Research methodology: an introduction for science & engineering students’”
2. Wayne Goddard and Stuart Melville, “Research Methodology: An Introduction”
3. Ranjit Kumar, 2nd Edition, “Research Methodology: A Step by Step Guide for beginners”
4. Halbert, “Resisting Intellectual Property”, Taylor & Francis Ltd ,2007.

Reference Books:

1. Mayall , “Industrial Design”, McGraw Hill, 1992.
2. Niebel , “Product Design”, McGraw Hill, 1974.
3. Asimov , “Introduction to Design”, Prentice Hall, 1962.
4. Robert P. Merges, Peter S. Menell, Mark A. Lemley, “Intellectual Property in New Technological Age”, 2016.
5. T. Ramappa, “Intellectual Property Rights Under WTO”, S. Chand, 2008

Course Outcomes:

At the end of this course, students will be able to:

- Understand research problem formulation. Analyze research related information
- Follow research ethics
- Understand that today’s world is controlled by Computer, Information Technology, but tomorrow world will be ruled by ideas, concept, and creativity.
- Understanding that when IPR would take such important place in growth of individuals & nation, it is needless to emphasis the need of information about Intellectual Property Right to be promoted among students in general & engineering in particular.
- Understand that IPR protection provides an incentive to inventors for further research work and investment in R & D, which leads to creation of new and better products, and in turn brings about, economic growth and social benefits.

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L	T	P	C
2	0	0	0

(EC20DAC110)DISASTER MANAGEMENT

Course Objectives:

- Learn to demonstrate a critical understanding of key concepts in disaster risk reduction and humanitarian response.
- Critically evaluate disaster risk reduction and humanitarian response policy and practice from multiple perspectives.
- Developanunderstandingofstandardsofhumanitarianresponseandpracticalrelevanceinspecific types of disasters and conflict situations.
- Critically understand the strengths and weaknesses of disaster management approaches.
- Planning and programming in different countries, particularly their home country or the countries they work.

Unit 1: Disaster Classification

Disaster: definition, factors and significance; difference between hazard and Disaster; natural disaster: earthquakes, volcanisms, cyclones, tsunamis, floods, droughts and famines, landslides and avalanches; man-made disasters: nuclear reactor meltdown, industrial accidents, oil slicks Study of seismic zones; areas prone to floods and droughts, landslides and Avalanches; man- made disasters: nuclear reactor meltdown, industrial accidents, oil slick areas and spills, outbreaks of disease and epidemics, war and conflicts.

Unit 2: Repercussions of Disasters

Economic damage, loss of human and animal life, destruction of ecosystem. Disaster Prone Areas in India- Study of seismic zones; areas prone to floods and droughts, landslides and Avalanches; areas prone to cyclonic and coastal hazards with special reference to tsunami.

Unit 3: Disaster Preparedness and Management

Preparedness:monitoringofphenomenatriggeringadisasterorhazard;Evaluationofrisk, application of remote sensing, data from meteorological and Other agencies, media reports: governmental and community preparedness.

Unit 4: Risk Assessment

Disasterrisk:conceptandelements,disasterriskreduction,globalandnationaldisasterriskituation. Techniques of risk assessment, global co-operation in risk assessment and warning.

Unit 5: Disaster Mitigation

Meaning, concept and strategies of disaster mitigation, emerging trends in Mitigation. Structural mitigation and non-structural mitigation, programs of Disaster mitigation in India.

Text Books:

1. GhoshG.K., 2006, Disaster Management, APH Publishing Corporation.
2. S.L.UppalandG. C.Garg, “Electrical Wiring, Estimating &Costing”, Khanna publishers, 2008.
2. R.Nishith, Singh AK, “Disaster Management in India: Perspectives, issues and strategies” New Royal Book Company.

Reference Books:

1. Goel S. L., Disaster Administration and Management Text and Case Studies”, Deep & Deep Publication Pvt. Ltd., New Delhi.

Course Outcomes:

After completion of this subject, students will be able to:

- Students will be able to understand disaster and its types in general.
- They will understand the post disaster damage in terms of both like and commodity.
- They will have clear picture of disaster prone zones,
- They will be able to understand the pre and post disaster preparedness needed to mitigate the disaster impact in large scale.
- Student will also understand to quantify the risk in terms of monetary for both commodity and life.

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L	T	P	C
2	0	0	0

(EC20DAC111) SANSKRIT FOR TECHNICAL KNOWLEDGE

Course Objectives:

- To get a working knowledge in illustrious Sanskrit, the scientific language in the world
- Learning of Sanskrit to improve brain functioning
- Learning of Sanskrit to develop the logic in mathematics, science & other subjects
- Enhancing the memory power
- The engineering scholars equipped with Sanskrit will be able to explore the huge knowledge from ancient literature.

Unit 1: Introduction

Alphabets – Vowels – Consonants - Mahesvara sutras-Combined alphabets –Verbs-Basic words.

Unit 2: Study Of Grammar

Singular/Dual/Plural – Nominative case – Accusative case - Instrumental case - Dative case - Ablative case- Genitive case –Locative case

Unit 3:

Nouns and adjectives – Indeclinable - Present tense - Past tense - Future tense-Order and request– Prefixes - Number word – Combinations and cases.

Unit 4:

Sanskrit literature – Harsacaritasangrah – Kumarasambhava–sabdamanjari.

Unit 5:

Technical concept of Architecture - Manasar text –logic- nyaya sutras –pramana – mathematics- sulva sutras-baudhyana theorem.

Text Books:

1. Abhyaspustakam, Dr.Vishwas, Samskrita-Bharti Publication, NewDelhi.
2. Teach Yourself Sanskrit, Prathama Deeksha-VempatiKutumbshastri, Rashtriya Sanskrit Sansthanam, NewDelhi.

Course Outcomes:

After completion of this subject, students will be able to:

- Understand basic alphabets and vowels
- Understand the cases in Sanskrit language.
- Understand Nouns and tense.
- Understand some literature.
- Analyze the observation through pramana, application of architecture and mathematics.

SRI VENKATESWARA COLLEGE OF ENGINEERING

(Autonomous)

M.Tech – I Sem

L	T	P	C
2	0	0	0

(EC20DAC112) CONSTITUTION OF INDIA

Course Objectives:

- Understand the premises informing the twin themes of liberty and freedom from a civil rights perspective.
- To address the growth of Indian regarding modern Indian intellectuals constitutional role and entitlement to civil and economic rights as well as the emergence of nationhood in the early years of Indian nationalism.
- To address the role of socialism in India after the commencement of the Bolshevik Revolution in 1917 and its impact on the initial drafting of the Indian Constitution.
- To get knowledge about the Indian Federal System and Center – State Relations
- To Understand the Election Commission functions and administration system.

Unit 1: Introduction

Historical Background–Drafting Committee (Composition& Working)–Philosophical foundations of the Indian Constitution–Preamble – Fundamental Rights – Directive Principles of State Policy – Fundamental Duties – Citizenship – Constitutional Remedies for citizens.

Unit 2: Structure and Function of Central Government

Union Government–Structure soft the Union Government and Functions–President – Vice President – Prime Minister – Cabinet – Parliament – Supreme Court of India –Judicial Review.

Unit 3: Structure and Function of State Government

State Government–Structure and Functions–Governor– Chief Minister–Cabinet– State Legislature –Judicial System in States – High Courts and other Subordinate Courts.

Unit 4: Constitution Functions

Indian Federal System–Center–State Relations–President's Rule–Constitutional, Amendments–Constitutional Functionaries - Assessment of working of the Parliamentary System in India.

Unit 5: Research Gaps and Future Directions

Central Election Commission - Role and functioning – Chief Election Commissioner and Election Commissioners – State Election Commission – Institute and Bodies for the welfare of SC/ST/OBC and Women.

Course Outcomes:

After completion of this subject, students will be able to:

- Know about Human rights protection by Indian Constitution.
- Understand the functions of the Indian government.
- Understand and abide the rules of the Indian constitution.
- Understand role of Constitution in Socio-economic development and welfare activities of the Country.

Text Books:

1. Durga Das Basu, "Introduction to the Constitution of India", Prentice Hall of India, NewDelhi
2. Ackers J, Hardman F (2001) "Classroom interaction in Kenyan primary schools, Compare".
3. R.C.Agarwal (1997),"Indian Political System", S.Chand and Company, NewDelhi.

Reference Books:

1. The Constitution of India, 1950 (Bare Act), Government Publication.

SRI VENKATESWARA COLLEGE OF ENGINEERING

(Autonomous)

M.Tech – I Sem

L	T	P	C
2	0	0	0

(EC20DAC113) PEDAGOGY STUDIES

Unit 1:Introduction and Methodology

Aims and rationale, Policy background, Conceptual framework and terminology Theories of learning, Curriculum, Teacher education. Conceptual framework, Research questions. Overview of methodology and Searching.

Unit 2:Thematic Overview

Pedagogical practices are being used by teachers in formal and informal classrooms in developing countries. Curriculum, Teacher education.

Unit 3: Evidence on the Effectiveness of Pedagogical Practices

Methodology for the in depth stage: quality assessment of included studies. How can teacher education (curriculum and practicum) and the school curriculum and guidance materials best support effective pedagogy. Theory of change. Strength and nature of the body of evidence for effective pedagogical practices. Pedagogic theory and pedagogical approaches. Teacher's attitudes and beliefs and Pedagogic strategies.

Unit 4: Professional Development

Alignment with classroom practices and follow-up support, Peer support, Support from the head teacher and the community, Curriculum and assessment, Barriers to learning: limited resources and large class sizes.

Unit 5: Research Gaps and Future Directions

Research design, Contexts, Pedagogy, Teacher education, Curriculum and assessment Dissemination and research impact.

Text Books:

1. Ackers J, Hardman F (2001) Classroom interaction in Kenyan primary schools, Compare, 31(2):245-261.
2. Agrawal M (2004) Curricular reform in schools: The importance of evaluation, Journal of Curriculum Studies, 36 (3):361-379.

Course Outcomes:

At the end of the course, students will be able to:

- Understand the evidence on the effectiveness of the pedagogical practices, in what conditions, and with what population of learners.
- Able to teacher education (curriculum and practicum) and the school curriculum and guidance materials best support effective pedagogy.

SRI VENKATESWARA COLLEGE OF ENGINEERING

(Autonomous)

M.Tech – I Sem

L	T	P	C
0	0	4	2

(EC20DPC114) CMOS ANALOG IC DESIGN LAB

- The students are required to design and implement any TEN Experiments using CMOS 130nm Technology with Mentor Graphics Tool/ Cadence/ Synopsys/Industry Equivalent standard software.
- The students are required to implement LAYOUTS of any SIX Experiments using CMOS 130nm Technology with Mentor Graphics Tool/ Cadence/ Synopsys/Industry Equivalent Standard Software, and Compare the results with Pre-Layout Simulation.

List of Experiments

1. MOS Device Characterization and parametric analysis
2. Common Source Amplifier
3. Common Source Amplifier with source degeneration
4. Cascode amplifier
5. Simple current mirror
6. Cascode current mirror.
7. Wilson current mirror.
8. Differential Amplifier
9. Operational Amplifier
10. Sample and Hold Circuit
11. Direct-conversion ADC
12. R-2R Ladder Type DAC

Lab Requirements:

Software:

Mentor Graphics – Pyxis Schematic, IC Station, Calibre, ELDO Simulator

Hardware:

Personal Computer with necessary peripherals, configuration and operating System.

Course Outcomes:

At the end of the course, students will be able to:

- Explain the VLSI Design Methodologies using VLSI design tool.
- Grasp the significance of various CMOS analog circuits in full-custom IC Design flow
- Explain the Physical Verification in Layout Design
- Fully appreciate the design and analyze of analog and mixed signal simulation
- Grasp the Significance of Pre-Layout Simulation and Post-Layout Simulation

SRI VENKATESWARA COLLEGE OF ENGINEERING

(Autonomous)

M.Tech – I Sem

L	T	P	C
0	0	4	2

(EC20DPC115) CMOS DIGITAL IC DESIGN LAB

The students are required to design and implement the Circuit and Layout of any TEN Experiments using CMOS 130nm Technology with Mentor Graphics Tool/ Cadence/ Synopsys/Industry Equivalent Standard Software.

List of Experiments:

1. Inverter Characteristics.
2. NAND and NOR Gate
3. XOR and XNOR Gate
4. 2:1 Multiplexer
5. Full Adder
6. RS-Latch
7. Clock Divider
8. JK-Flip Flop
9. Synchronous Counter
10. Asynchronous Counter
11. Static RAM Cell
12. Dynamic Logic Circuits
13. Linear Feedback Shift Register

Lab Requirements:

Software:

Mentor Graphics Tool/ Cadence/ Synopsys/Industry Equivalent Standard Software

Hardware:

Personal Computer with necessary peripherals, configuration and operating System.

Course Outcomes:

At the end of the course, students will be able to:

- Explain the VLSI Design Methodologies using any VLSI design tool.
- Grasp the significance of various design logic Circuits in full-custom IC Design.
- Explain the Physical Verification in Layout Extraction.
- Fully appreciate the design and analyze of CMOS Digital Circuits.
- Grasp the Significance of Pre-Layout Simulation and Post-Layout Simulation.

SRI VENKATESWARA COLLEGE OF ENGINEERING

(Autonomous)

M.Tech – IISem

L	T	P	C
3	0	0	3

(EC20DPC201) CMOS MIXED SIGNAL DESIGN

Unit 1: Switched Capacitor Circuits

Introduction to Switched Capacitor circuits- basic building blocks, Operation and Analysis, Non-ideal effects in switched capacitor circuits, Switched capacitor integrators, first order filters, Switch sharing, biquad filters.

Unit 2: Phased Lock Loop (PLL)

Basic PLL topology, Dynamics of simple PLL, Charge pump PLLs-Lock acquisition, Phase/Frequency detector and charge pump, Basic charge pump PLL, Non-ideal effects in PLLs- PFD/CP non-idealities, Jitter in PLLs, Delay locked loops, applications

Unit 3: Data Converter

Fundamentals DC and dynamic specifications, Quantization noise, Nyquist rate D/A converters- Decoder based converters, Binary-Scaled converters, Thermometer-code converters, Hybrid converters

Unit 4: A to D Converters

Nyquist Rate A/D Converters Successive approximation converters, Flash converter, Two-step A/D converters, Interpolating A/D converters, Folding A/D converters, Pipelined A/D converters, Time- interleaved converters.

Unit 5: Oversampling Converters

Noise shaping modulators, Decimating filters and interpolating filters, Higher order modulators, Delta sigma modulators with multi bit quantizers, Delta sigma D/A

Text Books:

1. Design of Analog CMOS Integrated Circuits- Behzad Razavi, TMH Edition, 2002
2. CMOS Analog Circuit Design - Philip E. Allen and Douglas R. Holberg, Oxford University Press, International Second Edition/Indian Edition, 2010.
3. Analog Integrated Circuit Design- David A. Johns, Ken Martin, Wiley Student Edition, 2013

Reference Books:

1. CMOS Integrated Analog-to- Digital and Digital-to-Analog converters- Rudy Van De Plassche, Kluwer Academic Publishers, 2003
2. Understanding Delta-Sigma Data converters-Richard Schreier, Wiley Inter science, 2005.
3. CMOS Mixed-Signal Circuit Design - R. Jacob Baker, Wiley Interscience,2009

Course Outcomes:

After the Completion of the course the students will be able to:

- Demonstrate first order filter with least interference
- Extend the concept of phase locked loop for designing PLL application with minimum jitter by considering non ideal effects.
- Design different A/D, D/A, modulators, demodulators and different filter for real time applications

SRI VENKATESWARA COLLEGE OF ENGINEERING

(Autonomous)

M.Tech – IISem

L	T	P	C
3	0	0	3

(EC20DPC202) PHYSICAL DESIGN AUTOMATION

Unit 1: VLSI Design Automation Tools

Algorithms and system design, Structural and logic design, Transistor level design, Layout design, Verification methods, Design management tools.

Unit 2:Layout

Compaction, placement and routing, Design rules, symbolic layout, Applications of compaction. Formulation methods, Algorithms for constrained graph compaction, Circuit representation, Wire length estimation, Placement algorithms, Partitioning algorithms.

Unit 3: Floor planning and routing

Floor planning concepts, Shape functions and floor planning sizing, Local routing, Area routing, Channel routing, global routing and its algorithms.

Unit 4: Simulation and Logic Synthesis

Gate level and switch level modeling and simulation, Introduction to combinational logic synthesis, ROBDD principles, implementation, construction and manipulation, Two level logic synthesis.

Unit 5: High-Level Synthesis

Hardware model for high level synthesis, internal representation of input algorithms, Allocation, assignment and scheduling, scheduling algorithms, Aspects of assignment, High level transformations.

Text Books:

1. S.H. Gerez, Algorithms for VLSI Design Automation, John Wiley, 1998.
2. N.A. Sherwani, Algorithms for VLSI Physical Design Automation, (3/e), Kluwer, 1999.

Reference Books:

1. S.M. Sait,H.Youssef, VLSI Physical Design Automation, World scientific, 1999.
2. M.Sarrafzadeh, Introduction to VLSI Physical Design, McGraw Hill (IE), 1996

Course Outcomes:

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

- Understand relation between automation algorithms and constraints posed by VLSI technology.
- Adopt algorithms to meet critical design parameters.
- Design area efficient logics by employing different routing algorithms and shape functions.
- Simulate and synthesis different combinational and sequential logics.

SRI VENKATESWARA COLLEGE OF ENGINEERING

(Autonomous)

M.Tech – IISem

L	T	P	C
3	0	0	3

(EC20DPE203) DESIGN FOR TESTABILITY

Unit 1: Introduction to Testing

Testing Philosophy, Role of Testing, Digital and Analog VLSI Testing, VLSI Technology Trends affecting Testing, Types of Testing, Fault Modeling: Defects, Errors and Faults, Functional Versus Structural Testing, Levels of Fault Models, Single Stuck-at Fault.

Unit 2: Logic and Fault Simulation

Simulation for Design Verification and Test Evaluation, Modeling Circuits for Simulation, Algorithms for True-value Simulation, Algorithms for Fault Simulation.

Unit 3: Testability Measures

SCOAP Controllability and Observablity, High Level Testability Measures, Digital DFT and Scan Design: Ad-Hoc DFT Methods, Scan Design, Partial-Scan Design, Variations of Scan.

Unit 4: Built-In Self-Test

The Economic Case for BIST, Random Logic BIST: Definitions, BIST Process, Pattern Generation, Response Compaction, Built-In Logic Block Observers, Test-Per-Clock, Test-Per-Scan BIST Systems, Circular Self Test Path System, Memory BIST, Delay Fault BIST.

Unit 5: Boundary Scan Standard

Motivation, System Configuration with Boundary Scan: TAP Controller and Port, Boundary Scan Test Instructions, Pin Constraints of the Standard, Boundary Scan Description Language: BDSL Description Components, Pin Descriptions.

Text Books:

1. M.L. Bushnell, V. D. Agrawal, “Essentials of Electronic Testing for Digital, Memory and Mixed Signal VLSI Circuits”, Kluwer Academic Pulishers.
2. M. Abramovici, M.A.Breuer and A.D Friedman, “Digital Systems and Testable Design”, Jaico Publishing House.

Reference Books:

1. P.K. Lala, “Digital Circuits Testing and Testability”, Academic Press.

Course Outcomes:

After completion of this course the students will be able to:

- Understand different types of faults associated with logic circuits and types of testing by employing fault models to the logic circuits.
- Study about different methods of simulation and algorithms associated with testing.
- Get complete knowledge about different methods of simulation and algorithms associated with testing.

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(Autonomous)

M.Tech – IISem

L	T	P	C
3	0	0	3

(EC20DPE204) SEMICONDUCTOR MEMORY DESIGN AND TESTING

Unit 1: Random Access Memory Technologies

SRAM – SRAM Cell structures, MOS SRAM Architecture, MOS SRAM cell and peripheral circuit operation, Bipolar SRAM technologies, SOI technology, Advanced SRAM architectures and technologies, Application specific SRAMs, DRAM – DRAM technology development, CMOS DRAM, DRAM cell theory and advanced cell structures, BICMOS DRAM, soft error failure in DRAM, Advanced DRAM design and architecture, Application specific DRAM.

Unit 2: Non-volatile Memories

Masked ROMs, High density ROM, PROM, Bipolar ROM, CMOS PROMS, EPROM, Floating gate EPROM cell, One time programmable EPROM, EEPROM, EEPROM technology and architecture, Non-volatile SRAM, Flash Memories (EPROM or EEPROM), advanced Flash memory architecture

Unit 3: Memory Fault Modeling Testing and Memory Design for Testability and Fault Tolerance

RAM fault modeling, Electrical testing, Pseudo Random testing, Megabit DRAM Testing, non-volatile memory modeling and testing, IDDQ fault modeling and testing, Application specific memory testing, RAM fault modeling, BIST techniques for memory

Unit 4: Semiconductor Memory Reliability and Radiation Effects

General reliability issues RAM failure modes and mechanism, Non-volatile memory reliability, reliability modeling and failure rate prediction, Design for Reliability, Reliability Test Structures, Reliability Screening and qualification, Radiation effects, Single Event Phenomenon (SEP), Radiation Hardening techniques, Radiation Hardening Process and Design Issues, Radiation Hardened Memory characteristics, Radiation Hardness Assurance and Testing, Radiation Dosimetry, Water Level Radiation Testing and Test structures

Unit 5: Advanced Memory Technologies and High-density Memory Packing Technologies

Ferroelectric RAMs (FRAMs), GaAs FRAMs, Analog memories, magneto resistive RAMs (MRAMs), Experimental memory devices, Memory Hybrids and MCMs (2D), Memory Stacks and MCMs (3D), Memory MCM testing and reliability issues, Memory cards, High Density Memory Packaging Future Directions.

Text Books:

1. Semiconductor Memories Technology – Ashok K. Sharma, 2002, Wiley.
2. Advanced Semiconductor Memories – Architecture, Design and Applications - Ashok K. Sharma-2002, Wiley.

Reference Books:

1. Modern Semiconductor Devices for Integrated Circuits – Chenming C Hu, First Edition. Prentice all.

Course Outcomes:

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

- Get complete knowledge regarding different types of memories, their architectural and different packing techniques of memories.
- Build fault models for memory testing.
- Analyze different parameters that lead malfunctioning of memories.
- Design reliable memories with efficient architecture to improve processes times and power.

SRI VENKATESWARA COLLEGE OF ENGINEERING

(Autonomous)

M.Tech – II Sem

L	T	P	C
3	0	0	3

(EC20DPE205) MEMS SYSTEM DESIGN

Unit 1: Introduction to MEMS

Introduction to MEMS & Real world Sensor/Actuator examples (DMD, Air-bag, pressure sensors).MEMS Sensors in Internet of Things (IoT), Bio-Medical Applications

Unit 2: MEMS Materials and Their Properties

Materials (eg. Si, SiO2, SiN, Cr, Au, Ti, SU8, PMMA, Pt); Important properties: Young modulus, Poisson's ratio, density, piezo-resistive coefficients, TCR, Thermal Conductivity, Material Structure. Understanding Selection of materials based on applications.

Unit 3: MEMS Fab Processes – 1

Understanding MEMS Processes & Process parameters for: Cleaning, Growth &Deposition, Ion Implantation & Diffusion, Annealing, Lithography. Understanding selection of Fab processes based on Applications.

Unit 4: MEMS Fab Processes – 2

Understanding MEMS Processes & Process parameters for: Wet & Dry etching, Bulk& Surface Micromachining, Die, Wire& Wafer Bonding, Dicing, Packaging. Understanding selection of Fab processes based on Applications.

Unit 5: MEMS Devices

Architecture, working and basic quantitative behaviour of Cantilevers, Micro heaters, Accelerometers, Pressure Sensors, Micro mirrors in DMD, Inkjet printer-head. Understanding steps involved in Fabricating above devices.

Text Books:

1. An Introduction to Micro electromechanical Systems Engineering; 2nd Edition by N.Maluf, K Williams; Publisher: Artech House Inc
2. Practical MEMS - by Ville Kaajakari; Publisher: Small Gear Publishing
3. Micro system Design - by S. Senturia; Publisher: Springer

Reference Books:

1. Analysis and Design Principles of MEMS Devices –Minhang Bao; Publisher: Elsevier Science.
2. Fundamentals of Micro fabrication - by M. Madou; Publisher:CRC Press; 2nd edition
3. Micro Electro Mechanical System Design - by J. Allen; Publisher: CRC Press
4. Micro machined Transducers Sourcebook - by G. Kovacs; Publisher: McGraw-Hill

Course Outcomes:

At the end of the course, students will be able to:

- Understand the basic concepts of MEMS technology and working of MEMS devices.
- Understand and select different materials for current MEMS devices and competing technologies for future applications.
- Understanding the concepts of fabrication process of MEMS, Design and Packaging Methodology.
- Analyze the various fabrication techniques in the manufacturing of MEMS Devices.

SRI VENKATESWARA COLLEGE OF ENGINEERING

(Autonomous)

M.Tech – II Sem

L	T	P	C
3	0	0	3

(EC20DPE206) LOW POWER VLSI DESIGN

Unit 1: Fundamentals

Need for Low Power Circuit Design, Sources of Power Dissipation – Switching Power Dissipation, Short Circuit Power Dissipation, Leakage Power Dissipation, Glitching Power Dissipation, Short Channel Effects –Drain Induced Barrier Lowering and Punch Through, Surface Scattering, Velocity Saturation, Impact Ionization, Hot Electron Effect.

Unit 2: Low-Power Design Approaches

Low-Power Design through Voltage Scaling – VTCMOS circuits, MTCMOS circuits, Architectural Level Approach –Pipelining and Parallel Processing Approaches. Switched Capacitance Minimization Approaches: System Level Measures, Circuit Level Measures, Mask level Measures.

Unit 3: Low-Voltage Low-Power Adders

Introduction, Standard Adder Cells, CMOS Adder's Architectures – Ripple Carry Adders, Carry Look Ahead Adders, Carry Select Adders, Carry Save Adders, Low-Voltage Low-Power Design Techniques – Trends of Technology and Power Supply Voltage, Low-Voltage Low-Power Logic Styles.

Unit 4: Low-Voltage Low-Power Multipliers

Introduction, Overview of Multiplication, Types of Multiplier Architectures, Braun Multiplier, Baugh Wooley Multiplier, Booth Multiplier, Introduction to Wallace Tree Multiplier.

Unit 5: Low-Voltage Low-Power Memories

Basics of ROM, Low-Power ROM Technology, Future Trend and Development of ROMs, Basics of SRAM, Memory Cell, Precharge and Equalization Circuit, Low-Power SRAM Technologies, Basics of DRAM, Self-Refresh Circuit, Future Trend and Development of DRAM.

Text Books:

1. CMOS Digital Integrated Circuits – Analysis and Design – Sung-Mo Kang, Yusuf Leblebici, TMH, 2011.
2. Low-Voltage, Low-Power VLSI Subsystems – Kiat-Seng Yeo, Kaushik Roy, TMH Professional Engineering.

Reference Books:

1. Introduction to VLSI Systems: A Logic, Circuit and System Perspective – Ming-BO Lin, CRC Press, 2011.
2. Low Power CMOS Design – AnanthaChandrakasan, IEEE Press/Wiley International, 1998.
3. Low Power CMOS VLSI Circuit Design – Kaushik Roy, Sharat C. Prasad, John Wiley & Sons, 2000.

Course Outcomes:

After completion of this subject, students will be able to:

- Understand the concepts of velocity saturation, Impact Ionization and Hot Electron Effect
- Implement Low power design approaches for system level and circuit level measures.
- Design low power adders, multipliers and memories for efficient design of systems.

SRI VENKATESWARA COLLEGE OF ENGINEERING

(Autonomous)

M.Tech – II Sem

L	T	P	C
3	0	0	3

(EC20DPE207) IOT AND ITS APPLICATIONS

Unit 1: Fundamentals of IoT

Evolution of Internet of Things, Enabling Technologies, IoT Architectures,oneM2M, IoT World Forum (IoTWF) and Alternative IoT models, Simplified IoT Architecture and Core IoT Functional Stack, Fog, Edge and Cloud in IoT, Functional blocks of an IoT ecosystem, Sensors, Actuators, Smart Objects and Connecting Smart Objects.
IoT Platform overview: Overview of IoT supported Hardware platforms such as: Raspberry pi, ARM Cortex Processors, Arduino and Intel Galileo boards.

Unit 2: IoT Protocols

IT Access Technologies: Physical and MAC layers, topology and Security of IEEE 802.15.4, 802.15.4g, 802.15.4e, 1901.2a, 802.11ah and Lora WAN, Network Layer: IP versions, Constrained Nodes and Constrained Networks, Optimizing IP for IoT: From 6LoWPAN to 6Lo, Routing over Low Power and Lossy Networks, Application Transport Methods: Supervisory Control and Data Acquisition, Application Layer Protocols: CoAP and MQTT

Unit 3: Design and Development

Design Methodology, Embedded computing logic, Microcontroller, System on Chips, IoT system building blocks, Arduino, Board details, IDE programming, Raspberry Pi, Interfaces and Raspberry Pi with Python Programming.

Unit 4: Data Analytics and Supporting Services

Structured Vs Unstructured Data and Data in Motion Vs Data in Rest, Role of Machine Learning – No SQL Databases, Hadoop Ecosystem, Apache Kafka, Apache Spark, Edge Streaming Analytics and Network Analytics, Xively Cloud for IoT, Python Web Application Framework, Django, AWS for IoT, System Management with NETCONF-YANG

Unit 5: Case Studies / Industrial Applications

IoT applications in home, infrastructures, buildings, security, Industries, Home appliances, other IoT electronic equipments. Use of Big Data and Visualization in IoT, Industry 4.0 concepts. Sensors and sensor Node and interfacing using any

Embedded target boards (Raspberry Pi / Intel Galileo/ARM Cortex/ Arduino)

Text Books:

1. IoT Fundamentals: Networking Technologies, Protocols and Use Cases for Internet of Things, David Hanes, Gonzalo Salgueiro, Patrick Grossetete, Rob Barton and Jerome Henry, Cisco Press, 2017.

Reference Books:

1. Internet of Things – A hands-on approach, ArshdeepBahga, Vijay Madisetti, Universities Press,2015
2. The Internet of Things – Key applications and Protocols, Olivier Hersent, David Boswarthick, Omar Elloumi and Wiley, 2012 (for Unit 2).
3. "From Machine-to-Machine to the Internet of Things – Introduction to a New Age of Intelligence", Jan Holler, VlasiosTsiatsis, Catherine Mulligan, Stamatis, Karnouskos, Stefan Avesand. David Boyle and Elsevier, 2014.
4. Architecting the Internet of Things, Dieter Uckelmann, Mark Harrison, Michahelles and Florian (Eds), Springer, 2011.
5. Recipes to Begin, Expand, and Enhance Your Projects, 2nd Edition,Michael Margolis, Arduino Cookbook and O'Reilly Media, 2011.

Course Outcomes:

At the end of this course, students will be able to:

- Apply the Knowledge in IOT Technologies and Data management.
- Determine the values chains Perspective of M2M to IOT.
- Implement the state of the Architecture of an IOT.
- Compare IOT Applications in Industrial & real world.
- Demonstrate knowledge and understand the security and ethical issues of an IOT.

SRI VENKATESWARA COLLEGE OF ENGINEERING

(Autonomous)

M.Tech – II Sem

L	T	P	C
3	0	0	3

(EC20DPE208) VLSI SIGNAL PROCESSING

Unit 1: Introduction to DSP

Typical DSP algorithms, DSP algorithms benefits, Representation of DSP algorithms Pipelining and Parallel Processing Introduction, Pipelining of FIR Digital filters, Parallel Processing, Pipelining and Parallel Processing for Low Power Retiming Introduction, Definitions and Properties, Solving System of Inequalities, Retiming Techniques

Unit 2: Folding and Unfolding

Folding- Introduction, Folding Transform, Register minimization Techniques, Register minimization in folded architectures, folding of Multirate systems Unfolding- Introduction, An Algorithm for Unfolding, Properties of Unfolding, critical Path, Unfolding and Retiming, Applications of Unfolding.

Unit 3: Systolic Architecture Design

Introduction, Systolic Array Design Methodology, FIR Systolic Arrays, Selection of Scheduling Vector, Matrix Multiplication and 2D Systolic Array Design, Systolic Design for Space Representations contain Delays.

Unit 4: Fast Convolution

Introduction – Cook - Toom Algorithm – Winogard algorithm – Iterated Convolution – Cyclic Convolution – Design of Fast Convolution algorithm by Inspection

Unit 5: Low Power Design

Digital lattice filter structures, bit level arithmetic, architecture, redundant arithmetic. Numerical strength reduction, synchronous, wave and asynchronous pipe lines, Scaling Vs Power Consumption, Power Analysis, Power Reduction techniques, Power Estimation Approaches

Text Books:

1. Keshab K. Parthi, VLSI Digital signal processing systems, design and implementation, Wiley, Inter Science, 1999.
2. Mohammad Isamail and Terri Fiez, Analog VLSI signal and information processing, McGraw Hill, 1994
3. S.Y. Kung, H.J. White House, T. Kailath, VLSI and Modern Signal Processing, Prentice Hall, 1985.

Course Outcomes

On successful completion of the module, students will be able to:

- Modify the existing or new DSP architectures suitable for VLSI.
- Understand the concepts of folding and unfolding algorithms and applications.
- Implement fast convolution algorithms.

SRI VENKATESWARA COLLEGE OF ENGINEERING

(Autonomous)

M.Tech II Sem

L	T	P	C
2	0	0	0

(EC20DAC209)ENGLISH FOR RESEARCH PAPER WRITING

Course Objectives:

- Conceptualize various components of academic writing.
- Enhance and use academic vocabulary.
- Plan and write quality research papers in their respective field.
- Ensure the good quality of paper
- At very first-time submission

Unit 1: Scientific Writing

What is scientific writing – Language in scientific writing – Use and misuse of English –Elements of scientific writing - Paraphrasing and Plagiarism - Hedging and Criticizing – How to identify research problem

Unit 2: Writing Title and Abstract

Strategies for writing effective title – Planning and preparing your abstract - Things to consider while writing abstract – Useful phrases for writing abstract.

Unit 3: Organizing Review of the Literature; Methods of Data Collection and Data Analysis

What is review of the literature - Techniques of reading and citing various studies relevant to the study – Things to consider while organizing review of the literature – useful phrases while writing review of the literature - Introduction to various methods of data collection – Preparing tools and describing them - How to interpret and analyze data.

Unit 4: Writing Findings, Discussion and Conclusion

Useful vocabulary while writing findings, discussion, and conclusion – elaboration of the findings - Preparing and describing charts and graphs – how to organize.

Unit 5: Preparing References, Appendixes and Proof reading The Paper

Various styles of referencing and bibliography (APA, MLA, Oxford, Harvard, Chicago) –Organizing and preparing Appendixes – Various strategies of proof reading.

Text Books:

1. Adrian Wallwork, (2011). English for Writing Research Papers. Springer New York
2. Goldbort R (2006) Writing for Science, Yale University Press (available on Google Books)

Reference Books:

1. Kate L. Turabian, “A Manual for Writers of Research Papers, Theses, and Dissertations, Seventh Edition: Chicago Style for Students and Researchers [7th ed.] Chicago, Guides to Writing, Editing, and Publishing, 2007.

Course Outcomes:

At the end of the course, students will be able to:

- Become aware of various components of academic writing
- Improve and use academic vocabulary while writing a research papers
- Plan and write quality research papers in their respective field

SRI VENKATESWARA COLLEGE OF ENGINEERING

(Autonomous)

M.Tech II Sem

L	T	P	C
2	0	0	0

(EC20DAC210)VALUE EDUCATION

Course Objectives:

- To understand the electrical wiring systems for residential, commercial and industrial consumers.
- To learn the representation of systems with standard symbols and drawings.
- To understand the various components of industrial electrical systems.
- To analyse and select the proper size of several electrical system components.
- To study the control aspects of industrial electrical system using PLC and SCADA

Unit 1:

Values and self-development -Social values and individual attitudes. Work ethics, Indian vision of humanism. Moral and non- moral valuation. Standards and principles. Value judgements.

Unit 2:

Importance of cultivation of values. Sense of duty. Devotion, Self-reliance. Confidence, Concentration. Truthfulness, Cleanliness. Honesty, Humanity. Power of faith, National Unity. Patriotism. Love for nature, Discipline.

Unit 3:

Personality and Behaviour Development- Soul and Scientific attitude. Positive Thinking. Integrity and discipline. Punctuality, Love and Kindness. Avoid fault Thinking. Free from anger, Dignity of labour. Universal brotherhood and religious tolerance. True friendship Happiness Vs suffering, love for truth. Aware of self-destructive habits. Association and Cooperation, Doing best for saving nature.

Unit 4:

Character –Holy books vs Blind faith. Self-management and Good health. Science of reincarnation. Equality, Nonviolence, Humility, Role of Women. All religions and same message.

Unit 5:

Competence- Emotional Intelligence- Mind your Mind, Self-control - Honesty, Studying Effectively.

Text Books:

1. Chakroborty, S.K. “Values and Ethics for organizations Theory and practice”, Oxford

Course Outcomes:

At the end of the course, students will be able to:

- Learn the importance of Human values.
- Develop the moral personality
- Develop spiritual personality.
- Develop emotional personality.

SRI VENKATESWARA COLLEGE OF ENGINEERING

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M.Tech II Sem

L	T	P	C
2	0	0	0

(EC20DAC211)STRESS MANAGEMENT BY YOGA

Course Objectives:

- To know the human psyche: Yogic and modern concepts.
- To have the importance for mental health.
- To know the relationship between mind and body.
- To understand the concept of stress according to modern science and yoga.
- To achieve overall health of mind through yoga

Unit 1: Scientific Foundations of Stress

Concept of stress – Sources of stress - Types of Stress – Personality factors and Stress – Stress and the college student.

Unit 2: Consequences of Stress on Human Mind

Human Psyche: Yogic and Modern concepts, behaviour and consciousness – Frustration –Conflicts –Psychosomatic, Disorders.

Unit 3: Mental Hygiene and Yoga

Mental health: A Yogic Perspective – Mental hygiene and role of Yoga in mental hygiene –Yogic principles for the management of stress (Prayer and meditation for mental health)

Unit 4: Ashtanga Yoga Introduction

Introduction to Ashtanga Yoga – Concepts and techniques of stress management in Ashtanga Yoga of Patanjali Yogasutra (i.e. Benefits of Meditation for stress management).

Unit 5: YOGIC MANAGEMENT OF STRESS

Specific practices for stress management: Yogasana, breath awareness, shavasana, yoganidra, pranayama and meditation.

Text Books:

1. Certification of yoga professionals, “Official guide book for Level 1 and Level 2” , Excel books private limited, Noida.

Course Outcomes:

At the end of the course, students will be able to:

- Understand the role of yoga in stress management.
- Understanding the role of yoga in life management.
- Understanding the role of yoga in mental hygiene.
- Develop strong mental health.
- Develop healthy mind and there by improve efficiency.

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M.Tech II Sem

L	T	P	C
2	0	0	0

(EC20DAC212)PERSONALITY DEVELOPMENT THROUGH LIFE ENLIGHTENMENTSKILLS

Course Objectives:

- To expose the students to those soft skills which are crucial to an employee's ability to work smarter.
- To enhance Art of Communication, Team Skills, GD handling skills and preparing resume.

Unit 1: Verbal Communications

Active listening - Non Verbal Communication –Body Language.

Unit 2: Residential and Commercial Electrical Systems

Importance of Teamwork – Leadership skills, self-realization (Identifying strengths and weaknesses).

Unit 3: Time Management

Group Discussions skills – Roles in a Group Discussions – Do's & Don'ts –Mock Group Discussions.

Unit 4: Resume Preparation

Tips in writing resume - Interview Handling Skills Interview skills – Do's &Don'ts– Goal setting.

Unit 5:

Grooming etiquette, Professional Electronic Communication-Telephone etiquette, Email etiquette.

Text Books:

1. Dr K Alex. Soft skills, S Chand Publications, NewDelhi.
2. K.B.Raina, "Electrical Design, Estimating & costing", New age International,2007.

Course Outcomes:

At the end of the course, students will be able to:

- Communicate effectively and enhance their interpersonal relationship and building skills with renewed self-confidence.
- Work together in teams and accomplish objectives in a cordial atmosphere.
- Face Group Discussion with confidence.
- Prepare resume and face interviews.
- Understand and develop the necessary etiquette to present oneself in a professional setting.

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M.Tech II Sem

L	T	P	C
0	0	4	2

(EC20DPC213) MIXED SIGNAL IC DESIGN LAB

Cycle 1:

1) Fully compensated op-amp with resistor and miller compensation
2) High speed comparator design
   a. Two stage cross coupled clamped comparator
   b. Strobed Flip-flop
3) Data converter

Cycle 2:

1) Switched capacitor circuits
   a. Parasitic sensitive integrator
   b. Parasitic insensitive integrator
2) Design of PLL
3) Design of VCO
4) Band gap reference circuit
5) Layouts of All the circuits Designed and Simulated

Software:

Mentor Graphics/ Cadence/ Tanner/Industry Equivalent Standard Software Tools

Hardware:

Personal Computer with necessary peripherals, configuration and operating System.

Text Books:

1) David A johns, Ken Martin, Analog Integrated Circuit Design, Wiley, 2008.
2) R. Gregorian and G.C Ternes, Analog MOS Integrated Circuits for Signal Processing, Wiley,1986.
3) Roubik Gregorian, Introduction to CMOS OpAmp and Comparators, Wiley, 1999.
4) Alan Hastlings, The art of Analog Layout, Wiley, 2005.

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B.Tech II Sem

L	T	P	C
0	0	4	2

(EC20DPC214) PHYSICAL DESIGN AUTOMATION LAB

Cycle 1:

1) Graph algorithms
    a) Graph search algorithms
        i. Depth first search
        ii. Breadth first search
    b) Spanning tree algorithm
        i. Kruskal"s algorithm
    c) Shortest path algorithm
        i. Dijkstra algorithm
        ii. Floyd- Warshall algorithm
    d) Steiner tree algorithm
2) Computational geometry algorithm
    a) Line sweep method
    b) Extended line sweep method

Cycle 2:

3) Partitioning algorithms
    a) Group migration algorithms
        I. Kernighan –Lin algorithm
        II. Extensions of Kernighan-Lin algorithm
            i) Fiduccias –Mattheyses algorithm
            ii) Goldberg and Burstein algorithm
    b) Simulated annealing and evolution algorithms
        i. Simulated annealing algorithm
        ii. Simulated evolution algorithm
    III) Metric allocation method
4) Floor planning algorithms
        i) Constraint based methods
        ii) Integer programming based methods

iii) Rectangular dualization based methods

iv) Hierarchical tree based methods

v) Simulated evolution algorithms

vi) Time driven Floor planning algorithms

5) Routing algorithms

I) Two terminal algorithms

a) Maze routing algorithms

i)Lee"s algorithm

ii) Soukup"s algorithm

iii) Hadlock algorithm

b) Line-Probe algorithm

c) Shortest path based algorithm

II) Multi terminal algorithm

a) Steniertree based algorithm

i) SMST algorithm

ii) Z-RST algorithm

Software required: C/C++ Programming Language /Relevant software

Text Books:

1) Naveed Shervani, Algorithms for Physical Design Automation, 3rd Edition, Kluwer Academic,1998.

2) Charles J Alpert, Dinesh P Mehta, Sachin S. Sapatnekar, Handbook of Algorithms for Physical Design Automation, CRC Press,2008.

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M.Tech – II Sem

L	T	P	C
2	0	0	0

(EC20DMC216) ENTREPRENEURSHIP & INCUBATION

COURSE OBJECTIVES

The objective of this course is

- To make the student understand about Entrepreneurship
- To enable the student in knowing various sources of generating new ideas in setting up of New enterprise
- To facilitate the student in knowing various sources of finance in starting up of a business
- To impart knowledge about various government sources which provide financial assistance to entrepreneurs/ women entrepreneurs
- To encourage the student in creating and designing business plans

UNIT-I

Entrepreneurship - Concept, knowledge and skills requirement - Characteristics of successful entrepreneurs - Entrepreneurship process - Factors impacting emergence of entrepreneurship - Differences between Entrepreneur and Intrapreneur - Understanding individual entrepreneurial mindset and personality - Recent trends in Entrepreneurship.

Learning Outcomes:

At the end if the Unit, the learners will be able to

- Understand the concept of Entrepreneur and Entrepreneurship in India
- Know Entrepreneurship process and emergence of Entrepreneurship
- Analyze the differences between Entrepreneur and Intrapreneur
- Develop a creative mind set and personality
- Understand recent trends in Entrepreneurship across the globe

UNIT-II

Starting the New Venture - Generating business idea – Sources of new ideas & methods of generating ideas - Opportunity recognition - Feasibility study - Market feasibility, technical/ operational feasibility - Financial feasibility - Drawing business plan – Preparing project report - Presenting business plan to investors.

Learning Outcomes:

At the end if the Unit, the learners will be able to

- Know the process of starting a new venture
- Analyze the sources of new methods in generating business idea
- Evaluate market feasibility, financial feasibility and technical feasibility
- Design and draw business plans in project preparation and prepare project reports

UNIT-III

Sources of finance - Various sources of Finance available - Long term sources - Short term sources - Institutional Finance – Commercial Banks, SFC's in India - NBFC's in India - their way of financing in India for small and medium business - Entrepreneurship development programs in India - The entrepreneurial journey- Institutions in aid of entrepreneurship development.

Learning Outcomes:

At the end of the Unit, the learners will be able to

- Know the various sources of finance to start a new venture
- Contrast & compare between Long term & Short term finance sources
- Analyze the role of banks and other financial institutions in promoting entrepreneurship in India
- Evaluate the need and importance of MSMEs in the growth of country

UNIT-IV

Women Entrepreneurship - Entrepreneurship Development and Government - Role of Central Government and State Government in promoting women Entrepreneurship - Introduction to various incentives, subsidies and grants– Export - oriented Units - Fiscal and Tax concessions available - Women entrepreneurship - Role and importance - Growth of women entrepreneurship in India - Issues & Challenges - Entrepreneurial motivations.

Learning Outcomes:

At the end of the Unit, the learners will be able to

- Understand the role of government in promoting women entrepreneurship
- Know various incentives, subsidies and grants available to women entrepreneurs
- Analyze the role of export-oriented units
- Know about the tax concessions available for Women entrepreneurs

UNIT-V

Fundamentals of Business Incubation - Principles and good practices of business incubation- Process of business incubation and the business incubator and how they operate and influence the Type/benefits of incubators - Corporate/educational / institutional incubators – Broader business incubation environment - Pre-Incubation and Post - Incubation process - Idea lab, Business plan structure - Value proposition

Learning Outcomes:

At the end of the Unit, the learners will be able to:

- Understand the importance of business incubation
- Apply brilliant ideas in the process of business incubation
- Analyze the process of business incubation/incubators.
- Contrast &Compare between business incubation and business incubators.
- Design their own business incubation/incubators as viable-business unit.

Text Books:

1. D F Kuratko and T V Rao, “Entrepreneurship” - A South-Asian Perspective – Cengage Learning, 2012. (For PPT, Case Solutions Faculty may visit : login.cengage.com)
2 .Nandan H, “ Fundamentals of Entrepreneurship”, PHI, 2013

Reference Books:

1. Vasant Desai, “Small Scale Industries and Entrepreneurship”, HimalayaPublishing 2012.
2. Rajeev Roy “Entrepreneurship”, 2nd Edition, Oxford, 2012.
3. Stuart Read, Effectual “Entrepreneurship”, Routledge, 2013.

Course Outcomes:

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

1. Understand the concept of Entrepreneurship and challenges in the world of competition.
2. Apply the Knowledge in generating ideas for New Ventures.
3. Analyze various sources of finance and subsidies to entrepreneur/women Entrepreneurs.
4. Evaluate the role of central government and state government in promoting Entrepreneurship.
5. Create and design business plan structure through incubations.

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M.Tech – IIISem

L	T	P	C
3	0	0	3

(EC20DPE301) BICMOS TECHNOLOGY AND APPLICATIONS

Unit 1: BiCMOS Process Technology

CMOS Process Technology, Bipolar Process Technology, Isolation in CMOS and Bipolar Technologies, BiCMOS Technology, BiCMOS Design Rules.

Unit 2: Device Design Considerations

Design Considerations for MOSFET's, Design Considerations for Bipolar Transistors, BiCMOS Device Design Considerations.

BiCMOS Device Scaling: MOS Device Scaling, Bipolar Device Scaling.

Unit 3: Device Modeling

Modeling of the MOS Transistor: MOSFET Structure and Operation, SPICE Models of the MOS Transistor,Analytical Model for Short-Channel MOS Devices.

Modeling of the Bipolar Transistor: BJT Structure and Operation, Ebers-Moll Model, Bipolar Models in SPICE.

Unit 4: BiCMOSDigitalIntegrated Circuits

BiMOS Totem-Pole Inveter: DC Characteristics, Transient Analysis, Delay Dependence on the Device Parameters, BiCMOS Circuit Design, Comparing CMOS and BiCMOS Inverters Speed, BiCMOS Gates.

Unit 5: BiCMOS Digital Circuit Applications

Adders, Multiplier, Random Access Memory, Programmable Logic Arrays, BiCMOS Logic Cells, BiCMOS Gate Arrays.

Text Books:

1. Sherif H.K. Embabi, AbdellatifBellaouar& Mohamed I. Elmasry "Digital BiCMOS Integrated Circuit Design" Springer Science+ BusÎness Media, LLC.
2. A L ALVAREZ, BICMOS Technology & Applications, Kluwer Academic Publishers.

Reference Books:

1. Kiat-Seng yeo, Samir S. Rofail, Wang-Ling Goh, CMOS/BiCMOS ULSI, Pearson Education.
2. James C. Daly, Denis P. Galipeau, Analog BiCMOS Design: Practices & Pitfalls, CRC Press
3. KlaasJan de Langen, Johan Huijsing, Compact Low-Voltage and High-Speed CMOS, BiCMOS and Bipolar Operational Amplifiers, Springer Science

Course outcomes:

After completion of the course the students will be able to

1. Demonstrate in-depth knowledge in BiCMOS Technology.
2. Analyze complex engineering problems critically for conducting research in BiCMOS Technology.
3. Solve engineering problems with wide range of solutions in Radio Frequency Integrated circuits.
4. Realize different digital circuits using BiCMOS Technology

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M.Tech – IIISem

L	T	P	C
3	0	0	3

(EC20DPE302) OPTIMIZATION TECHNIQUES AND APPLICATIONS IN VLSI DESIGN

Unit 1: Statistical Modeling

Modeling sources of variations, Monte Carlo techniques, Process variation modeling-Pelgrom's model, Principle component based modeling, Quad tree based modeling, Performance modeling- Response surface methodology, delay modeling, interconnect delay models.

Unit 2: Statistical Performance, Power and Yield Analysis

Statistical timing analysis, parameter space techniques, Bayesian networks Leakage models, High level statistical analysis, Gate level statistical analysis, dynamic power, leakage power, temperature and power supply variations, High level yield estimation and gate level yield estimation.

Unit 3: Convex Optimization

Convex sets, convex functions, geometric programming, trade-off and sensitivity analysis, Generalized geometric programming, geometric programming applied to digital circuit gate sizing, Floorplanning, wiresizing, Approximation andfitting-Monomial fitting, Maxmonomial fitting, Polynomial fitting.

Unit 4: Genetic Algorithm

Introduction, GA Technology-Steady State Algorithm-Fitness Scaling-Inversion GA for VLSI Design, Layout and Test automation- partitioning-automatic placement, routing technology, mappingfor FPGA-Automatic testgeneration-Partitioning algorithm Taxonomy-Multi-way Partitioning Hybrid genetic-encoding-local improvement-WDFR Comparison of CAS-Standard cell placement GASP algorithm-unified algorithm.

Unit 5: GA Routing Proceduresand Power Estimation

Global routing-FPGA technology mapping-circuit generation-test generation in a GA frame work-test generation procedures, Power estimation-application ofGAStandard cellplacement – GAforATG-problem encoding-fitness function-GA Vs Conventional algorithm.

Text Books:

1. Statistical Analysis and Optimization for VLSI: Timing and Power –Ashish Srivastava, DennisSylvester, David Blaauw, Springer, 2005.
2. Genetic Algorithm for VLSI Design, Layout and Test Automation - PinakiMazumder, E.Mrudnick, Prentice Hall,1998.

Reference Books:

1. Convex Optimization- Stephen Boyd, LievenVandenberghe, Cambridge University Press,2004

Course Outcomes:

After completion of the course the students will be able to

1. Understand basics of statistical modeling
2. Analyze performance of CMOS circuits with respect to power, area and speed
3. Gets complete knowledge regarding the various algorithms used for optimization of power and area

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M.Tech – III Sem

L	T	P	C
3	0	0	3

(EC20DPE303) SYSTEM ON CHIP ARCHITECTURE

Unit 1: Introduction to the System Approach

System Architecture, Components of the system, Hardware & Software, Processor Architectures, Memory &Addressing. System level interconnection, An approach for SOC Design, System Architecture and Complexity.

Unit 2: Processors

Introduction, Processor Selection for SOC, Basic concepts in Processor Architecture, Basic concepts in Processor Microarchitecture, Basic elements in Instruction handling. Buffers: minimizing Pipeline Delays, Branches, More Robust Processors, Vector Processors and Vector Instruction extensions, VLIW Processors, Superscalar Processors

Unit 3: Memory Design for SOC

Overview: SOC external memory, SOC Internal Memory, Size, Scratchpads and Cache memory, Cache Organization, Cache data, Write Policies, Strategies for line replacement at miss time, Other Types of Cache, Split – I, and D – Caches, Multilevel Caches, SOC Memory System, Models of Simple Processor – memory interaction.

Unit 4:Interconnect,Customization and Configurability

Interconnect Architectures, Bus: Basic Architectures, SOC Standard Buses , Analytic Bus Models, Using the Bus model, Effects of Bus transactions and contention time.

SOC Customization: An overview, Customizing Instruction Processor, Reconfigurable Technologies, Mapping design onto Reconfigurable devices, Instance- Specific design, Customizable Soft Processor, Reconfiguration - overhead analysis and trade-off analysis on reconfigurable Parallelism.

Unit 5:Application Studies / Case Studies

SOC Design approach; AES-algorithms, Design and evaluation; Image compression–JPEG compression.

Text Books:

1. Computer System Design System-on-Chip - Michael J. Flynn and Wayne Luk, Wiely India Pvt. Ltd.
2. ARM System on Chip Architecture – Steve Furber, 2nd Edition, 2000, Addison Wesley Professional.

Reference Books:

1. Design of System on a Chip: Devices and Components – Ricardo Reis, 1st Ed., 2004, Springer
2. Co-Verification of Hardware and Software for ARM System on Chip Design (EmbeddedTechnology) – Jason Andrews – Newnes, BK and CDROM.
3. System on Chip Verification – Methodologies and Techniques – PrakashRashinkar, PeterPaterson and Leena Singh L, 2001, Kluwer Academic Publishers

Course Outcomes:

After completion of this course the students will be able to

1. Get complete basics related to SoC architecture and different approaches related to SoC Design.
2. Able to select an appropriated robust processor for SoC Design
3. Able to Select an appropriate memory for SoC Design.
4. Realize real time case studies

SRI VENKATESWARA COLLEGE OF ENGINEERING

(Autonomous)

M.Tech – III Sem

L	T	P	C
3	0	0	3

(EC20DOE304) BUSINESS ANALYTICS

Course objectives:

- Understand the role of business analytics within an organization.
- Analyze data using statistical and data mining techniques and understand relationships between the underlying business processes of an organization.
- To gain an understanding of how managers use business analytics to formulate and solve business problems and to support managerial decision making.
- To become familiar with processes needed to develop, report, and analyze business data.
- Use decision-making tools/Operations research techniques.
- Mange business process using analytical and management tools.
- Analyze and solve problems from different industries such as manufacturing, service, retail, software, banking and finance, sports, pharmaceutical, aerospace etc.

UNIT- I

Business analytics: Overview of Business analytics, Scope of Business analytics, Business Analytics Process, Relationship of Business Analytics Process and organization, competitive advantages of Business Analytics. Statistical Tools: Statistical Notation, Descriptive Statistical methods, Review of probability distribution and data modelling, sampling and estimation methods overview.

UNIT- II

Trendiness and Regression Analysis: Modelling Relationships and Trends in Data, simple Linear Regression. Important Resources, Business Analytics Personnel, Data and models for Business analytics, problem solving, Visualizing and Exploring Data, Business Analytics Technology.

UNIT- III

Organization Structures of Business analytics: Team management, Management Issues, Designing Information Policy, Outsourcing, Ensuring Data Quality, measuring contributionof Business analytics, Managing Changes. Descriptive Analytics, predictive analytics, predicative Modelling, Predictive analytics analysis, Data Mining, Data Mining Methodologies, Prescriptive analytics

and its step in the business analytics Process, Prescriptive Modelling, nonlinear Optimization.

UNIT- IV

Forecasting Techniques: Qualitative and Judgmental Forecasting, Statistical Forecasting Models, Forecasting Models for Stationary Time Series, Forecasting Models for Time Series with a Linear Trend, Forecasting Time Series with Seasonality, Regression Forecasting with Casual Variables, Selecting Appropriate Forecasting Models. Monte Carlo Simulation and Risk Analysis: Monte Carle Simulation Using Analytic Solver Platform, New-Product Development Model, Newsvendor Model, Overbooking Model, Cash Budget Model.

UNIT- V

Decision Analysis: Formulating Decision Problems, Decision Strategies with the without Outcome Probabilities, Decision Trees, The Value of Information, Utility and Decision Making. Recent Trends in Embedded and collaborative business intelligence, Visual data recovery, Data Storytelling and Data journalism.

TEXT BOOKS/ REFERENCE BOOKS:

1. Business analytics Principles, Concepts, and Applications by Marc J.Schniederjans, Dara G. Schniederjans, Christopher M. Starkey, Pearson FTPress.
2. Business Analytics by James Evans, personsEducation

Course Outcomes:

- Students will demonstrate knowledge of data analytics.
- Students will demonstrate the ability of think critically in making decisions based on data and deep analytics.
- Students will demonstrate the ability to use technical skills in predicative and prescriptive modeling to support business decision-making.

Students will demonstrate the ability to translate data into clear, actionable insights.

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M.Tech – III Sem

L	T	P	C
3	0	0	3

(EC20DOE305) COMPOSITE MATERIALS

UNIT– I

INTRODUCTION: Definition–Classification and characteristics of Composite materials. Advantages and application of composites.Functional requirements of reinforcement and matrix.Effect of reinforcement (size, shape, distribution, volume fraction) on overall composite performance.

UNIT – II

REINFORCEMENTS: Preparation-layup, curing, properties and applications of glass fibers, carbon fibers, Kevlar fibers and Boron fibers. Properties and applications of whiskers, particle reinforcements. Mechanical Behaviour of composites: Rule of mixtures, Inverse rule of mixtures. Isostrain and Isostress conditions.

UNIT – III

Manufacturing of Metal Matrix Composites: Casting – Solid State diffusion technique, Cladding – Hot isostatic pressing.Properties and applications. Manufacturing of Ceramic Matrix Composites: Liquid Metal Infiltration – Liquid phase sintering. Manufacturing of Carbon – Carbon composites: Knitting, Braiding, Weaving. Properties and applications.

UNIT– IV

Manufacturing of Polymer Matrix Composites: Preparation of Moulding compounds and prepregs – hand layup method – Autoclave method – Filament winding method – Compression moulding – Reaction injection moulding. Properties and applications.

UNIT – V

Strength: Laminar Failure Criteria-strength ratio, maximum stress criteria, maximum strain criteria, interacting failure criteria, hygrothermal failure. Laminate first play failure-insight strength; Laminate strength-ply discount truncated maximum strain criterion; strength design using caplet plots; stress concentrations.

TEXT BOOKS/ REFERENCE BOOKS:

1. Material Science and Technology – Vol 13 – Composites by R.W.Cahn – VCH, WestGermany.
2. Materials Science and Engineering, An introduction. WD Callister, Jr., Adapted by R. Balasubramaniam, John Wiley & Sons, NY, Indian edition,2007.
3. Hand Book of CompositeMaterials-edLubin.
4. Composite Materials – K. K.Chawla.
5. Composite Materials Science and Applications – Deborah D. L.Chung.
6. CompositeMaterialsDesignandApplications–DanialGay,SuongV. Hoa,andStephenW.Tasi.

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M.Tech – III SEM

L	T	P	C
3	0	0	3

(EC20DOE306) INDUSTRIAL SAFETY

Course Objectives:

1. To provide information regarding different elements of industrial water pollution and Methods of treatment.
2. To expose to the various industrial applications, maintenance, preventive measures taken against wear and tear.

Unit 1: Industrial Safety

Accident, causes, types, results and control, mechanical and electrical hazards, types, causes and preventive steps/procedure, describe salient points of factories act 1948 for health and safety, wash rooms, drinking water layouts, light, cleanliness, fire, guarding, pressure vessels, etc, Safety color codes. Fire prevention and firefighting, equipment and methods.

Unit 2: Fundamentals of Maintenance Engineering

Definition and aim of maintenance engineering, Primary and secondary functions and responsibility of maintenance department, Types of maintenance, Types and applications of tools used for maintenance, Maintenance cost & its relation with replacement economy, Service life of equipment.

Unit3: Wear and Corrosion and their Prevention

Wear- types, causes, effects, wear reduction methods, lubricants-types and applications, Lubrication methods, general sketch, working and applications, i. Screw down grease cup, ii. Pressure grease gun, iii. Splash lubrication, iv. Gravity lubrication, v. Wick feed lubrication vi. Side feed lubrication, vii. Ring lubrication, Definition, principle and factors affecting the corrosion. Types of corrosion, corrosion prevention methods.

Unit4: Fault Tracing

Fault tracing-concept and importance, decision treeconcept, need and applications, sequence of fault finding activities, show as decision tree, draw decision tree for problems in machine tools, hydraulic, pneumatic, automotive, thermal and electrical equipment's like, I. Any one machine tool,

ii. Pump iii. Air compressor, iv. Internal combustion engine. Boiler, vi .Electrical motors, Types of faults in machine tools and their general causes.

Unit5: Periodic and preventive maintenance

Periodic inspection-concept and need, degreasing, cleaning and repairing schemes, overhauling of mechanical components, overhauling of electrical motor, common troubles and remedies of electric motor, repair complexities and its use, definition, need, steps and advantages of preventive maintenance. Steps/procedure for periodic and preventive maintenance of: I. Machine tools, ii. Pumps, iii.Air compressors, iv. Diesel generating (DG) sets, Program and schedule of preventive maintenance of mechanical and electrical equipment, advantages of preventive maintenance. Repair cycleconcept and importance

Reference Books:

1. Maintenance Engineering Handbook, Higgins & Morrow, Da InformationServices.
2. Maintenance Engineering, H. P. Garg, S. Chand andCompany.
3. Pump-hydraulic Compressors, Audels, McgrewHillPublication.
4. Foundation Engineering Handbook, Winterkorn, Hans, Chapman &Hall London

Course Outcomes:

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

1. Know how to take safety measures in executing works
2. Identify the need for maintenance (or) replacement of equipment
3. Understand the need for periodic and preventive maintenance

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M.Tech – III Sem

L	T	P	C
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(EC20DOE307) HUMAN RESOURCE MANAGEMENT

Unit 1: Human Resource Management

Introduction and Importance. Conceptual between Personnel Management and HRM, Strategic HRM- role of an HR Manager

Unit 2: Human Resources Planning

Objectives - HRP Process - Manpower Estimation - Job analysis -job Description-Job Specification – Recruitment. Sources of Recruitment - Selection Process-Placement and Induction -Retention of Employees.

Unit 3: Training and Development-Objectives and Needs

Training Process- Methods of Training-Tools and Aids - Evaluation of training Programs. Career Planning-Succession Planning. Different methods of Performance Appraisal - Rating Errors – Competency Management.

Unit 4:Compensation Management

Concepts and Components-Job Evaluation- Incentives and Benefits. Retirement/Separation - Superannuation. Voluntary Retirement Schemes-Resignation - Discharge-Dismissal -Suspension-Layoff.

Unit 5:Performance Management System

Definition, Concept and Ethics. Productivity Management-Concepts-TQMKaizen. Quality Circles Industrial relations - Grievance Procedure - Collective Bargaining-Settlement of Disputes.

Text Books:

1. Dessler, G. (2012) Human Resource Management 13th edition. Pearson Education.
2. Mamoria, C. B., and Gankar, S. V. (2002). Personnel Management 23rd edition. Himalaya Publishing House

Reference Books:

1. Dwiwedi, R. S. (2000). Managing Human Resources. Galgotia Publishing Company, New Delhi.
2.Pardeshi, P. C. (2012). Human Resource Management.
3. Mirza S. S. (2008). Human Resource Management. Tata McGraw Hill Education

Course Outcomes:

After completion of this subject, students will be able to

1. Understand the concepts of human resource management in real time production situation.
2. Apply the concepts of human resource management in real time production.
3. Learn the latest developments in the area of Human Resource Management.
4. To use the concepts of industrial engineering to effectively link human resources with other functional areas

SRI VENKATESWARA COLLEGE OF ENGINEERING

(AUTONOMOUS)
Karakambadi Road Tirupati-517 507

Course Structure and Syllabus
MBA Regular Two Year Degree Programme
(For the batches admitted from the academic year 2020-21)

SRI VENKATESWARA COLLEGE OF ENGINEERING

Accredited by NBA & NAAC 'A' Grade
(Approved by AICTE New Delhi, Affiliated to JNTUA, Anantapur)
Karakambadi Road, Tirupati A.P-517507
DEPARTMENT OF MASTER OF BUSSINESS ADMINISTRATION

CURRICULUM and SYLLABUS – 2020

MBA Semester – I

S. No	Course Code	Subject	L-T-P-C
1.	BA20EPC101	MANAGEMENT & ORGANIZATIONAL BEHAVIOUR	4-0-0-4
2.	BA20EPC102	BUSINESS ENVIRONNENT & LAW	4-0-0-4
3.	BA20EPC103	MANAGERIAL ECONOMICS	4-0-0-4
4.	BA20EPC104	ACCOUNTING FOR MANAGEMENT	4-0-0-4
5.	BA20EPC105	BUSINESS STATISTICS	4-0-0-4
6	BA20EPC106	BUSINESS COMMUNICATION	4-0-0-4
7.	BA20EPC107	INFORMATION TECHNOLOGY FOR MANAGERS	2-0-0-2
8.	BA20EPC108	BUSINESS COMMUNICATION LAB	0-0-2-1
9.	BA20EAC109	PERSONALITY DEVELOPMENT (AUDIT COURSE)	2-0-0-0
		Total	28-0-2-27

MBA Semester – II

S. No	Course code	Subject	L-T-P-C
1.	BA20EPC201	HUMAN RESOURCE MANAGEMENT	4-0-0-4
2.	BA20EPC202	MARKETING MANAGEMENT	4-0-0-4
3.	BA20EPC203	BUSINESS RESEARCH METHODS	4-0-0-4
4.	BA20EPC204	FINANCIAL MANAGEMENT	4-0-0-4
5.	BA20EPC205	OPERATIONS RESEARCH	4-0-0-4
6.	BA20EPC206	OPERATIONS MANAGEMENT	4-0-0-4
7.	BA20EPC207	MANAGEMENT INFORMATION SYSTEM	2-0-0-2
8.	BA20EPC208	BUSINESS ANALYTICS LAB	0-0-2-1
9	BA20EAC209	WORLD TRADE ORGANIZATION AND INTELLECTUAL PROPERTY RIGHTS(AUDIT COURSE)	2-0-0-0
		Total	**28-0-2-27**

***Note: The student shall initiate project work immediately after II semester and evaluation shall take place in IV semester**

MBA Semester – III

S. No	Course code	Subject	L-T-P-C
1.	BA20EPC301	INNOVATION AND ENTREPRENEURSHIP DEVELOPMENT	4-0-0-4
2.	BA20EPC302	Green Business Management	4-0-0-4
3.	 BA20EPE303 BA20EPE304 BA20EPE305 BA20EPE306	Elective I Cost and Management Accounting Product and Brand Management Human Resource Development Mobile Commerce	4-0-0-4
4.	 BA20EPE307 BA20EPE308 BA20EPE309 BA20EPE310	Elective II Financial Institutions and Services Consumer Behavior Labor laws and Legislation Supply Chain Management	4-0-0-4
5.	 BA20EPE311 BA20EPE312 BA20EPE313 BA20EPE314	Elective III Investment and Portfolio Management Retail Marketing Performance Management Enterprise Resource Planning	4-0-0-4
6.	 BA20EPE315 BA20EPE316 BA20EPE317 BA20EPE318	Elective IV Mergers and Acquisitions Advertising and Sales Promotion Management Knowledge Management Data warehousing and Mining	4-0-0-4
7.	BA20EPC319	Business Simulation Lab	0-0-4-2
8.	BA20EMC320	MOOCS	0-0-0-0
9.	BA20EMC321	Business Ethics and Corporate Governance (Mandatory Course)	0-0-0-0
		Total	**24-0-4-26**

MBA Semester – IV

S. No	Course code	Subject	L-T-P-C
1.	BA20EPC401	Strategic Management	4-0-0-4
2.	BA20EPC402	E-Business	4-0-0-4
3.	 BA20EPE403 BA20EPE404 BA20EPE405 BA20EPE406	Elective V Financial Derivatives Services Marketing Organization Development Data Communication and Network Analysis	3-0-0-3
4.	 BA20EPE407 BA20EPE408 BA20EPE409 BA20EPE410	Elective VI International Financial Management International Marketing Global Human Resource Management Corporate Information Management	3-0-0-3
5.	BA20ETS411	Seminar (Contemporary Issues on Business)	0-0-0-2
6.	BA20EPW412	Project Work	0-0-0-10
		Total	**14-0-0-26**

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MBA I Semester	**L**	**T**	**P**	**C**
	4	**0**	**0**	**4**

(BA20EPC101) MANAGEMENT & ORGANIZATIONAL BEHAVIOUR

Objective:
Togive a basic perspective of Management theories and Practices. This will form foundation to study other functional areas of management and to provide the students with the conceptual framework and the theories underlying Organisational Behaviour.

UNIT-I
Role of Management – Concept – Significance – Role of Manager- Functions – Principles of Management - Patterns of Management: Scientific – Behavioural – Systems – Contingency.

UNIT-II
Decision Making & Controlling – Process – Techniques.Planning – Process - Making It Effective.Controlling - System of Controlling – Controlling Techniques – Making Controlling Effective

UNIT-III
Individual Behaviour & Motivation – Understanding Individual Behaviour – Perception – Learning – Personality Types – Johari window- Transactional Analysis-Motivation– Concept of Motivation - Motivational Theories of Maslow, Herzberg, David McClelland, and Porter and Lawler

UNIT-IV
Leadership: Differences between Leader & Manager - Leadership – Leadership styles Leadership theories – Managerial Grid – Transactional Vs Transformational Leadership – Qualities of a good leader- Women Leadership in India.

UNIT-V
Organisational Behaviour–Organizing Process – DepartmentationTypes - Decentralization– Making Organizing Effective – Organisational culture- Types of culture – Organisational Culture VsOrganisational climate - Conflict management - Change Management.

Textbooks:
- Stephen P. Robbins (2018), Organisational Behaviour, 18th Edition, Pearson Education,
- Subbarao P (2017), Management and Organisational Behaviour, 3rd Edition, Himalaya Publishing House

References:
- Organisational Behaviour ,S.S.Khanka, S.Chand
- Organisational Behaviour , Mishra .M.N ,Vikas
- Management and Organisationalbehaviour, Pierce Gordner, Cengage.
- Behaviour in Organizations, Hiriyappa .B.New Age Publications
- Organisational Behaviour, Sarma, Jaico Publications.
- Principles of Management ,Murugesan ,Laxmi Publications
- Stephen P. Robbins and David A. Decenzo, Fundamentals of Management, Pearson
  Education

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MBA I Semester	**L**	**T**	**P**	**C**
	4	**0**	**0**	**4**

(BA20EPC102) BUSINESS ENVIRONMENT AND LAW

Objective:
To provide the student with a background of various environment factors that have major repercussions on business and sharpen their mind to watch and update the changes that occur constantly in this sphere.

UNIT-I
Introduction to Business Environment: Meaning, Components of Business Environment.-Industrial policy of 1991, Liberalization, Privatization and Globalization.

UNIT-II
Monetary,Fiscal and Trade Policy: Monetary& Fiscal Policy –, EXIM Policy, Role of EXIM Bank. Balance of Payments: WTO:Role and functions of WTO in promoting world trade –TRIPS, TRIMS and GATS, - Dumping and Anti-dumping measures.

UNIT-III
Law-Definition -Need, classification and sources of Business Law, Law of Contract - 1872 (Part-I): Nature of Contract and essential elements of a valid Contract, Offer and Acceptance. Law of Contract – 1872 (part-II): Consideration, Capacity to Contract and free consent, Legality of the object.

UNIT-IV
Companies Act, 1956 (Part-I): Kinds of Companies, Formulation of Companies, Incorporation, and Company Documents. Company Act, 1956 (Part-II): Company Management, Directors, Company meetings, Resolutions, Auditors, Modes of Winding-up of a company.

UNIT-V
Information Technology Act, 2000: Scope and Application of ITAct,2000-Digital signature e-governance, penalties and adjudication,cyber regulations appellate,tribunals,duties of subscribers- Right to Information Act,2005 –GST Act 2017.

Textbooks:
- K.Aswathappa (2017), Essentials of Business Environment, 13th Edition, Himalaya publishers.
- N.D.Kapoor (2019), Elements of Mercantile Law, 38th Edition, Sultan Chand & Sons.

References:
- Indian Economy, Dutt and Sundaram, S. Chand, New Delhi.
- Business Environment – Text and Cases, Justin Paul, TMH.
- Indian Economy- Misra and Puri, Himalaya.
- Business Environment, Suresh Bedi, Excel.
- Mercantile Law, S.S. Gulshan, 3/e, Excel Books,
- Legal Aspects of Business, Ravinder Kumar, Cengage.
- A Manual of Business Laws,S.N.Maheshwari&Maheshwari, Himalaya.
- Business law for management, K.R.Bulchandani-Himalaya Publishing.

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MBA I Semester	**L**	**T**	**P**	**C**
	4	**0**	**0**	**4**

(BA20EPC103)MANAGERIAL ECONOMICS

Objective: To understand the relevance of economics in business management. This will enable the students to study functional areas of management such as Marketing, Production and Costing from a broader perspective.

UNIT-I

Introduction to Managerial Economics: Definition, Nature and Scope, Relationship with other areas in Economics, Production Management, Marketing, Finance and Personnel, Operations research - The role and responsibilities of managerial economist. Objectives of the firm: Managerial theories of firm, Behavioural theories of firm.

UNIT-II

Theory of Demand: Demand Analysis – Law of Demand - Elasticity of demand, types and significance of Elasticity of Demand. Demand estimation – Marketing research approaches to demand estimation. Need for forecasting, forecasting techniques.

UNIT-III

Production Analysis: Production function, Isoquants and Isocosts, Production function with one/two variables, Cobb-Douglas Production Function, Economies of scale, Policy on adding New products and dropping old products - Cost concepts - cost-output relationship in the short run and long run, Average cost curves – Managerial uses Break Even Analysis.

UNIT-IV

Market Structure and Pricing practices: Features and Types of different competitive situations - Price-Output determination in Perfect competition, Monopoly, Monopolistic competition and Oligopoly. Pricing philosophy – Pricing methods in practice: Price discrimination, product line pricing. Pricing strategies: skimming pricing, penetration pricing, Loss Leader pricing.Pricing of multiple products.

UNIT-V

Inflation and Business Cycles:-Definition and meaning-characteristics of Inflation- types of inflation - effects of inflation - Anti-Inflationary methods - Definition and characteristics of business cycles-phases of business cycle - steps to avoid business cycle.

Textbooks:

- Mehta,P.L.(2016), Managerial Economics -Analysis, Problems ,Cases , 21st Edition Sultan Chand &Sons.
- Gupta (2011), Managerial Economics, 2nd Edition, TMH

References:

- Managerial Economics, D.N.Dwivedi,EighthEdition,Vikas Publications
- Managerial Economics, Pearson Education, James L.Pappas and EngeneF.Brigham
- Managerial Economics, Suma Damodaran, Oxford.
- Macro Economics by MN Jhingan-Oxford
- Managerial Economics- Dr.DM.Mithani-Himalaya Publishers

- Managerial Economics-Dr.H.LAhuja-S.Chand and Com pvt ltd, NewDelhi

(AUTONOMOUS)

MBA I Semester

L	T	P	C
4	0	0	4

(BA20EPC104) ACCOUNTING FOR MANAGEMENT

Objective: To provide the basic knowledge of book keeping and accounting and enable the students to understand the Financial Statements and make analysis financial accounts of a company.

*** Standard discounting and statistical tables to be allowed in the examinations.**

UNIT-I

Introduction to Accounting: Definition, Importance, Objectives, uses of accounting and book keeping Vs Accounting, Single entry and Double entry systems, classification of accounts – rules of debit & credit, Role of accounts in modern organization.

UNIT-II

Financial Accounting System: Generally Accepted Accounting Principles and Accounting Standards governing financial statements-Books of Original Record; Journal, ledger, Trial Balance, Final accounts: Trading accounts- Profit & loss accounts- Balance sheets with adjustments.

UNIT-III

Valuation of Assets: Introduction to Depreciation- Methods (Simple problems from Straight line method, Diminishing balance method and Annuity method). Inventory Valuation: Methods of inventory valuation (Simple problems from LIFO, FIFO).

UNIT-IV

Financial Analysis –I Analysis and interpretation of financial statements from investor and company point of view, Liquidity, leverage, solvency and profitability ratios.

UNIT-V

Financial Analysis-II: Objectives of fund flow statement - Steps in preparation of fund flow statement, Objectives of Cash flow statement- Preparation of Cash flow statement - Funds flow statement Vs Cash flow statement.

Textbooks:

- Dr.S.N. Maheshwari and Dr.S.K. Maheshwari (2018), Financial Accounting, 6th Edition, Vikas Publishing House Pvt. Ltd.,
- M P Gupta &Agarwal (2019), Accountancy,S.Chand

References:

- I. M. Pandey : Management Accounting Vikas Publishing House.ND
- Needles, Financial Accounting, Cengage, New Delhi
- Jawaharlal, Accounting for Management, Himalaya, Mumbai
- Hilton,Ramesh&Jayadev, Managerial Accounting, TMH, New Delhi
- B.Banerjee, Financial Policy & Management Accounting,PHI, New Delhi
- P Periasamy, A Text Book of Cost & Management Accounting, Himalaya, Mumbai
- Horngren, C.T., Introduction of Management Accounting,, Prentice Hall of India.
- Khan and Jain, Management Accounting, Tata McGrawHill , Delhi.
- Blocher, Chen, Cokins and Lin, Cost Management, A Strategic Emphasis, TMH, ND

- Porwal, LS, Accounting Theory, TMH, New Delhi

(AUTONOMOUS)

MBA I Semester

L	T	P	C
4	0	0	4

(BA20EPC105) BUSINESS STATISTICS

Objective: The objective of this course is to familiarize the students with the statistical techniques popularly used in managerial decision making. It also aims at developing the computational skill of the students relevant for statistical analysis.

UNIT-I

Introduction of Statistics: Nature & Significance of Statistics to Business, collection and presentation of data, Measures of Central Tendency- Arithmetic – Weighted mean – Median, Mode – Geometric mean and Harmonic mean – Measures of Dispersion, range, quartile deviation, mean deviation, standard deviation, coefficient of variation – Application of measures of central tendency and dispersion for business decision making.

UNIT-I

Probability and Random variables: Basic concepts of probability, Addition and multiplication laws, Conditional probability, Baye's Rule. Discrete and Continuous random variables, expectations and properties.

UNIT-I

Probability Distributions: Binominal, Poisson, Uniform, Normal distributions and their applications in Business management.

UNIT-I

Statistical Inference: Hypothesis testing: One sample and Two sample tests for means and proportions of large samples (z-test), One sample and Two sample tests for means of small samples (t-test), F-test for two sample standard deviations, Chi-square test.

UNIT-I

Correlation: Curve Fitting: Fitting of a Straight Line and Parabola, Significance and types of correlation – Measures of correlation – Co-efficient of correlation. Regression analysis – Meaning and utility of regression analysis – Comparison between correlation and regression – Properties of regression coefficients Rank Correlation - Multiple linear regressions.

Textbooks:

- Statistical Methods, Gupta S.P., S.Chand. Publications References:
- Statistics for Management, Richard I Levin, David S.Rubin, Pearson,

Reference books:

- Business Statistics, J.K.Sharma, Vikas house publications house Pvt Ltd
- Complete Business Statistics, Amir D. Aezel, Jayavel, TMH,
- Statistics for Management, P.N.Arora, S.Arora, S.Chand
- Statistics for Management,Lerin, Pearson Company, New Delhi.

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MBA I Semester	**L**	**T**	**P**	**C**
	4	**0**	**0**	**4**

(BA20EPC106) BUSINESS COMMUNICATION

Objective: The objective of this Course is to understand the communication concepts and to develop the students' competence in communication at an advanced level. Assuming that the students are fairly proficient in the basic communication skills of listening, speaking, reading and writing in English the course aims to train them in communicating efficiently in the workplace and professional contexts.

UNIT-I

Concept of Communication – Significance, Scope & Nature – Communication Process – Essentials of good communication – Channels of Communication – Formal, Informal Communication – Upward, Downward, Horizontal Communication.

UNIT-II

Types of communication: Verbal – Oral Communication: Advantages and Limitations of Oral Communication, Written Communication – Characteristics, Advantages & Limitations Non verbal Communication: Sign language – Body language – Kinesics – Proxemics – Time language and Hepatics: Touch language.

UNIT-III

Interpersonal Communication: Communication Styles, Communication etiquettes,Role of emotion in Inter personal Communication.

UNIT-IV

Barriers of Communication: Types of barriers – Technological – Socio-Psychological barriers – Overcoming barriers, Types of listening.

UNIT-V

Report writing – Formal reports – Writing effective letters – Different types of business letters, Writing Project Reports.

Text Books:

- C.S.Rayudu (2018), Business Communication, 1st Edition, HPH.
- Meenakshi Raman (2012), Business Communication, Oxford University Press.

References:

- Business communication, ShaliniVarma, Vikas.
- Business Communication, Raymond V.Lesikar, NeerajaPandit et al.,TMH
- English for Business Communication, Dr.T.MFarhatulla, Prism books Pvt. Ltd.
- Business Communications, Hudson, Jaico Publications
- Business communication for managers, Penrose, Raspbery, Myers, Cengage
- The Skills of Communication, Bills Scot, Gower publishing company Limited, London.

- Effective Communication, Harward Business School, Harward Business Review
- Essentials of Business Communication, Rajendra Pal, JS.Korlahhi, S.Chand

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MBA I Semester	**L**	**T**	**P**	**C**
	2	**0**	**0**	**2**

(BA20EPC107) INFORMATION TECHNOLOGY FOR MANAGERS

Objective: To make the student familiarize in information technology and their applications to business processes.

UNIT-I

Fundamentals of IT:-Components of a system- Meaning and nature – Role of IT in various sectors- Information technology management- Strategies for gaining IT advantage.

UNIT-II

Database Management Systems: Introduction to DBMS- Applications to data base-concepts, data access methods –Types of data processing-data base languages

UNIT-III

Understanding Ms-Office:-MS-Word- MS-Excel-Formulae, Graphs, Basis Statistical Formulae, MS-Access, MS-PowerPoint - Creating Effectiveness presentations**.**

UNIT-IV

Data Communication and Networks: Concepts of Data Communication, Types of Data-Communication Networks, Communications Media, Concepts of Computer Networks, the Internet, Intranet and Extranets: Operation of the Internet, Services provided by Internet, World Wide Web.

UNIT-V

Emerging Trends in IT: Introduction to SAP,IP addresses, IP protocol, various ERP packages, Implementation of ERP-Introduction to big data-cloud computing

Textbooks:

- Alexis Leon, & Mathews Leon ,Fundamentals of Information Technology, 2nd Edition - Vikas.

References:

- Basics of Computer Sciencs, BehrouzForouzan, FirozMosharraf, Cengage.
- Information Technology for Management, Ramesh Behi, McGraw Hill.
- Introduction to Computers and Communications, Peter Norton-Sixth Edition-Tata McGraw Hill.
- V.Rajaraman, Introduction to Information Technology, Prentice Hall India.
- Information Technology and theory Aksoy, CengageLearnings.
- Foundations of IT,Dhiraj Sharma, Excel Books.
- MS Office 2000 for every one, Sanjay Saxena – Vikas

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MBA I Semester	**L**	**T**	**P**	**C**
		0	**0**	**2 1**

(BA20EPC108) BUSINESS COMMUNICATION LAB

Objective: To enable students understand how to write business letters and improve Written
Communication

Learning Outcome: At the end of the course, students will be enabled with the following skills.
a. English language skills for effective written business communication (‘s).
b. Will be able to understand how to write project report.

UNIT-I
Business Writing: Introduction, Direct and Indirect Approach to Business Messages, Five Main Stages of Writing Business Messages. Practice Exercises.

UNIT-II
Business Correspondence: Writing Effective Letters, Memos & Circulars. Practice Exercises.

UNIT-III
Instructions: Introduction, Written Instructions, General Warning, Caution and Danger, Oral Instructions. Practice Exercises.

UNIT-IV
Business Reports and Proposals: Parts of a Report, Steps in writing an effective Business Report & Writing an effective Business Proposal.

UNIT-V
Careers and Resumes: Introduction, Career Building, Electronic and Video Resumes and Write your resume to market yourself, Interview Skills.

Textbook :

- Meenakshi Raman and Prakash Singh, Business Communication, Oxford.
- Lesikar: Basic Business Communication, TMH.

References:

- Stephen Bailey, Academic Writing for International Students of Business, Routledge.
- David Irwin: Effective Business Communications, Viva-Thorogood.
- Rajendra Pal, J S KorlahaHi: Essentials of Business Communication: Sultan Chand & Sons,
- SaileshSengupta, Business and Managerial Communications, PHI.

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MBA I Semester

L	T	P	C
2	0	0	0

(BA20EAC109) PERSONALITY DEVELOPMENT

Objective: The objective of the course is to make students understand theImportance of personality and transform the energy to students to take unexplored career paths .

UNIT-I

Personality: Determinants of Personality DevelopmentDefine Personality,Grooming,Personal,Hygiene,SocialEffectiveness,BusinessEtiquettes (Po wer Dressing).

UNIT-II

Team Behaviour: Types of Teams,Team Roles and Behaviour, Group Discussion,Do's and Don'ts .Role play.

UNIT-III

Attitude: Concept -Significance -Factors affecting attitudes – Positive attitude– Advantages –Negative attitude-Disadvantages -Ways to develop a positive attitude, Carl Jung 's contribution to personality development theory.

UNIT-IV

Factors of Association: Relationship, Personality Traits, Developing Effective Habits, Emotional Intelligence.

UNIT-V

Interpersonal Relationship: Personality – Spiritual journey beyond the management of change, Good manners &General etiquties, Effective Speech, Understanding Body language, projective positive body language.

Text Books :

- Hurlock, E. (1974). Personality development. New York: McGraw Hill Inc.
- Norman, L., Munn, L., Fernord, D. J., Peter, S., &Fernold. (1972). Introduction to Psychology. New Delhi: Oxford& IBH publishing Company.

References:

- Gopikrishnan M, A course guide to Personality Development. Bharathiar University.
- PP.67
- Mile, D.J., Power of Positive thinking, Delhi, Rohan Book Company (2004)

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(AUTONOMOUS)

MBA II Semester

L	T	P	C
4	0	0	4

(BA20EPC201) HUMAN RESOURCE MANAGEMENT

Objective: The objective of the course is to provide basic knowledge of functional area of Human Resource Management. This will be the prerequisite for enabling students to take any HRM stream electives offered in third and fourth semesters.

UNIT-I

Introduction:-Meaning of HR and HRM, Nature & Scope of HRM, Functions of HRM, Role and Objectives of HRM, Personnel Management, Policies and Strategies of HRM.

UNIT-II

Designing and Developing HR systems:- Human Resource Planning, Job Design, Job Analysis, Job Evaluation, Job Enlargement, Job Enrichment, Job Rotation, Recruitment & Selection, Placement, Promotion & Transfer.

UNIT-III

Compensation Management: -Introduction, objectives of wages and salaries administration, influencing factors for determining compensation- Monetary and non monetary benefits.

UNIT-IV

Human Resource Development: -Training and Development, Performance Appraisal & Career Planning and Development, HR Audit, HR Accounting.

UNIT-V

Recent Trends in HRM: Outsourcing, Work Life Balance, Green HRM, HR Metrics and HR Analytics

Textbooks:

- P. Subbarao (2010), Personnal and Human Resource Management – Text and cases, Himalaya.
- NoeA.Raymond, John Hollenbeck, Barry Gerhart and Patrick Wright (2006), Human Resource Management, 5th Edition, Tata McGraw Hill.

References:

- Human Resource Management, Aswathappa, 4th Edition, TMH 2006
- Human Resource Mangement, Ian Beardwell& Len Holden-Macmillan India Ltd.
- Managing Human Resources: Productivity, quality of work life, profits-Wayne F.
- Cascio TMH.
- Strategies HRM by Rajeev LochanDhar, Excel Books.
- Human Resource Management, Text and Cases, VSP Rao, Excel Books 2006.
- Rao TV, Pereira DP, Recent Experiences in Human Resource Development.

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MBA II Semester

L	T	P	C
4	0	0	4

(BA20EPC202) MARKETING MANAGEMENT

Objective: The objective of the course is to have the basic concepts of Marketing which is one of the important areas of functional management. This is a pre-requisite for taking up any elective paper in 3rd and 4th semester in the stream of Marketing.

UNIT-I

Understanding Marketing Management: Concepts of Marketing, Marketing Strategies & Plans, Creating long term loyalty relationships, Marketing mix, PLC, Analyzing Competitors,Conducting Marketing research.

UNIT-II

Connecting with Customers & Building Strong Brands: Analyzing Consumer Markets, Analyzing Business Markets, Tapping into global markets, Identifying market segments and targets, Crafting Brand Positioning, Creating Brand Equity-Addressing Competition and driving growth.

UNIT-III

Creating & Communicating Value: -Setting product strategy, Designing & managing services, Introducing new market offerings. Developing pricing strategies &programmes. Designing & Managing Integrated Marketing Communications, Advertising & Sales Promotions, Events and experiences, Managing digital communication - online, social media & mobile, Publicity.

UNIT-IV

Delivering Value: -Managing retailing, wholesaling and logistics. Designing and Managing Integrated Marketing Channels, E-tailing.

UNIT-V

Sales Management: -Nature & Importance of Sales Management, Skills of sales manager, Sales objectives, Concepts of sales organization, Types of sales organizations, Theories of selling.

Textbooks:

- Marketing Management, Phillip Kotler, Kevin Lane Keller, 15th edition,Pearson.

References:

- Marketing, A South Asian Prospective, Lamb, Hair, Sharma, Mcdaniel, Cengage .
- Marketing Asian Edition Paul Baines Chris Fill Kelly page, Oxford.
- Marketing Management 22e, ArunKuar, Menakshi, Vikaspublishing .
- Marketing in India, Text and Cases, S.Neelamegham, Vikas .
- Marketing Management, RajanSaxena, TMH.
- Marketing – The Core, Kerin, Hartley and Rudelius, McGraw Hill, Irwin.
- Case Studies in Marketing, The Indian Context, Srinivasan, PHI.
- Marketing Management, V.S. Ramaswamy and S. Namakumari, McMillan.
- Marketing – concepts and Cases, Etzel, Walker, Stanton, Pandit, TMH.
- Introduction to Marketing theory and practice, Adrian Palmer , Oxford University Press.

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(AUTONOMOUS)

MBA II Semester	**L**	**T**	**P**	**C**
	4	**0**	**0**	**4**

(BA20EPC203)BUSINESS RESEARCH METHODS

Objective: Objective of the course is to have a general understanding of statistics as applicable to business and its use in areas of management research. The Course addresses the methods of research with an emphasis on various stages that are necessary to obtain and process information to enable well informed decision-making. It allows the students to grasp and comprehend the methods and techniques used in research and provide with the knowledge and skill to undertake research.

***Standard Statistical tables shall be allowed in the examination**

UNIT-I

Introduction to Business Research: Definition-Types of Business Research. Scientific Investigation, Technology and Business Research: Information needs of Business - Technologies used in Business Research: The Internet, E-mail, Browsers and Websites. Role of Business Research in Managerial Decisions.

UNIT-II

The Research Process: Problem Identification: Broad Problem Area-Preliminary Data Gathering. Literature Survey - Hypothesis Development - Statement of Hypothesis- Procedure for Testing of Hypothesis. The Research Design: Types of Research Designs: Exploratory, Descriptive, Experimental Designs and Case Study -Measurement of Variables- Operational Definitions and Scales-Nominal and Ordinal Scales- Rating Scales- Ranking Scales- Reliability and Validity - Sampling and Methods of sampling.

UNIT-III

Collection and Analysis of Data Sources of Data-Primary and Secondary Sources of Data - Data Collection Methods- Interviews: Structured Interviews and Unstructured Interviews- Observational Surveys: Questionnaire Construction: Organizing Questions- Structured and Unstructured Questionnaires – Guidelines for Construction of Questionnaires.

UNIT-IV

Data Analysis: An overview of Descriptive, Associational and Inferential-Statistical Measures.

UNIT-V

The ResearchReport: Research Report: Research Reports- Types, Objectives, Importance of Reports, Components-Title Page - Table of Contents - Executive Summary - Introductory Section - Body of the Report – Common Errors in Report Writing, Conclusion of the Report- References- Appendix - Guidelines for Preparing a Good Research Report Oral Presentation- The Presentation and Handling Questions.

Textbooks:

- C.R. Kothari (2019), Research Methodology – Methods & Techniques, Vishwaprakashan.
- Uma Sekaran (2013), Research Methods for Business–A Skill Building Approach, John Wiley & Sons (Asia) Pte.Ltd, Singapore.
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References:

- Business Research Methods, Donald R Cooper and Pamela S Schindler,9/e,Tata McGraw-Hill Publishing Company Limited.
- Methodology and Techniques of Social Science Research, Wilkinson &Bhandarkar, Himalaya Publishing House.
- An Introduction to Management for Business Analysis, Speegal, M.R., McGraw Hill
- Research Methodology in Management, Michael, V.P., Himalaya Publishing House.

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(AUTONOMOUS)

MBA II Semester

L	T	P	C
4	0	0	4

(BA20EPC204)FINANCIAL MANAGEMENT

Objective: The objective of the course is to provide the necessary basic tools for the students so as to manage the finance function. The students should be able to understand the management of the financing of working capital needs and the long term capital needs of the business organization.

*** Standard Discounting Table and Annuity tables shall be allowed in the examination**

UNIT-I

Introduction to Financial Management: Nature, Scope and objectives of financial management. Importance of Finance function– Goals of Finance function; Profit Vs Wealth maximization– The role in the contemporary scenario.

UNIT-II

The Financing Decision: Sources of Finance – A brief survey of financial instruments. The Capital Structure Decision in practice: EBIT-EPS analysis. Cost of Capital: The concept, Measurement of cost of capital – Component Costs and Weighted Average Cost. Theories of capital structure.

UNIT-III

The Investment Decision: Investment decision process – Project generation, Project evaluation, Project selection and Project implementation. Capital Budgeting methods– Traditional and DCF methods. The NPV Vs IRR Debate.

UNIT-IV

Introduction to Working Capital: Concepts and Characteristics of Working Capital, Factors determining the Working Capital, Estimated working capital requirements. The Dividend Decision: Major forms of Dividends, Theories of dividend.

UNIT-V

Corporate Restructures: Corporate Mergers and Acquisitions and Take-overs-Types of Mergers, Motives for mergers, Principles of Corporate Governance.

Textbooks:

- V.K.Bhalla (2014), Financial management,S.Chand
- I.M.Pandy (2015). Financial management, 11th Edition, Vikas Publishers.

References:

- Brealey,Myers,Allen and Mohanty, Principles of Fin Management, TataMcGrawhill,ND
- Pandey IM - Financial Management, Vikas, New Delhi.
- JC Varshney, Financial Management, Wisdom, Delhi.
- Brigham and Houston, Fundamentals of Financial Management, Cengage, New Delhi.
- Banerjii, B., Fundamentals of Financial Management, PHI, New Delhi.
- Weston & Brigham, Managerial Finance, The Dryden Press,Illinois.
- James C.Van Horne -- Financial Management & Policy, Prentice Hall of India.
- Khan & Jain - Financial Management, Tata McGraw Hill.
- RM Srivasthava: Financial Management and Policy, Himalaya Publication.

SRIVENKATESWARA COLLEGE OF ENGINEERING

(AUTONOMOUS)

MBA II Semester

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4	0	0	4

(BA20EPC205)OPERATIONS RESEARCH

Objective: The objective of the course is to provide the basic tools of Operations Research in solving the management problems through modeling and using mathematical approach.

UNIT-I

Introduction to OR: Meaning, Nature, Scope & Significance of OR - Typical applications of Operations Research. The Linear Programming Problem – Introduction, Formulation of Linear Programming problem, Limitations of L.P, Graphical solution to L.P.P, Simplex Method.

UNIT-II

Transportation Problem: Introduction, Transportation Model, Finding initial basic feasible solutions, moving towards optimality, Unbalanced Transportation problems, Transportation problems with maximization, Degeneracy. Assignment Problem – Introduction, Mathematical formulation of the problem, Solution of an Assignment problem, Hungarian Algorithm, Multiple Solution, Unbalanced Assignment problems, Maximization in Assignment Model.

UNIT-III

Sequencing: Job sequencing, Johnsons Algorithm for n Jobs and Two machines, n Jobs and Three Machines, n jobs through m machines, two jobs and m Machines Problems.

UNIT-IV

Game Theory: Concepts, Definitions and Terminology, Two Person Zero Sum Games, Pure Strategy Games (with Saddle Point), Principal of Dominance, Mixed Strategy Games (Game without Saddle Point), Significance of Game Theory in Managerial Application.

UNIT-V

Project Management: Rules for drawing the network diagram, Application of CPM and PERT techniques in Project Planning and Control.

Textbooks:

- Operations Research / S.D.Sharma-Kedarnath
- Operations Research /A.M.Natarajan,P.Balasubramani,A. Tamilarasi/Pearson Education.

References:

- Introduction to O.R/Hiller &Libermann (TMH).
- Operations Research: Methods & Problems / Maurice Saseini, ArhurYaspan& Lawrence Friedman. Pearson
- Quantitative Analysis For Management/ Barry Render, Ralph M. Stair, Jr and Michael E. Hanna/
- Operations Research / R.Pannerselvam, PHI Publications.

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MBA II Semester

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(BA20EPC206) OPERATIONS MANAGEMENT

Objective: The Objective of the course is to enable students to understand the production Planning and Controlling aspects of a typical production and operations organization. To study understand the concepts of work study and Quality management.

UNIT-I

Introduction: Overview of Production and Operations Management (POM) Function,Historical Development of POM, POM scenario Today. Product and Process Design - Product and Process Development, Manufacturing Process Technology.

UNIT-II

Facilities Management & Aggregate Planning: Location of Facilities, Layout of Facilities, Optimization of Product/Process Layout, Group Technology: Aggregate Planning - Preparation of Aggregate Demand Forecast, Specification of Organisational Policies For Smoothing, Capacity Utilization, Determination of feasible Production Alternatives

UNIT-III

Scheduling: Scheduling In Job, Shop Type Production, Shop- Loading, Assignment and Sequencing, Scheduling In Mass, Line of Balance, Methods of Production Control ,World class production

UNIT-IV

Work Study & Quality Management: Method Study, Work measurement, Industrial Engineering Techniques. Economics of Quality Assurance Inspection and Quality Control, Acceptance Sampling, Theory of control charts, control charts for variables and control charts for attributes, Quality Management Techniques.

UNIT-V

Materials Management: Introduction, Objectives, Importance of Materials Management-Issues in Materials Management – Functions – Activities –Selection of Materials-Advantages of Materials Management.

Textbooks:

- Aswathappa K (2015), Production and Operation Management, Himalaya Publishing House

References:

- Operations Management and control, Biswajit Banerjee-S.Chand.
- Production and Operations Management –Dr.K.C.Arora ,2nd Edition-University Science Press.
- Production and Operations Management, R. Panneerselvam: PHI Learning Private Ltd.
- Production Management , Martand T Telsang-S.Chand
- Modern Production/Operations Management, Elwood S.Buffa and RakeshK.Sarin,Wiley ..
- Production and Operations Management, SN Chary, Tata McGraw Hill, New Delhi.
- Operations Management, Mahadevan, Pearson Education, New Delhi.

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(AUTONOMOUS)

MBA II Semester	**L**	**T**	**P**	**C**
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(BA20EPC207)MANAGEMENT INFORMATION SYSTEM

Objective: To provide the basic concepts of systems concepts and Management of Information System and utility of the systems for the managerial decisions.

UNIT-I

MIS An overview: Introduction, Need for MIS and IT nature and scope of MIS, MIS characteristics, Structure of MIS, role of MIS in global business. Challenges of Managing MIS.

UNIT-II

Data resource management: Data base concepts, The traditional approaches, the modern approaches (Data base management approaches) DBMS, Data models, Data ware housing and mining.

UNIT-III

Business application of IS: Enterprise systems, ERP, CRM, SCM, DSS, Types of decisions, Decision support techniques, Decision making and Role of MIS, Business intelligence and Knowledge management systems.

UNIT-IV

Management of IS: Project planning, SDLC, System development models, Project management, system analysis, system design, Implementation process, Product based MIS evaluation, Cost /Benefit based evaluation, Process based calculation, System maintenance.

UNIT-V

Security, Ethical & Social Issues:IS security threats, Protecting IS, IS Security Technologies, The disaster recovery plan, IS Ethical Issues, social issues.

Textbook:

- D.P.Goyal (2014), MIS –Managerial Perspective, 4th Edition,Vikas Publications.

References:

- Management Information Systems, C Laudon and Jane P.Laudon, et al, Pearson Education.
- MIS, HosseinBidgoli, NilanjanChattopadhyay, Cengage Learning
- Management Information Systems Text & Cases, W S Jawadekar, Tata McGraw-Hill.
- Introduction to Information Systems, Rainer, Turban, Potter, WILEY-India.
- Management Information Systems, James A. Obrein, Tata McGraw-Hill .
- Management Information Systems, Dharminder and Sangeetha, 1/e, Excel books.
- Cases in MIS, Mahapartra, PHI.
- Management Information Systems, Gordon B. Davis &MargretheH.Olson, Tata McGraw-Hill.

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(AUTONOMOUS)

MBA II Semester **L T P C**

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(BA20EPC208) BUSINESS ANALYTICS LAB

Objective: To make the students apply information systems in business areas.

UNIT-I

Accounting- Creation of company, Preparation of Ledger, Posting Trial Balance, Profit and loss account, Balance sheet(Sole Traders).

UNIT-II

Finance: -Capital Budgeting decisions, Calculations of NPV, IRR, Profitable Index , preparation of budgets- cash, sales, purchases and expenditure, Calculation of cost of capital.

UNIT-III

Marketing: -Storing and Retrieving of data of customers, sales, dealers, products and geographical areas(Tables and graphs).

UNIT-IV

Human Resource Management: -Employees data base and Salary Administration.

UNIT-V

Systems: -Understanding Information Systems , Design of MIS , Internet and Internet tools.

Note:-

- The programmes have to be taught to the students using MS Excel, Access, Power Point and Accounting packages.

References:

- Ms Office-Sanjay Saxena
- Ms Office Excel-Frye, PHI publications
- Ms Office Access- Step by step, PHI publications
- Reading material on accounting packages.

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(AUTONOMOUS)

MBA II Semester	**L**	**T**	**P**	**C**
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(BA20EAC209) WORLD TRADE ORANISATION AND INTELLECTUAL PROPERTY RIGHTS

Objective: To understand, define, and differentiate different types of intellectual property(IP) and their roles in contributing to organizational competitiveness, understand the framework of the strategic management of IP, To derive value from IP and leverage its value in new product and service development and To understand the role of WTO in developing the business globally.

UNIT-I

Introduction- General Agreement on Tariffs and Trade (GATT) Eighth Round: Uruguay Round - World Trade Organization- Structure – Technology Transfer – Dispute resolution Mechanism- Doha Declaration – WTO Agreements including TRIPS & TRIMS.

UNIT-II

WIPO – Paris convention – Bern Convention – WCT- Budapest treaty – Madrid Agreement – Hague Agreement – UPOV.

UNIT-III

IPR-1 Patents: Historical Background of IPR- Introduction- definition and classification of intellectual Property - Patents – Patentable and Non patentable inventions – Legal requirements for patents – Types of patent applications- Patent document- specification and claims – Important procedural aspects – Management of IP Assets and IP portfolio – Commercial exploitation of IP.

UNIT-IV

IPR – 2 : Designs and Geographical Indication (GI) – Designs- Basic requirements – Procedure – Convention application – Term – Date Geographical Indication: Definition – What can be registered – Who can apply– Rights – Term – RestrictionS

UNIT-V

IPR-3: Trademarks and Copy rights: Definitions – Classification of trademarks – Classifications of goods and services – Vienna classification – Trademarks procedure – Trademarks enforcement- Infringement and passing off – Remedies – Copy rights – Term of copyrights – Procedure of copyright-Assignment of copy right – Copyright infringement – Remedies.

TEXT BOOKS:

- P. K.Vasudeva, World Trade Organization: Implications on Indian Economy, Pearson Education, 2015
- P.KrishnaRao, WTO-Text and cases, Excel Books, 2015.

REFERENCES :

- Caves, Frankel, Jones, World Trade and Payments-An Introduction, Pearson Education, 2015.
- Carlos M.Correa , Intellectual property rights , The WTO and Developing countries, Zedbooks,2018
- Peter-Tobias s toll, Jan busche , Katrianarend, WTO- Trade –related aspects of IPR, Library ofcongress,2017

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(AUTONOMOUS)

MBA III Semester

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(BA20EPC301) INNOVATION ANDENTREPRENEURSHIPDEVELOPMENT

Objective: The objective of the course is to make students understand the nature of entrepreneurship, and transform energy to students to take unexplored career paths.

UNIT-I

Introduction to Innovation and Entrepreneurship: Introduction to concepts Types of innovation, Models of Innovation, Innovation process Managed innovation Features - Entrepreneur's competencies, attitude, qualities, functions- Entrepreneurial scenario in India and Abroad. Small Business, Importance in Indian Economy, Types of ownership, sole trading, partnership, important features of various types of businesses - corporate entrepreneurship, intra-preneurship - Role of Government in the promotion of Entrepreneur.

UNIT-II

Institutions supporting business enterprises: Central level institutions - NBMSME, KVIC, The coir board, NSIC, NSTEDB, NPC, EDI, NRDCI, National entrepreneurship Development Institutes. State level Institutions - State Directorate of Industries & Commerce, DIC, SFC, SIDC, SIADB- Other institutions: NABARD, HUDCO, TCO, SIDBI, Business incubators

UNIT-III

Project Planning and Feasibility Studies: The Concept of Project, Project Life Cycle - Project Planning, Feasibility – Project Aspects and phases of a project proposal & report preparation.

UNIT-IV

MSMEs& New Venture Creation: Concept of MSME, Role & Importance of Classifications of MSME, Growth & development of MSMEs in India, Current schemes for MSMEs, Business opportunities in India, Contents of business plans, presenting a business plan. Startup Product Management

UNIT-V

Women &Rural Entrepreneurship and EDPs: Scope-Challenges faced by women entrepreneurs, Institutions supporting women entrepreneurs. Successful cases of women entrepreneurs.-Need, Rural Industrialization – Role of NGO's – Organizing EDPs – Need, Objectives, Evaluation of Entrepreneurship Development Programmes

Text Books:

- The Dynamics of Entrepreneurial Development and Management, Vasanth Desai, Himalaya.
- Entrepreneurship Development & Small Business Enterprises – Second Edition, PoornimaM.Charantimath , Pearson

References:

- Entrepreneurial Development, S. Chand and Company Limited, S.S. Khanka,
- Fundamentals of Entrepreneurship, H. Nandan, PHI.
- Entrepreneurship, 6/e, Robert D Hisrich, Michael P Peters, Dean A Shepherd, TMH.

- Entrepreneurship – New venture Creation, Holt, PHI.
- Entrepreseurship- Successfully Launching New Ventures, Barringer, Ireland, Pearson.
- Entrepreneurship,Roy, Oxford.

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(AUTONOMOUS)

MBA III Semester

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4	0	0	4

(BA20EPC302) GREENBUSINESS MANAGEMENT

Objective: The objective of the course is to impart students in understanding of green business, its advantages, issues and opportunities and to provide knowledge over the strategies for building eco-business.

UNIT-I

Introduction to Green Management: The Concept of Green Management; Evolution; nature, scope, importance and types; Developing a theory; Green Management in India; Relevance in twenty first century

UNIT-II

Organizational Environment: Indian Corporate Structure and Environment; How to go green; spreading the concept in organization; Environmental and sustainability issues for the Career opportunities in green business management and Sustainability Business Plan production of high-tech components and materials, Life Cycle Analysis of materials, sustainable production and its role in corporate environmental responsibility (CER).

UNIT-III

Approaches from Ecological Economics: Indicators of sustainability; Eco-system services and their sustainable use; Bio-diversity; Indian perspective; Alternate theories

UNIT-IV

Environmental Reporting and ISO 14001: Climate change business and ISO 14064; Green financing; Financial initiative by UNEP; Green energy management; Green product management

UNIT-V

Green Techniques and Methods: Green tax incentives and rebates (to green projects and companies); Green project management in action; Business redesign; Advanced Technology and Eco-friendly design; Eco-commerce models

Text Books:

- Green Management and Green Technologies: Exploring the Causal Relationship by JazminSeijasNogarida, ZEW Publications.
- The Green Energy Management Book by Leo A. Meyer, LAMA books

References:

- Green Marketing and Management: A global Perspective by John F. Whaik, Qbase Technologies.
- Green Project Management by Richard MaltzmanAnd David Shiden, CRC Press Books.
- Green and World by Andrew S. Winston, Yale Press B

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(AUTONOMOUS)

MBA III Semester

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(BA20EPE303) COSTANDMANAGEMENTACCOUNTING (ElectiveI)

Objective: To describe the cost concepts, cost behaviors, and cost accounting techniques that are applied to manufacturing and service businesses. To provide an understanding of the use of cost information in support of different strategies

UNIT-I

Nature and scope of Cost accounting: Cost analysis, concepts and classifications, Cost sheets, preparation of cost sheets, Tenders and Quotations. Budget control

UNIT-II

Material Purchase control: Levels, aspects, need and essentials of material control. Stores control-stores department, EOQ, Stores records, ABC analysis, VED analysis.

UNIT-III

Labor cost: Computation and control, Time keeping-Methods of wage payment-Time rate and piece rate system-Payroll procedures-Idle time and overtime-Labor turnover.

UNIT-IV

Management Accounting: Meaning, scope, importance and limitations – Management Accounting Vs Cost Accounting - Management Accounting Vs Financial Accounting.

UNIT-V

Analysis and Interpretation Of Financial Statements: Nature, Objectives, Tools, Methods-Comparative Statements, Common size statements and Trend analysis

Text Book:

- A Text book of Cost and Management Accounting – Arora M. N, 11/e, Vikas

Reference Books:

- Cost Accounting: Theory and Practice - Bhabatosh Banerjee, 12/e, PHI.
- Financial Statement Analysis and Reporting - MohanaRao P, PHI, 2011.
- Cost Management: A strategic Approach - Vaidya S. C, Suveera Gill Macmillan 2010.
- Cost Accounting- Jawaharlal, &SeemaSrivastava, 4/e, TMH.
- Accounting & Costing for Management – Sinha P. K, Excel BOOKS, 2010.
- A Textbook of Cost Management- G.V KesavaRao, D Gopinath, M.G. Krishnamurthy and Anita S. Yadav, Paramount Publishing House,

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(AUTONOMOUS)

MBA III Semester

L	T	P	C
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(BA20EPE304)PRODUCTANDBRANDMANAGEMENT (ElectiveI)

Objective: The objective of the course is to provide students with detailed knowledge of Classification of Products, Product Mix, Product Line, Product Strategies, Product Positioning Strategies, Product Planning and Development for existing products, New Product Development, Brands in New economy – Brand Hierarchy, Brand Personality, Brand Image, Brand Identity.

UNIT-I

Product Decisions: - Product Concepts – Product Classification – Consumer Goods and Industrial Goods Classification – Product Line and Product Mix – Product Characteristics
– Responsibility of Product Manager – Types of Product Strategies

UNIT-II

Product Management: Product differentiation – Product Organisation – Stages in the New Product Development – Product Positioning Strategies – Packaging Management

UNIT-III

Branding Decisions: Essentials of Good Brand Name – Types of Brands – Advantages of branding – Brand Loyalty – Brand Valuation Methods – Brand Positioning

UNIT-IV

Creating and Managing Brand Equity: Advantages of Brand Equity – Brand Building Strategies – Brand Extension – New Brand Failures –Brand Loyalty.

UNIT-V

Branding in Different Sectors: Branding in Industrial sector, Retail Sector, Service sector, Banking Sector and Insurance Sector.-Brand Management Practice

Text book :

- Marketing Management –Philip Kottler,Kevin Lane Keller ,15th Edition, Pearson.

REFERENCES:

- Product &Brand Management–Text & Cases, Prof.K.VenugopalRao,Himalaya
- Product Management in India, RamanujMajumdar, PHI
- Product Management ,C.Nandan, , TMH.
- Compendium of Brand Management,Chunawalla. S.A, Himalaya
- Product & Brand Management,Mathur.U.C , Excel
- Brand Positioning, SubrotoSengupta, TMH.
- Marketing and Branding, S.Ramesh Kumar, Pearson.
- What's in a Brand? , John Philip Jones, TMH
- Brand Management – Text & Cases , Harsh V Verma , Excel
- Become the Brand of Choice, Jason Hartman, Jaico.

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(AUTONOMOUS)

MBA III Semester

L	T	P	C
4	0	0	4

(BA20EPE305)HUMANRESOURCEDEVELOPMENT
(ElectiveI)

Objective: The objective of the course is to provide an understanding of the human resources development framework and focuses on management best practices, tools and models to implement an effective HRD system

UINT-I
Introduction to Human Resource Development: Meaning, significance and objectives of Human Resource Development, Human Resource Management and Human Resource development functions, Human Resource Development challenges

UNIT-II
HRD Need Assessment & Designing of HRD programs: Strategic/ Organizational Analysis- Task Analysis- Person Analysis- prioritizing HRD needs, defining the objectives of HRD Intervention - Selecting the trainer - Selecting the Training methods - Preparing training material Scheduling an HRD program

UNIT-III
Implementation &Evaluation of HRD programs: Training methods - Classroom training Approaches - Computer based Training, Purpose of HRD Evaluation- Kirkpatrick's evaluation frame work - Data collection for HRD Evaluation - Assessing the impact of HRD programs in Monetary Terms

UNIT-IV
Career Management and Development: Introduction to Career management, meaning - Stages of life and Career Development - process of career Development - Issues in career development.

UNIT-V
HRD & Diversity: Introduction - Organizational culture - Labor market changes and discrimination adapting to demographic changes

Text books:

- Jon M Werner,Randy L DeSimone:Human Resource development (Thomson/Cengage)
- Raymond A Noe : Employee Trainee Development (Tata McGraw Hill)

References:

- John P. Wilson Human Resource Development (Kogan Page Business Books)
- Tripathi P.C : Human Resource Development (Sultan Chand & Sons)
- Uday Kumar Haldar : Human Resource Development (Oxford)

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(AUTONOMOUS)

MBA III Semester

L	T	P	C
4	0	0	4

(BA20EPE306)MOBILECOMMERCE
(ElectiveI)

Objective: The objective of the course is to describe M-commerce system concepts to critically analyze examples and cases of M-commerce systems and to examine some of the applications in M-commerce

UNIT-I

Current Status and Future Trends in Mobile Commerce, Technology Issues in Mobile Commerce, Mobile Commerce Systems, Mobile Ecommerce on Mobile Phones, Technologically advanced handheld devices, like Smart phones, PDAs, Laptops, Tablets and Portable gaming consoles etc.

UNIT-II

Transactional Database Accesses for M-Commerce Clients, Techniques to facilitate Information Exchange in Mobile Commerce, Information System and Application Issues in Mobile Commerce, The emergence of Location based Mobile Commerce, The need for Mobile based Approaches

UNIT-III

Managing the Interactions between Handheld Devices Mobile Applications and Users, Mobile Commerce and Usability, a Landscape Analysis.

UNIT-IV

Mobile marketing, mobile ticketing, mobile computing, mobile payments and mobile banking vis-a-vis latest technologies (wireless and mobile communication technology, digital cellular technology, mobile access technology and 4G and 5G systems

UNIT-V

Configuring M-Commerce Portals for Business Success, Knowledge Management in a Mobile Computing Context, Multimedia Messaging Peer Mobile Financial Services, Mobile Banking – A Strategic Assessment, Service for Mobile Commerce Applications, Quality of Perception in M Commerce

Text Book:

- Advances in Mobile Commerce Technologies, EE-Peng Lim, KengSiau, Idea Group of Publishing

Reference Books:

- Mobile Commerce Applications, Shi, Nansi, Idea Group of Publishing
- Mobile Commerce, KarabiBandyopadhyay, PHI

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MBA III Semester

L	T	P	C
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(BA20EPE307)FINANCIALINSTITUTIONSAND SERVICES (ElectiveII)

Objective: The objective of the course is to provide to students an understanding of Financial Markets, the major institutions involved and the services offered within this framework.

UNIT-I

Introduction: The structure of financial system, Elements of financial system and economic development, Regulatory and Promotional Institutions - Function and Role of RBI, Monetary Policy and techniques of RBI

UNIT-II

The Banking and Non-banking Institutions: The public and the private sectors – structure and comparative performance, Bank capital and Banking Innovations, Commercial and Co-operative banks-The Non-banking financial Institutions - Mutual Funds, Growth of Indian Mutual funds and its Regulation -The Role of AMFI, Insurance Companies- Role of IRDA. Fin. Tech

UNIT-III

Financial and securities Markets: Primary and Secondary Markets, Structure and functions of Money Market, -Call call money market ,Government Securities Market T-bills market, Commercial Bills market, Commercial paper and certificate of deposits. Securities markets:- Organization and structure, listing trading and settlement of securities market, The role and functions of SEBI

UNIT-IV

Fund based services - Lease and hire purchase consumer credit and Factoring - Definition, Functions, Advantages, Evaluation, venture capital financing, Housing Finance.

UNIT-V

Fee-based services - Stock broking, credit rating, Merchant Banking, portfolio services- Underwriting, Depository services, Challenges faced by investment bankers.

Text Books:

- Financial Institutions and Markets, L. M. Bhole, 4/e Tata McGraw Hill.
- Financial services, Gorden&Natarajan, Himalaya publishers.

References:

- Financial Services and markets, Dr.PunithavathyPandian, Vikas
- Financial Markets and services, Appannaiah, Reddy and Sharma, HPH
- Indian Financial System, Ramachandra and others, HPH
- Investment Institutions and Markets, Jeff Madura, Cengage, 1st Edition.
- Financial services, Thirpati, PHI.
- Financial Markets &Services, Vasanthdesai, Himalaya.
- Financial Institutions and Markets, Gupta Agarwal, Kalyani publishers.
- Management of Financial Services ,C.RamaGopal ,Vikas.

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(AUTONOMOUS)

MBA III Semester

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(BA20EPE308)Consumer Behavior
(ElectiveII)

Objective: The objective of the above course is to enable students to understand the perspectives of consumers and their buying behavior. The pre-requisite for the course is Marketing Management.

UNIT-I

Introduction to consumer behavior: Understanding consumers and market segments. Consumer behavior and marketing strategy, Psychographic Dimensions-consumer motivation, Perception, personality, Information processing, Attitude formation and attitude change.

UNIT-II

Environmental Factors of C.B : Economic, Demographic, Cross Cultural and socio-cultural influences, Social Stratification, Reference Groups and family influences, personal influence.-Economic-Personal-Political.

UNIT-III

Communication and consumer behavior: Process, designing persuasive communication and diffusion of Innovations-Models of Buyer behavior- Howard – Sheth Model, EKB Model, Webster and Wind Model.

UNIT-IV

Consumer decision process : High and Low Involvement, Pre-purchase processes, Purchase ,post purchase process, Consumption and Evaluation, Brand Loyalty and Repeat Purchase Behavior.

UNIT-V

Consumerism: The roots of consumerism, consumer safety, consumer information, environmental concerns, consumer privacy, legislative responses to consumerism, and marketer responses to consumer issues. Consumer protection Act 1986, Consumer disputes Redressal agencies and Commission.

Text Book:

- Schiff man , L.G and Kanuk L.L : Consumer Behavior, 8/e ,Pearson,2009

References :

- Ramesh Kumar : Consumer Behaviour (pearson Education)
- LeonG.Scistman& Leslie Leaserkarmal :Consumer Behaviour, PHI
- SujaR.Nair : Consumer Behaviour in Indian Perspective, Himalaya
- Subash Mehta : Consumer Behaviour, Tata McGraw Hill
- RajjevKumra : Consumer Behaviour, Himalaya Publications

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(AUTONOMOUS)

MBA III Semester

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(BA20EPE309) LABOR LAWS AND LEGISLATIONS (Elective II)

Objective: In this era of Industrialization it is very significant to understand basics of management. This programme enables the candidate to capture the significant elements of laws to run an industry. It is a course which should be done by candidates who wants to understand management fundamentals and basic elements of an Industry

UNIT-I

Legal frame work: evolution of labour laws in India – labour legislations – meaning, importance and relevance to HRM

UNIT-II

Legislations relating to employment and working conditions: Industrial employment (standing orders) Act, 1946 – Factories Act 1948 - contract labour (Regulation and abolition) Act 1970

UNIT-III

Laws relating to remuneration: Payment of wages Act, 1936, Minimum wages Act, 1948 – Payment of Bonus Act, 1965

UNIT-IV

Laws relating to industrial Relations: Industrial Disputes Act, 1947 - preventive and settlement machinery – trade unions Act, 1926 – workers participation in management

UNIT-V

Laws relating to social security: Workmen's compensation Act, 1923 – ESI Act, 1948- Employees provident fund and miscellaneous provisions Act,1952 - Maternity benefits Act,- 1961 Payment of gratuity Act, 1972- Recent Amendments in Wage Code Bill-2020.

Text Books:

- Industrial Relations and labourlaws -Tripati. P.C- Sultan chand and sons
- Mercantile law – N.D. Kapoor - Sultan chand and sons

Reference books:

- Industrial Relations and labour laws - Sri Vastva – vikas publishers
- Industrial Relations and laws in India – Agarwal LL
- Industrial Relations and labour laws - Sinha&sinha, Oxford IBH
- Legal aspects of business – Pillai.RSN&Bhagavathi (2011), Sultan chand and sons
- Industrial Law- P.L.Malik, eastern book company

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MBA III Semester

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(BA20EPE310)SUPPLYCHAINMANAGEMENT
(ElectiveII)

Objective: The Objective of this course is to gain the knowledge of possibilities of efficient optimization and management of operation in integrated supply chains and also the ability to apply them in the enterprise reality. The course will also strengthen the holistic view on supply chain operations, management and strategy and some current research areas in supply chain management.

UNIT-I

Role of Distribution in Value discovery: Designing a distribution logistics system – Outsourcing of distribution logistics – Distinction between distribution logistics and supply chain management. Introduction -Supply Chain – Fundamentals –Evolution- Role in Economy -Importance - Decision Phases - Supplier- Manufacturer-Customer chain - Enablers/Drivers of Supply Chain Performance.

UNIT-II

Strategic Sourcing: Outsourcing – Make Vs buy - Identifying core processes - Market Vs Hierarchy - Make Vs buy continuum -Sourcing strategy - Supplier Selection and Contract Negotiation. Creating a world class supply base- Supplier Development - World Wide Sourcing

UNIT-III

Supply Chain Network - Distribution Network Design – Role – Factors Influencing Options, Value Addition – Distribution Strategies - Models for Facility Location and Capacity allocation. Distribution Center Location Models- Supply Chain Network optimization models- Impact of uncertainty on Network Design – Network Design decisions using Decision trees

UNIT-IV

Planning Demand, Inventory And Supply - Managing supply chain cycle inventory- Uncertainty in the supply chain –- Analyzing impact of supply chain redesign on the inventory - Risk Pooling - Managing inventory for short life – cycle products - multiple item -multiple location inventory management. Pricing and Revenue Management

UNIT-V

Current Trends - Supply Chain Integration - Building partnership and trust in SC Value of Information: Bullwhip Effect - Effective forecasting - Coordinating the supply chain. . SC Restructuring - SC Mapping -SC process restructuring, Postpone the point of differentiation.

Text Books:

- D K Agrawal, Textbook of Logistics and Supply Chain Management, MacMillan 2003, 1st Edition.
- G Raghuram& N Rangaraj, Logistics and Supply Chain Management - Cases and Concepts. Mac Millan.

References:

- Supply chain Logistics Management, Bowersox, Closs, Cooper, 2/e,TMH.
- Supply chain management concepts and cases, Rhaul V. Altekar, PHI.
- Exploring Supply Chain – theory and practice, UpendraKachru, excel.
- Supply Chain Management, R.P. Mohanty and S.G. Deshmukh, Jaico .

SRIVENKATESWARA COLLEGE OF ENGINEERING

(AUTONOMOUS)

MBA III Semester

L	T	P	C
4	0	0	4

(BA20EPE311)INVESTMENTANDPORTFOLIOMANAGEMENT
(ElectiveIII)

Objective: The objective of the course is to provide students an understanding of working of capital markets and management of portfolios of stocks. The pre-requisite for the course is Financial Accounting and Analysis and Financial Management.

*** Standard discounting and statistical tables to be allowed in the examinations.**

UNIT-I

Investment: Introduction to stock markets -objectives, Process of Investment, Investment and speculation.

UNIT-II

Fundamental Analysis & Technical Analysis: Framework of Fundamental analysis- Economic analysis, Industry analysis-Industry Life cycle - Company analysis, Fundamental Analysis Vs Technical Analysis - Dow Theory.

UNIT-III

Measurement of Risk and Return: Revenue Return and Capital appreciation, holding period –Calculation of expected return, Risk factors, risk classification – systematic risk – unsystematic risk – standard deviation – variance– Beta

UNIT-IV

Valuation of Securities: Types of Securities - Approaches of valuation – Bond valuation – Preference share Valuation – Common stock Valuation

UNIT-V

Portfolio Management: Process of Portfolio Management, Modern Portfolio – Portfolio models – Markowitz model – Sharpe single index model, Capital Asset Pricing Models.

Text Books:

- Investment Management,V.K.Balla, S.Chand Company Ltd
- Security Analysis and Portfolio Management ,PunithavathyPandian, Vikas

References:

- Investment Analysis and portfolio management, Chandra, Tata McGraw Hill .
- Secuerity Analysis Portfolio Management, Ranganatham&Madhumathi, Pearson Education.
- Security Analysis and Portfolio Management, SudhindraBhat, excel.
- Security analysis and portfolio management, Avadani, Himalaya publishers.
- Investment analysis portfolio management, Frank Reilly & Brown, Cengage.
- Investment Management, Preethi Singh, Himalaya Publishing House, Mumbai..
- Investment, Bodie, McGraw Hill Book Company.
- Investment Management ,Hiriyappa ,New Age Publications

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(AUTONOMOUS)

MBA III Semester

L	T	P	C
4	0	0	4

(BA20EPE312)RETAIL MANAGEMENT
(Elective III)

Objective: The objective of the course is to give an understanding about the structure of Retail markets in India & Government role in promoting retail management.

UNIT-I
An overview of Retailing Management – Introduction, Concept and Significance – Types of Retailers – Building and Sustaining Relationships in Retailing – Strategic Planning in Retailing.

UNIT-II
Retail Store Location – Factors influencing the Location –Finance and Human Resource Management in Retailing – Marketing Management and related issues in Retailing.

UNIT-III
Planning and Merchandise Man
agement for Retail Outlets –Implementing Merchandize Plans Financial Merchandise Management- Pricing In Retailing.- Promotion in Retailing.

UNIT-IV
Retailing and Information Technology Support System – Supply Chain Management – Importance of Customer Service and Quality Management – Franchising, Brand and Mall Management

UNIT-V
Retailing in India – Changes impacting Retailing in India – Impact of Global Brands on Indian Retiling – Common Woes in Retailing – Consumerism and Ethics in Retailing – Research for Retailing.

Text books:

- Suja Nair : Retail Management (Himalaya)

References:

- Barry Berman & Joel R Evans : Retail Management A Strategic Approach
- (Pearson Education)
- Levy, Weitz: Retailing Management (Tata McGraw Hill)
- SwapnaPradhan : Retailing Management (Tata McGraw Hill)

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(AUTONOMOUS)

MBA III Semester

L	T	P	C
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(BA20EPE313)PERFORMANCEMANAGEMENT
(ElectiveIII)

Objective: The objective of the course is to provide an outline of performance management of individuals in the organization. The prerequisite for the course is knowledge of HRM.

UNIT-I

Introduction to Performance Management: Concept -Performance management vs. performance appraisal--Performance management vs. Human resource management- Purposes- Significance.

UNIT-II

Mentoring and Monitoring: Concept of mentoring - Benefits of mentoring - Characteristics of mentor- Mentoring process-Group mentoring -Benefits -Types of Group Mentoring – Pitfalls Monitoring performance- Bench marking- Competency mapping

UNIT-III

Coaching and counseling: Coaching for performance improvement -. Concept - Tips for effective coaching Counseling -Functions of counseling- Steps in counseling process

UNIT-IV

Annual Stock taking: Stock taking of performance -Uses –Appraisal system design-Process and approaches - Appraisal methods - MBO and Assessment centre -360 degree appraisal - Balanced score card. Stock taking of potential- Appraisal for reward - Appraisal for recognition

UNIT-V

Learning organisation: Concept of learning organisation- Learning approaches- Learning sources - Importance of learning- Characteristics of learning organisation- Reward and compensation Management -Concept and types of compensation- Objectives - Competitive compensation design - Fringe benefits- Objectives - Factors influencing fringe benefits - Types of fringe benefits

Text books:

- Performance Management, A.S.Kohli, T.Deb,Oxford.
- PremChadha, Performance Management, McMillan.

References:

- Performance Management, Bagchi, CengageLearnings.
- Performance Appraisal and Management, Sharma, Davinder, HPH
- Performance Management, Herman,Aguinis, Pearson Education.
- Performance Management and Appraisal Systems, T.V.Rao, Response.
- Performance management, Kandula, PHI.
- 360 Degree Feedback and Assessment and Development Centres, T.V.Rao, Excel.
- Performance Management, Dinesh k.Srivatsava, Excel

SRIVENKATESWARA COLLEGE OF ENGINEERING

(AUTONOMOUS)

MBA III Semester

L	T	P	C
4	0	0	4

(BA20EPE314) ENTERPRISERESOURCEPLANNING
(ElectiveIII)

Objective: The objective of the course is to provide the basic concepts of Enterprise Resource Planning, ERP Implementation and Maintenance.

UNIT-I

Introduction to ERP: Overview of ERP,MRPI, MRPII and Evolution of ERP, Business Modeling, ERP related technologies, Business PROCESS Re-engineering (BPR) – BPR Process, Myths regarding BPR, ERP Architecture.

UNIT-II

Business Intelligence Systems-Data Mining, Data Warehousing, On-line Analytical Processing (OLAP), On-line Transaction Processing (OLTP)

UNIT-III

ERP Modules: Finance Controlling, Accounting System, Manufacturing and Production Systems. Sales and Distribution Systems, Human Resource Systems-Plant Maintenance System, Material Management System, Quality Management System

UNIT-IV

ERP Implementation: ERP Implementation life cycle, ERP package selection, ERP Implementation process, ERP project teams, ERP operation and Maintenance

UNIT-V

ERP Products: SAP, Oracle, Microsoft Dynamic, People Soft, Baan and their impact on enterprise applications.

Text Books:

- Enterprise Resource Planning, Singla, CengageLearnings.
- Enterprise Resource Planning,MahadeoJaiswal& Ganesh Vanapalli,Macmillan

References:

- Enterprise Resource Planning, Alexis Leon, TMH.
- Enterprise Resource Systems,Motiwala,Pearson.
- ERP in practice, Jagan Nathan Vaman, TataMc.GrawHill.
- Enterprise Resource Planning and MIS,VenugopalRao, Excel.
- ERP concepts &Practice,Vinod Kumar Kard arid NK VenkataKristean, PHI.
- Concepts in ERP ,Monk,2/e Thomson.
- Managerial Issues of ERP, David L.Olson , TMH

SRIVENKATESWARA COLLEGE OF ENGINEERING

(AUTONOMOUS)

MBA III Semester

L	T	P	C
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(BA20EPE315) 324 – MERGERS AND ACQUISITIONS (ElectiveIV)

Objective: The objective of the course is to give an understanding about corporate restructuring Mergers, acquisitions and Takeovers in India.

UNIT-I

An overview of corporate restructuring – Value drivers – Due Diligence Process for M & A– Ethical issues in M & A.

UNIT-II

Different forms of mergers – Rationale for mergers and acquisitions – Value creation through mergers and acquisitions – Tax implications – Financing mergers and acquisitions – Merger Negotiations

UNIT-III

Takeovers – Tender offer – Defensive tactics – Leveraged buyouts – Divestment – Buyback of shares – Employee Stock Ownership Plans – Creeping acquisitions.

UNIT-IV

Regulations for Mergers and Takeovers in India – SEBI Guidelines for takeovers – SEBI Guidelines for buyback of securities – SEBI Guidelines for ESOP.

UNIT-V

Cross border Mergers and Acquisitions: Motivations - Opportunities and Threats – Recent cases

Text Books:

- S. Ramanujam, et al: Mergers – Issues Implications and Case Laws in Corporate
- Restructuring (Tata McGraw Hill)

References:

- Dr. JC.Verma : Corporate Mergers, Amalgamation and Takeovers
- (Bharat Publishing House)
- RavindharVadapalli: Merger Acquisitions and Business Valuation (Excel)
- Chandrasekhar Krishnamurti and Viswanath: Mergers Acquisitions and Corporate
- Restructuring (Response Books)
- Kevin K. Boeh and Pall W. Beamish: Mergers and Acquisitions (Sage)
- Krishnamurthi: Mergers, Acquisitions and Corporate Restructuring
- Weston, et al : Takeovers Restructuring and Corporate Governance(Pearson Education

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(AUTONOMOUS)

MBA III Semester **L T P C**

4 0 0 4

(BA20EPE316)ADVERTISINGANDSALESPROMOTIONMANAGEMENT
(ElectiveIV)

Objective: The objective of the course is to provide students with detailed knowledge of some of the marketing mixes such as Sales and Promotion.

UNIT-I

Advertising: Meaning, Role of advertising, types of advertisement, industrial, institutional, retail, trade and professional, marketing mix, Advertising department and advertisement manager.

UNIT-II

Organizing for Advertising: Objectives and functions - Role and functions of advertisement agencies- Advertising agency and services, client agency relationship- Visual layout, art work, production traffic copy

UNIT-III

Advertisement budgets and effectiveness: Types, optimal expenditure, decision models, sales response and decay, competitive share, Pre-testing, post testing, experimental designs.-Advertising Audit.

UNIT-IV

Sales Promotion: Importance and scope; Need and objectives of sales promotion; Consumer promotion; channel promotion; Timing of sales promotion; Measurement of impact of sales promotion; sales promotion budgeting.

UNIT-V

Publicity and public relations: Scope and importance. Methods of publicity, Power of Publicity, advantages and disadvantages of Publicity, Process of Public relations- Marketing public relations functions; Public relations officer- role and functions

Text Books:

- Advertising & Promotion : George E.Belch,THM
- Advertising and Promotion- An Integrated Marketing Communication approach, Shimp, Cengage

References:

- Integrated Advertising, Promotion and Marketing Communications, Clow, Baack, Pearson.
- Integrated Advertising, Promotion and Marketing Communications, Kruti shah, Alon D'Souza, TMH.
- Advertising Management, Jethwaney, Jain, Oxford.
- Contemporary Advertising, Arens, TMH.
- Advertising, Sales and Promotion Management, S.A.Chunawalla, Himalaya.
- Sengupta, Subroto: Brand Positioning, Strategies for Competitive Advantages, Tata McGraw Hill

SRIVENKATESWARA COLLEGE OF ENGINEERING

(AUTONOMOUS)

MBA III Semester

L	T	P	C
4	0	0	4

(BA20EPE317) KNOWLEDGEMANAGEMENT
(ElectiveIV)

Objective: The objective of the course is to provide the basics of the emerging area of Knowledge Management to students. This course focuses on few important concepts as Knowledge management and Information Technology, Knowledge process, etc.

UNIT-I

Introduction to KM: Definition, scope and significance of Knowledge Management, Principles of Knowledge Management, Techniques of Knowledge Management, Data-Information-knowledge-Wisdom relationship

UNIT-II

Creating the culture of Knowledge sharing: Basic types of Knowledge management, Organisational Knowledge Management - Organisational knowledge types- Knowledge Life cycle- Organisational knowledge sources- process, Knowledge Conversion

UNIT-III

Knowledge Management Application: Discussion on Roadblocks to success, KM Road Map, Information Architecture: A three-way Balancing Act of KM

UNIT-IV

Knowledge Management and Information Technology: Role Information Technology in Knowledge Management Systems, E-commerce and Knowledge Management, Bench marking and Knowledge Management

UNIT-V

Future of Knowledge Management and Industry perspective: Knowledge Management in Manufacturing and service industry, future of Knowledge Management

Text books:

- Knowledge Management, Sudhir Warier: Vikas Publishing House.
- Srikantaiah.T.KKoening.M, "Knowledge Management for the Information Professional"

References:

- Knowledge management: An Evolutionary view, Becerra Fernandez: PHI.
- Knowledge Management,Fernando: Pearson.
- Knowledge Management, B.Rathan Reddy: Himalaya.
- Knowledge Management, Tapan K Panda: Excel.
- Knowledge Management systems, Barnes: Cengage.
- The Knowledge Management tool kit, Tiwana: 2/e, Pearson Education.
- Knowledge Management,Sislop: Oxford University Press,.
- Knowledge Management, Debowski: Wiley Student Edition, Wiley Ind
- Knowledge management, A Thothathri Raman, Excel books

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(AUTONOMOUS)

MBA III Semester

L	T	P	C
4	0	0	4

(BA20EPE318) DATAWAREHOUSINGANDMINING (ElectiveIV)

Objective: The objective of the course is to give an understanding Data Warehousing and Data Mining concepts

UNIT-I

Managing Data: Individual Data Management, Organisational Data Warehousing and Data Management, Components of Organisational Memory, Evaluation of Database Technology

UNIT-II

Database Systems in the Organisation: Data Sharing and Data Bases – Sharing Data between Functional Units, Sharing Data between Different Levels of Users, Sharing Data between Different Locations.

UNIT-III

The Data Warehouse Data Base: Context of Data Warehouse Data Base, Data Base Structures – Organizing Relational Data warehouse – Multi-Dimensional Data Structures

Choosing a Structure- Meta Data: Human Meta Data, Computer Based Meta Data for people to use, Computer based Meta Data for the Computer to use.

UNIT-IV

Analyzing the Contexts of the Data warehouse: Active Analysis, User Queries – OLAP Constructing a Data warehouse System: Stages of the Project – Developing a Project Plan, Data warehousing Design Approaches – The Architecture Stage.

UNIT-V

Getting Data into the Data warehouse – Extraction, Transformation, Cleaning, Loading and Summarization- Data Mining, Creating a Decision Tree, Correlation and Other Statistical Analysis, Neural Networks, Nearest Neighbor Approaches, Putting the Results to Use

Text Books:

- Data Mining – Concepts and Techniques - Jiawei Han &MichelineKamber, Morgan Kaufmann Publishers, 2nd Edition, 2006.
- Data Mining Introductory and advanced topics –Margaret H Dunham, Pearson education

References:

- Decision Support Systems and Data warehouse Systems, Efram G. Mallach: TMH.
- Data Mining Techniques and Tasks, T.H.M.Sivanandam, Thomson.
- Data Management, Data Bases and Organizations, Richard T Watson : Wiley.
- Modern Data Warehousing, Mining and Visualization Core Concepts, Marakas, Pearson
- Data warehousing, Data Mining OLAP, Berson Smith, TMH

SRIVENKATESWARA COLLEGE OF ENGINEERING

(AUTONOMOUS)

MBA III Semester

L	T	P	C
0	0	4	2

(BA20EPE319)BUSINESSSIMULATIONLAB

Objective: The course aims is to practice statistical tools in computer with MS-Excel and SPSS.

Learning Outcome: The learning outcome is that the students should be able to: Analyse the data to draw inference for decision making. Understand application of statistical measures of central tendency. Understand application of ANOVA. Analyse trends. Test hypotheses.

UNIT-I

EXCEL Lessons:- Customizing the Quick Access Toolbar.- Creating and Using Templates.-Working with Data: Entering, Editing, Copy, Cut, Paste, Paste Special.- Formatting Data and Using the Right Mouse Click.- Saving, Page Setup, and Printing.- Using Headers and Footers.- Manipulating Data, using Data Names and Ranges, Filters and Sort and Validation Lists.- Data from External Sources.- Using and Formatting Tables.- Basic Formulas and Use of Functions.-Data Analysis Using Charts and Graphs.- Managing, Inserting, and Copying Worksheets.- Securing the Excel Document (Protect Cells and Workbook).

UNIT-II

Advanced excel lessons- Advanced Formulas and Functions.-Advanced Worksheet Features.-Advanced Data Analysis using PivotTables and Pivot Charts.

UNIT-III

Overview of SPSS, Uses, Data Analysis- Making students/Learn Familiar with Main menu and other features of SPSS Package

UNIT-IV

Simulation of frequency distributions: -Binomial, poisson, exponential, weibull and Normal Distributions

UNIT-V

Statistical tools for execution using excel:- Tabulation, bar diagram, Multiple Bar diagram, Pie diagram, Measure of central tendency-mean, median, mode, Measure of dispersion: variance, standard deviation, Coefficient of-variation. Correlation, regression lines test, F-test, ANOVA one way classification, chi square test, independence of attributes.

Text Book :

- Glyn Davis &BrankoPecar "Business Statistics Using Excel" Oxford University Press.

References :

- David Whigham "Business Data Analysis Using Excel'' Oxford University Press.
- Winstion "Excel 2010 Data Analysis and Business Modelling" PHI Learning Private Limited.
- Bajpai "Business Statistics" Pearson.
- D P Apte : Statistical Tools for Managers USING MS EXCEL, Excel Books.

- David M Levine, David. F. Stephan & Kathryn A. Szabat, Statistics for Managers – Using MS
- Bruce Bowerman, Business Statistics in Practice, TMH.
- Shelly, MS Office, 2007, Cengage.

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(AUTONOMOUS)

MBA III Semester

L	T	P	C
0	0	0	0

(BA20EMC321) BUSINESS ETHICS AND CORPORATE GOVERNANCE (Mandatory Course)

Objective: The objective of the course is to make students aware of ethical and moral issues concerning business both in Indian and International context and develop sensitivity of students for right ethical practices in conduct of business, to understand the principles of corporate governance, to know the social responsibility of the corporate.

UNIT I

Business Ethics and Corporate Ethics – Meaning, Importance, Functions, Unethical Practises and Ethical dilemma, Ethical theories and Approaches, Modern Decision making - Ethical Models for Decision Making, Indian Ethos, Ethics for Managers, Ethics in Business Competition.

UNIT II

Ethical Aspects in Organisation – I: Marketing ethics and Consumer ethics – Ethical issuesin Advertising, Criticisms in Marketing ethics, Ethics in HRM: Selection, Training and Development – Ethics at work place – Ethics in Performance Appraisal.

UNIT III

Ethical Aspects in Organisation – II: Ethics in Finance: Insider trading - Ethical investment - Combating Frauds. Ethical issues in Information Technology: Information Security and Threats – Intellectual Property Rights – Cyber crime.

UNIT IV

Corporate Governance: Purpose – Theories and Philosophies of Corporate Governance

UNIT V

Corporate Governance Structures: Directors, Committees,Institutional investors – Auditors. Corporate Social Responsibility: Stakeholders – Environment – social Development.

TextBook :

- Business Ethics andCorporate Governance –A.C. Fernando, Pearson Education.

References:

- "Perspectives in Business Ethics", Laura P Hartman, Tata McGraw Hill.
- Ethics in management and Indian Ethos, BiswanathGhosh, Vikas
- Bob Tricker, Corporate Governance, Oxford.
- Corporate Governance and Social responsibility, Balachandran, Chandrasekharan, PHI
- Business Ethics -Concepts and Cases, Weiss,Cengage.
- Business Ethics, Himalaya, C.S.V.Murthy.
- Ethical Management, SatishModh, Mcmillan.

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(AUTONOMOUS)

MBA IV Semester **L T P C**

4 0 0 4

(BA20EPC401)STRATEGICMANAGEMENT

Objective: The Objective of the course is to enable students have a grasp of various business strategies in general and functional management areas. It will provide a strategic orientation in conduct of the business

UNIT-I

Introduction- Concepts in Strategic Management, Strategic Management as a process –Developing a strategic vision, Mission, Objectives, Policies – Factors that shape a company's strategy – Environmental Scanning -Concepts of Core Competence, Crafting a strategy for competitive advantage.

UNIT-II

Strategic Analysis and Choice: Tools and techniques- Porter's Five Force Model, BCG Matrix, GE Model, SWOT Analysis and TOWS Matrix, Market Life Cycle Model - and Organisational Learning, and the Experience Curve

UNIT-III

Strategy Formulation: Formulation of strategy at corporate, business and functional levels. Strategy Alternatives:- Stability Strategy, Growth Strategy, Retrenchment Strategy, and Combination Strategy

UNIT-IV

Strategy Implementation: Types of Strategies: Offensive strategy, Defensive strategy, vertical integration, horizontal strategy; Tailoring strategy to fit specific industry and company situations, Strategy and Leadership, Resource Allocation as a vital part of strategy – Planning systems for implementation.

UNIT-V

Strategy Evaluation and control – Establishing strategic controls - Role of the strategist benchmarking to evaluate performance - strategic information systems – Guidelines for proper control- Strategic surveillance -strategic audit - Strategy and Corporate Evaluation and feedback in the Indian and international context.

Text Book:

- Strategic Management – J.S.Chandan&Nitishsen Gupta, Vikas

References:

- Strategic Management Concepts and Cases, Fred. R David, PHI.
- Strategic Management,Hill, Ireand, manikutty, Cengage.
- Concepts in Strategic Management and Business Policy,Wheelen& Hunger, Pearson Education.
- Strategic Management – Text and Cases, V.S.P. Rao, Excel.
- Strategic Management – Theory and Application, Habergerg, Rieple, oxford .
- Strategic Management, P. SubbaRao, Himalaya.
- Business policy and strategic management, SukulLomash, P.K.Mishra, Vikas

SRIVENKATESWARA COLLEGE OF ENGINEERING

(AUTONOMOUS)

MBA IV Semester **L T P C**

4 0 0 4

(BA20EPC402)E-BUSINESS

Objective: The course imparts undertaking of the concepts and various application issues of e-business like Internet infrastructure, security over internet, payment systems and various online strategies for e-business.

UNIT-I

Introduction to e-business : Electronic business, Electronic commerce, difference between e-business & e-commerce, electronic commerce models, types of electronic commerce, value chains in electronic commerce, E-commerce in India, internet, web based tools for electronic commerce. Electronic data, Interchange, components of electronic data interchange, electronic data interchange process.

UNIT-II

Security threats to e- business: Security overview, Electronic commerce threats, Encryption, Cryptography, public key and private key Cryptography digital signatures, digital certificates, security protocols over public networks : HTTP, SSL, Firewall as security control, public key infrastructure (PKI) For Security.

UNIT-III

Electronic payment system: Concept of money, electronic payment systems, types of electronic payment systems, smart cards and electronic payment systems, infrastructure issues in EPS, Electronic fund transfer.

UNIT-IV

E-business applications and strategies : Business models & revenue models over internet, emerging trends in e- businesse - governance, digital commerce, mobile commerce, strategies for business over web, internet based business models.

UNIT-V

E –business infrastructure and e- marketing: Hard works system software infrastructure, ISP's, managing e-business applications infrastructure, what is e-marketing, e-marketing planning, tactics, strategies.

Text books:

- Dave chaffey: e-business & e-commerce management- Pearson.
- e- commerce- e-business :Dr.C.S.Rayudu, Himalaya.

References :

- Whitley, David (2000) ,e-commerce strategy, Technologies and applications.TMH.
- Schneider Gary P.and Perry, James T(1ST edition 2000) Electronic commerce, Thomson Learning.
- Bajaj, Kamlesh K and Nag, Debjani (1st edition 1999) ,e- commerce, The cutting edge of business, TMH Publishing company

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(AUTONOMOUS)

MBA IV Semester	**L**	**T**	**P**	**C**
	4	**0**	**0**	**4**

(BA20EPE403)FINANCIALDERIVATIVES
(ElectiveV)

Objective: The objective of this course is to make students efficient in the area of Financial Derivatives, giving them the knowledge of basics in Financial Derivatives, Future Markets, Option Strategies, etc.

*** Standard discounting and statistical tables to be allowed in the examinations.**

UNIT-I

Introduction to Derivatives: Development and Growth of Derivative Markets, Types of Derivatives, Uses of Derivatives, Financial and Derivative markets - Fundamental linkages between spot& Derivative Markets, The Role of Derivatives Market in India.

UNIT-II

Future and Forward Market: Structure of forward and Future Markets, Mechanics of future markets, Hedging Strategies, Using futures. Determination of forward and future prices - Interest rate futures, Currency futures and Forwards

UNIT-III

Options: Distinguish between Options and Futures, Structure of Options Market, Principles of Option Pricing, Option Pricing Models: The Binomial Model, The Black Scholes Merton Model.

UNIT-IV

Basic Option Strategies: Advanced Option Strategies, Trading with Options, Hedging with Options, Currency Options.

UNIT-V

Swaps: Concept and Nature of Swaps—Major Types of Financial Swaps –Interest Rate Swaps –Currency Swaps –Commodity Swaps – Credit Risk in Swaps

Text Books:

- Financial Derivatives, Gupta, 1st Edition, PHI.
- Fundamentals of futures and options market, John C Hull: Pearson Education.

References:

- Financial Derivatives and Risk Management, OP Agarwal, HPH
- Commodities and Financial Derivatives, Kevin, PHI
- Fundamentals of Financial Derivatives, Swain.P.K, HPH
- Financial Derivatives, Mishra: Excel.
- Risk Management & Derivatives, Stulz, Cengage.
- Derivatives and Risk Management, Jayanth Rama Varma: TMH.
- Risk Management Insurance and Derivatives, G. Koteshwar: Himalaya

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(AUTONOMOUS)

MBA IV Semester	**L**	**T**	**P**	**C**
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(BA20EPC404) SERVICES MARKETING
(ElectiveV)

Objective: The objective of the course is to provide a deeper insight into the marketing management of companies offering services as product.

UNIT-I

Understanding services marketing: Introduction, Characteristics of services marketing mix, services in the modern economy, Classification of services, marketing services Vs. Physical services.

UNIT-II

Customer Expectations of service: Service expectations, types of expectations, factors that influence customer expectations of service. Issues in involving customers service expectations, Customer defined service standards.

UNIT-III

Pricing & Promotion strategies for services: Service pricing, establishing monetary pricing objectives, foundations of pricing, pricing and demand, putting service pricing strategies into practice.

UNIT-IV

Service promotion: The role of marketing communication. Implication for communication strategies, marketing communication mix.

UNIT-V

Marketing plans for services: The marketing planning process, strategic context, situation review marketing strategy formulation, resource allocations and monitory marketing planning and services.

Text Books:

- Services Marketing – Text and Cases, RajendraNargundkar, TMH.
- Services Marketing—Integrating Customer Focus Across the Firm,ValarieA. Zeithaml& Mary Jo-Bitner: TMH.

References:

- Services Marketing People, Technology, Strategy, Christopher Lovelock, Wirtz, Chatterjee, Pearson.
- Services Marketting – Concepts planning and implementation, Bhattacharjee, excel,2009
- Services Markeing, Srinivasan, PHI.
- Services – Marketing, Operations and Management, Jauhari, Dutta, Oxford.
- Marketing of Services, Hoffman, Bateson,Cengage.
- Service sector Management, C.Bhattacharjee, Jaico.

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(AUTONOMOUS)

MBA IV Semester	**L**	**T**	**P**	**C**
	4	**0**	**0**	**4**

(BA20EPE405)ORGANIZATIONDEVELOPMENT
(ElectiveV)

Objective: The objective of the course is to provide the students with the conceptual framework and the theories underlying Organizational Development.

UNIT-I
Organization Development –Definition – Characteristics - Contributory Stems, Values, Assumptions, and Beliefs in OD - Ethical issues in OD.

UNIT-II
Foundations of OD- Systems Outlook- Third Wave Management and Organization Transformation

UNIT-III
Diagnostic Process and Areas of Diagnosis –Action Research- As a Process and Approach- OD

UNIT-IV
Interventions classification – Team Interventions – Intergroup Interventions- Third party peacemaking intervention, Structural Interventions- Comprehensive Interventions and Training Experience, Other Interventions- T- Groups, Behaviour Modelling, Life and Career Planning.

UNIT-V
Consultant Issues – System Ramifications – Power politics in OD – Future of OD.

Text Books:

- Organisation Development and Transformation, French, Bell &Zawacki, TMH.
- Organization Development, French&Bell, Pearson

References:

- Organisation Change and Development,Kavita Singh: Excel.
- Organization Development, Daniel Robey& Steven Actman, Macmillan.
- Organisation Development Change, Cummins&Worley,Thomson/Cengage.
- Organisation Development Interventions &Strategics, S. Ramnarayan, T.vRao&kuldeepsingh, Response.

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(AUTONOMOUS)

MBA IV Semester	**L**	**T**	**P**	**C**
	4	**0**	**0**	**4**

(BA20EPE406)DATACOMMUNICATIONANDNETWORKANALYSIS
(ElectiveV)

Objective: The objective of the course is to provide the basic concepts of Data Communication and Network Analysis, network security, privacy and data encryption.

UNIT-I

Introduction – General structure of Networks – ISO, OSI Reference Model. Hierarchical Network, connectivity analysis – delay analysis – local access Network design Physical layer: transmission and multiplexing – digital transmission – circuit switching packet switching – terminal handling – error correction and error correcting codes.

UNIT-II

Data – link layer: simple protocols. Unrestricted stop and wait sliding window protocols -Network layer: virtual circuits and data grams, centralize hierarchical and broadcasting algorithms.

UNIT-III

Transportation layer and Session layer: Transport service – addressing and connection establishment – flow control and buffering – synchronization – crash recovery gate way– internet work fragmentation – session layer.

UNIT-IV

Presentation layer: Network security and privacy – data encryption – key distribution authentication and digital signatures – virtual terminal protocols – file transfer protocols.

UNIT-V

Application layer – Distribution systems ISDN – Service & History, TCP/IP and Net Working and Internetworking Derives.

Text Books:

- Understanding Data Communications & Networks, William A. Shay, Vikas.
- Data Communications and Net Working, Behrouz A. Forouzan, TMH

References:

- Data Communication and Computer Networks, Duck& Read, Person.
- Data Networks, Bertsekas&Gallages, PHI
- Computer Communications and Networking Technologies, Michael A. Gallo, Cengage.

SRIVENKATESWARA COLLEGE OF ENGINEERING

(AUTONOMOUS)

MBA IV Semester **L T P C**

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(BA20EPE407)INTERNATIONALFINANCIAL MANAGEMENT
(ElectiveVI)

Objective: The objective of the course is to provide students with a broad view of International Monetary Systems and its understanding to enable a global manager to do business in a global setting. The prerequisite for the course is Financial Accounting and Analysis and Financial Management.

UNIT-I

Introduction to International Financial management: IFM meaning, Difference between FM & IFM, Nature, Scope, Importance.

UNIT-II

Foreign Exchange Market: Functions and Structure of the Forex markets, major participants, types of transactions and settlements, Foreign exchange quotations

UNIT-III

Management of foreign exchange exposure and risk: Types of Exposure, Economic Exposure, Transaction Exposure, Operating Exposure.

UNIT-IV

Cross-border Investment Decisions: Capital budgeting, Approaches to Project Evaluation, Risk in Cross-border Investment Decisions.

UNIT-V

Financing Decisions of MNC`s & Working Capital Management: Introduction, the cost of capital, capital structure, Cash management, management of receivables, Inventory management.

Text Books:

- International Financial Management, V.K.Bhalla ,S.Chand
- International Financial Managemen, EphriamClark ,Cengage.

References:

- International Finance , Prakash .G.Apte, TMH
- International Financial Management, T.Siddaiah: Pearson.
- International Financial Management ,M.K.Rastogi
- International Financial Management, S.EunChoel and Risnick Bruce: TMH.
- International Financial Management, MachiRaju, HPH.
- international finance management, Jeff Madura, Cengage.
- International Financial Management, Sharan5th Edition, PHI.
- International Financial Management, MadhuVij: Excel, .
- International Financial Management, V. A Avadhani, Himalaya .

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(AUTONOMOUS)

MBA IV Semester **L T P C**

4 0 0 4

(BA20EPE408)INTERNATIONALMARKETING
(ElectiveVI)

Objective: The objective of the course is to provide students with a perspective of International Marketing Management, its environment and complexities.

UNIT-I

International Marketing: Scope and Significance of International Marketing, The importance of international marketing, Differences between international and domestic marketing, legal environment and regulatory environment of international marketing.

UNIT-II

International Market Entry Strategies: Indirect Exporting, Direct Exporting, Foreign Manufacturing Strategies with Direct Investment. Entry Strategies of Indian Firms

UNIT-III

International product management: International product positioning, Product saturation Levels in global Market, New products in International Market, Products and culture, brands in International Market.

UNIT-IV

International Marketing Channels: Distribution Structures, Distribution Patterns, Factors effecting Choice of Channels, the Challenges in Managing an international Distribution Strategy, Selecting Foreign Country Market intermediaries. The management of physical distribution of goods, Grey Market goods

UNIT-V

Export Marketing: Introduction to Export Marketing, Export Policy Decisions of a firm, EXIM policy of India. Export costing and pricing, Export procedures and export documentation. Export assistance and incentives in India.

Text books:

- International Marketing, Michael R.Czinkota, Likka A Ronkainen, Cengage .
- Global marketing Management
- Keegan, Green, 4/e, Pearson

References:

- International Marketing Analysis and Strategy, SakOnkvisit, John J. Shaw, PHI.
- International Marketing, Philip R. Cateora, John L. Graham, PrasanthSalwan, TMH.
- International Marketing,Vasudeva PK, excel.
- Global Maketing, Management, Lee, Carter, Oxford.
- International Marketing and Export management, Albaum , Pearson Education.
- Global Marketing, Johansson, TMH.

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(AUTONOMOUS)

MBA IV Semester **L T P C**

4 0 0 4

(BA20EPE409)GLOBALHUMANRESOURCE MANAGEMENT

(ElectiveVI)

Objective: The objective of the course is to provide an outline of Global Human Resource management of MNC`S.

UNIT-I

Global Human Resource Management concept, expanding role – Global issues and challenges, Differences between Domestic HRM and GHRM.

UNIT-II

Social and Cultural Variables in Global Organizations – Cross Cultural Differences – Cross Cultural Research Methodologies – Hofetede's Hermes Study, Cultural Issues.

UNIT-III

Global staffing and Compensation Practices – Nature, Sources, Policies – Human Resource Planning – Recruitment and Selection for global Assignment, Selection process- Expatriate and Repatriate. – Compensation- International Compensation structure, Differentiating HCN'S, PCN`S and TCN`S

UNIT-IV

Training & development and Appraisal in the global perspective- Programmes and Agencies– Performance Appraisal system – Training and development need, cross cultural training, Areas of international training and development.

UNIT-V

Global Industrial Relations and People Management – Trade Unions, Collective bargaining, Disputes/Conflicts, Quality Circles and Participative Management.- USA–European Countries, Asian Countries and Middle East.

Text books:

- International Human Resource Management, Aswathappa, TMH.
- InternationalDimension of Human Resource Management, Dowling P.J, Thomson/Cengage

References:

- International Human Resource Management, Tony Edwards & Chris Rees, Pearson.
- Internal Human Resource Management, Rao P.L, Excel.
- International Human Resource Management, SubbaRao P, Himalaya.
- International Dimensions of Organizational Behaviour, Adler N.J, Kent

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(AUTONOMOUS)

MBA IV Semester **L T P C**

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(BA20EPE410)CORPORATEINFORMATIONMANAGEMENT (ElectiveVI)

Objective: The objective of the course is to provide a broad outline of Information Technology and its application at corporate business units and to understand all the issues related to the IT management.

UNIT-I

IT planning and strategy tools: Strategy analysis – environment analysis- Conducting strategy audit- Assessing opportunities and risks- Company – technology analysis – Industry –technology analysis Trajectories of technology.

UNIT-II

Extending the enterprise: Organising for innovation –Collaboration- Understanding business networks: differentiation interdependence and ownership – Designing hybrid governance models- Building collaborative community- Emerging network business models.

UNIT-III

IT Alignments : Building the case for IT- leveraging infrastructure and creating options- Components of internetworking infrastructures –Rise of internetworking – business implications, Managing IT services : Availability facilities- uninterruptible power –Delivery- climate control – security – New service models.

UNIT-IV

IT outsourcing - Managing risk through incremental outsourcing- Outsourcing advantages and disadvantages- Outsourcing opportunities- Managing relationships with outsourcing agencies, Coordination and control of IT :Development stages of IT in organising- Nolans' model- Distributed data processing - Centralisationvsdecentralisation- drivers toward user dominance- Drivers towards centralised policy- Coordination and location IT policy.

UNIT-V

Project management: Project categories- Project management: stage in project – planning and controlling tools-Problems – Towards effective project management, Technology and innovation: Understanding technological developments- Technology cycles-. Creative idea generation- Employee creativity – R&D- Role in technology development

Text Books:

- C,S,G,,Krishnamcaharyulu and Lalitha R. Management of Technology, Himalaya
- Lynda M.Applegate, Robert D.Ausitn and F. Warren McFarlan, Corporate Information strategy and Management, TMH

References:

- SanjivaShnkarDubey, IT strategy and Management, PHI.
- ParagKulkarni IT strategy for Business, Oxford.

- V.K.Narayan, Managing Technology and Innovation for competitive Advantage, Pearson.
- C.K. Prahlad, The New Age of Innovation. TMH.

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(AUTONOMOUS)

MBA IV Semester **L T P C**

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(BA20ETS411)SEMINAR(ContemporaryIssuesonBusiness)

The objective of the seminar is to evaluate the skills required for the manager's viz., communication skills, logical skills, analytical skills, presentation skills, and persuasion skills, decision making skills acquired by the students in the course of M.B.A and to analyse the managerial capabilities.

Students are required to present a seminar on any contemporary issue of the business.

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MBA IV Semester **L T P C**

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(BA20EPW411) PROJECT WORK

Students are required to take up a project work, in which the student can chooseany specific problem of Industry or Industry based project work. Alternatively it can besecondary source based or Field based project work. Before the commencement of the projectwork each student is required to submit a synopsis indicating the objectives, Methodology,Frameworkforanalysis,Actionplanwithmilestonesinordertohaveclarityforthesubsequent work. The project should have an internal faculty as guide. The student shallinitiate project work immediately after II semester and evaluation shall take place in IVsemester

References:

- Business Essentials: Research Project, Viva.
- Paul Oliver:Writing Your Thesis, Sage.
- M.K.Rampal&S.L.Gupta: Project Report Writing, Paragon International.
- Michael Jay Polonsky: David S Waller: Designing and Managing a Research Project, Sage.
- Surendra Kumar: An Aid to Project Work, Paragon International.