INFORMATION BULLETIN
2016-2017

LOURDES MATHA COLLEGE OF SCIENCE & TECHNOLOGY

An ISO 9001-2008 Certified Institution

(Promoted by Lourdes Matha Catholic Educational Society)

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INFORMATION BULLETIN 2016-2017

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OUR VISION

The vision of Lourdes Matha Educational Society is to establish a "centre of excellence" in the field of Engineering and Technology to mould world class professionals.

OUR MISSION

LMCST is committed to mould world class professionals to meet the present and future needs in the global market. We will strive to achieve the mission by creating an excellent learning environment with the state of art technology and a team of competent and dedicated teachers by providing value based education to mould a younger generation with integrity and character capable of achieving progress and prosperity through selfless service to humanity.

QUALITY POLICY

Lourdes Matha College of Scicne and Technologhy is committed to mould world class professionals by providing excellence in education with appropriate learning environment for value based education with the state of act technology and with competent and dedicated teachers. The college is committed to comply with the Quality Management System and progress continually

1. COLLEGE AT A GLANCE

1.1. Brief History

The reputation, painstakingly achieved over the years by the Christian Community in Kerala in the field of both basic and higher education, is the result of the synergic action fuelled with the right vision, commitment and hard work put in by our predecessors. The new educational policy introduced recently by the Govt.of Kerala, encouraging self financing institutions in the field of Engineering and Technology, has been catalytic to the visionaries among us to think in this line also. As flag bearers of excellence in professional education in South Kerala, "Lourdes Matha Catholic Educational Society" was given birth by the initiative of Rev. Fr. Joseph Kurinjiparampil, with the encouragement and association of a few Syrian Catholic Parishioners in Thiruvananthapuram, who have left indelible imprints in the segment of education and with the blessings and patronage of His Grace Mar Joseph Powathil, the then Archbishop of Changanacherry.

Lourdes Matha College of Science and Technology established by the "Lourdes Matha Catholic Educational Society" has been approved by the Govt of Kerala and the All India Council for Technical Education (AICTE) vide order No: 06/06/KER/ENGG 2002-03 dated 27-05-2002 and is affiliated to the University of Kerala.

The College has a spacious campus of 25 acres at Kuttichal,a rustic village in the outskirts of Thiruvananthapuram city, hardly 24 km away from it. The scenic beauty and virgin surroundings of the picturesque lush green rubber plantations in the back drop of misty Western Ghats and the serene, tranquil hillock provide a perfect environment for harmonious study. The vision of the Lourdes Matha Educational Society is to establish a "Centre of Excellence" in the field of Engineering and Technology to mould world class professionals.

The College is governed by a Governing Board consisting of 25 members. His Grace Mar Joseph Perumthottam,the Archbishop of Changanacherry is the Patron and Spiritual Guide and Rev.Dr. Mani Puthiyidom, Vicar, Lourdes Forane Church is the President.

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21	Ms. Debarati Ganguly	Assistant Professor	M.Tech	9567871285	ditiganguly@yahoo.co.in
22	Ms. Minu E. Mathew	Assistant Professor	M.Tech	9447766830	minue1989@gmail.com

23	Mr. Jobin Jose	Assistant Professor	M.Tech	9539525844	jobinjose1988@gmail.com
24	Ms. Parvathy Harikumar	Assistant Professor	M.Tech	9895628366	parvathyharikumar87@gmail.com

Technical Staff (Electronics Laboratory)

1	Ms. Binu P.	Lab Instructor Grade I	Diploma (Electronics)	0471-2740181 9446614069	binuajith2009@gmail.com
2	Mr. Rajeev S.V.	Trade Instructor	ITI, MRTV	0471-2480839 9496195692	navajothi72@gmail.com
3	Ms. Dhanya S.S.	Lab Instructor	Diploma (Instrument Tech)	0472-2889196 9447246778	dhanya_lmcst@yahoo.com
4	Ms. Sheena S.C.	Lab Instructor	Diploma (Electronics)	9497570415	scsheen@gmail.com
5	Mr. Nobert A. Varghese	Lab Instructor	Diploma (Electronics)	9995446437	nobertcet@gmail.com
6	Mr. Manoj R.M.	Lab Instructor	Diploma (Electronics)	9847369622	mono321@gmail.com
7	Ms. Meera M.R.	Lab Instructor	Diploma (Electronics)	9633282797	meeramr007@gmail.com

DEPARTMENT OF MANAGEMENT STUDIES

1	Prof. Kesavan Nair M.P.	Professor & HOD	B.Sc (Engg) MBA	9447974520 04712205144	kesavanmpnair@gmail.com
2.	Dr. A. Lenin Jothi	Professor	BSc. MBA Ph.D	09810941948	leninjothimba@yahoo.com
3.	Dr. K. Kumara Pillai	Professor	M.Com, MBA LLB, CAIIB Phd	9446048215	kkpillai@lmcst.ac.in

4	Ms. Smitha Jose Panackal	Assistant Professor (on leave)	B.Com, MBA, Ph.D UGC-NET	9895018880	smithasmithapanackal @rediffmail.com
5	Mr. Reji John	Assistant Professor	B.Tech, MBA	9746685654	rejijohnktra@yahoo.com
6	Ms. Parvathy Gopal R.S.	Assistant Professor (On Leave)	B.Sc, MBA	8547023025	rsparvathygopal@gmail.com
7	Ms. Sherin B.	Assistant Professor (On Leave)	M.A, MBA	9746672365	sherin_bb@yahoo.co.in
8	Mr. Tony Jacob	Assistant Professor	B.Tech, MBA UGC-NET	9809800296	tonyjkk@gmail.com
9.	Ms Haritha Simon	Assistant Professor	B.Com MBA	9846088231 04712291054	haqritha-simon@gmail.com
10.	Ranjit Thomas	Assistant Professor	B.E. MBA	9846220920	ranjit19846@gmail.com

DEPARTMENT OF MECHANICAL ENGINEERING

1	Prof. Franklin P. Joshua	Professor & HOD	Msc (Engg)	0471 2351134 8547551134	fpjoshua@gmail.com
2	Mr. Sabarinath A.R.	Associate Professor	M.E	9446846038	sabarinathar@yahoo.com
3	Ms. Bindu M.V.	Associate Professor	M.Tech	9995518607	bindumvmohanan@gmail.com
4	Mrs. Resmi V. Prasad	Assistant Professor	M.E, MBA	9495865437	resmivprasad@gmail.com

5	Mr. Daniel C. Ribu	Assistant Professor	M.Tech	9995453358	ribucdaniel@gmail.com
6	Mr. Sammil S.	Assistant Professor	M.E.	9809103183	sammilpromech@gmail.com
7	Mrs. Deeja Milner L.	Assistant Professor	M.Tech	9496241081	deejamilner@gmail.com
8	Mrs. Indu R.	Assistant Professor	M.Tech	9447780035	indu.3009@gmail.com
9	Mr. Krishna Prasanth K.	Assistant Professor	M.Tech	9446511777	kp1613@gmail.com
10	Mr. Niyas Salim	Assistant Professor	M.Tech	9846232941	niyassalim003@gmail.com
11	Mr. John Philipose Marphy	Assistant Professor	M.Tech	8301038560	philipmarphy@gmail.com
12	Mr. Adarsh S.J.	Assistant Professor	M.E.	9447318590	adarshsj1@gmail.com
13	Sajith Krishnan R	Assistant Professor	M.Tech	8281648056	sajithkrishnanr@gmail.com
14.	Vishnu C.S.	Assistant Professor	M.Tech	9446326889	vishnumech.88@gmail.com
15.	Akhil S. Augustine	Adhoc Faculty	M.Tech (Under going)	9495830007	akhilsaugustine92 @gmail.com
16	Jayaram V.	Assistant Professor	ME	9809816191	jayaramvijayan@gmail.com

DEPARTMENT OF PHYSICAL EDUCATION

1	Mr. Robin Sebastian	Assistant Professor	M.PEd	9633233101	robinpampackan@gmail.com

RESEARCH & DEVELOPMENT

1	Mr. Ignatious C.A.	Advisor	B.Sc. Engg (ECE)	9496020065	ignatious.ca@gmail.com

LIBRARY STAFF

1.	Suni S. Nair	Librarian	B.Sc. ML.ISc NET	9645812085	sunis.nair@yahoo.com
2	Sr. Jessy Thomas	Assistant Librarian	B.A, B.LISc	0472 2853922 9895717940	sr.vinittafcc@gmail.com
3	Ms. Vidya. K.S	Library Assistant	B.A, M.LISc	9656401664	vidyajerinshaju@gmail.com

WORKSHOP STAFF

1	Mr. Prabhakaran B.	Workshop Supt.	B.Tech	0471-2571436 9447031436	moniprabhao@gmail.com
2	Mr. Aby C. Jacob	Addl. Workshop Supt.	B.Tech	9995101137	abycjacob@gmail.com
3	Mr. Sijimon Devasia	Trade Instructor Gr.1	I.T.I (Fitter)	9446178634	sijimon.devasia@gmail.com
4	Mr. Sreekumaran B.	Trade Instructor Gr.1	I.T.I , NAC	8907301165 0471-2286641	sreekumaran2002@gmail.com
5	Mr. Ponnunni K.	Trade Instructor Gr.1	I.T.I (Black Smithy)	9567294353	
6	Mr. Dilip Kumar K .	Trade Instructor Gr.1	I.T.I (Plumbing)	9946293836 0472 2850110	dilipunnik@gmail.com
7	Mr. Mathukutty A.V.	Lab Instructor	ITI, Diploma (Electrical)	0472-2887292 9744043658	
8	Mr. D. Venugopalan	Trade Instructor	ITI	9447471159	venugopalan.damodharan@gmail.com
9	Mr. Thomas R.	Lab Instructor	Diploma (Mechanical)	9995924554	

10	Mr. Jose George	Trade Instructor	ITI	9809093073	
11	Mr. Ajino Philip	Trade Instructor/ Charge of Store Keeper	I.L.L	9605577917	ajinophilip05@gmail.com
12	Mr. SailendraKumar M.L.	Trade Instructor	I.L.L	9961193014	sailendran3014@gmail.com
13	Mr. Chandradas S.V.	Lab Instructor	Diploma (Tools & Die Making)	9495189774	chandradas143@gmail.com

OFFICE STAFF

1	Mr. Thomas Mathew	Superintendent	B.Com	0471 2531585 9847401950	thomasmathew.kunnathu@gmail.com
2	Ms. Binu Ittyavirah	Office Assistant Senior grade	B.Com, PGDCA	9447554086 0471 2314015	binukunjus@yahoo.com
3	Ms. Jessy Augustine	Office Assistant Senior grade	B.Com, H.DC	0471 2365952 9447451825	edakkara123@gmail.com
4	Mr. Jyothiraj R.	Office Assistant Senior grade	B.Com	0471 2292090 9497786478	jyothiraj85@gmail.com
5	Ms. Rema Devi L.	Office Assistant Senior grade	M.Com	0472 2883657 9446013657	remadevilmcst@yahoo.in
6	Ms. Asha Mary Chacko	Office Assistant Grade I	M.Com, PGDCA	9895652228 0471 2433584	ashamarychacko@yahoo.co.in
7	Ms. Sowmya Antony	Office Assistant Grade I	B.Com, DCFA, DCA	9497751681 0471 2553153	sowmyantony7@gmail.com

8	Mr. Rajesh P.	Office Assistant Grade II	B.A	9947003498	rajeshprabhakaran1@gmail.com
9	Ms. Ancy Chacko	Office Assistant Grade II	B.Sc, DPCS PGDCA	9495340039	ancyjo2002@gmail.com
10	Ms. Sheela Sebastian	Office Assistant Grade II	B.A PGDCA	9446066780	sheelasebastian88@gmail.com
12	Ms. Rejitha O.	Receptionist	B.Sc	9388751100	
13	Mr. Saji A.M.	Store Keeper	B.A, ITI (on leave)	0471 2246397 9895510169	sajimayam@rediffmail.com
14	Ms. Sunitha A.	Office Attendant		0471 2854939 9048467714	
15	Mr. Soji Thomas	Driver cum Peon		9567310358	antosojithomas@gmail.com
16	Mr. Karunakaran K.	Peon		0472 2852938 94001588488	
17	Mr. Sivarajan M.	Peon		8129918145	
18	Mr. Pradeep Kumar S.	Peon		9809207441	pradeepgsurendran4@gmail.com
19	Mr. Sreejith R.	Peon		9633621204	

SYSTEM ADMINISTRATION

1	Mr. Anoop S.S.	System Administrator	PGDMS	8281463308	anooptheguy@gmail.com
2	Ms. Anjana K.	Lab Assistant	B.Sc, DCA Network+	9447494703	anjanak66@gmail.com

ESTATE STAFF

1	Mr. Ambrosis Ninan	Estate Manager	B.Sc, B.Ed	9446108855

CANTEEN

1	Mr. Shaji Joseph	Canteen Supervisor	0471 2289940, 9447207851

CIVIL CONSTRUCTION

1	Mr. Govinda Pillai P.	Site Engineer	0472 2832477, 9446172212

HOUSEKEEPING STAFF

1	Mr. Rajappan Nair. K	Security	0471 2557768 8891177450
2	Ms. Ragini. S	Pantry Attendant	9446442031
3	Ms. Rajalekshmi. T	Pantry Attendant	9847407255
4	Ms. Baby Varghese	Sweeper	9567318887
5	Ms. Ambily S.	Sweeper	9995080768
6	Ms. Bindu. M	Sweeper	9567173870
7	Ms. Rathikumari T.	Sweeper	9995971670
8	Ms. Sajeena B.	Sweeper	9605806066
9	Ms. Sheela.V.	Sweeper	9526258394

TRANSPORTATION STAFF

1	Mr. Kamal Basha S	Driver	9947911592

HOSTELS

1. St.Thomas Hostel for Boys, College Campus

Rev. Fr. Varghese Edachethra (Students Welfare Officer)	Warden	9446197209 0472 2851331

2. Assissi Hostel for Girls, College Campus

Sr. Jessy Thomas	Warden	0472 2853922, 9895717940

3. St.Bridgets Hostel for Girls, Plavoor

Sr. Maria	Warden	9605105757

1.4 INTERCOM EXTENSION NUMBERS

President	.....	101
Secretary	.....	102
Director	.....	201,202
Principal	.....	203
Treasurer	.....	103
Reception	.....	222,9
TA to Director	.....	206
Administrative Office	.....	207,188
Office Superintendent	.....	507
Accounts	.....	154,208,173
Library	.....	156
Server Room	.....	444
HOD (Applied Sciences)	.....	216
HOD (ECE)	.....	301
HOD (CSE & IT)	.....	401
HOD (ME)	.....	166
HOD (EEE)	.....	174
HOD (MBA)	.....	158
HOD (MCA)	.....	178
Staff Room (Civil)	.....	242
Staff Room (Applied Sciences & Humanities)	.....	231
Staff Room (ECE)	.....	195
Staff Room (CSE)	.....	406,506
Staff Room (IT)	.....	221, 159
Staff Room (ME)	.....	165
Staff Room (EEE)	.....	167,223
Staff Room (MCA)	.....	244
Staff Room (MBA)	.....	157,192
KTU Exam Cell	.....	202

Exam Cell (University)	.....	211
Conference Hall	.....	215
Physical Education	.....	213
Research and Development	.....	236
Electronics Devices Lab	.....	312
Digital Lab	.....	148
Power Electronics Lab	.....	184
Instrumentation & Control System Lab (ECE)	.....	241
Power System Lab	.....	185
Microprocessor Lab	.....	240
P & S Lab	.....	307
Project Lab (Circuits Lab)	.....	311
Computer Lab A	.....	411
Computer Lab B	.....	412
Computer Lab C	.....	150
Computer Lab D	.....	193
MCA Lab	.....	164
Internet Lab	.....	415
CADD Lab	.....	126
Hydraulics Lab	.....	170
Metrology Lab	.....	169
Microwave Lab	.....	160
Control System Lab (EEE)	.....	185
Thermal Engineering Lab	.....	187
Mechanical Workshop	.....	611
Addl. Workshop Supt.	.....	243
Machine shop	.....	168
Electrical workshop	.....	220
Pantry	.....	217,176
Electrician Room	.....	162
Photostat	.....	172

Book Shop	.....	175
Store Office	.....	163
Canteen	.....	218
Construction Site	.....	183
Ladies Hostel	.....	251
Boys Hostel	.....	198,199
Driver's Room	.....	124
Security (Main gate)	.....	153
Security (Kallode gate)	.....	131

HOTEL MANAGEMENT

Principal	.....	128
Office	.....	127
Administration	.....	147
Staff Room	.....	134
Library	.....	133

2. COLLEGE PROSPECTUS

2.1 Courses Offered

B.Tech Programmes	**Intake**
Electronics & Communication Engineering	120
Computer Science & Engineering	120
Electrical & Electronics Engineering	60
Mechanical Engineering	120
Civil Engineering	60
Post Graduate Programmes	**Intake**
M.Tech Computer Science & Engg	18
M.Tech Applied Electronics	18
M.Tech Industrial Engineering	18
M.Tech Control Systems	18
MBA	60
MCA	60

2.2 Code of conduct for Students

Students are advised to strictly abide by the following guidelines for the smooth conduct of all activities of the Institution.

Dress Code and ID card:

- The students should come to the institution in proper uniform. Boys should tuck in their shirts. ID cards should be worn around the neck and conspicuously displayed.
- It is compulsory to wear shoes and workshop uniform for entering the laboratories. Students should wear workshop uniform if there is a workshop/lab class on that day and regular uniform on other days.
- Students should not wear slippers, jeans, low waist trousers or tight fitting leg wear inside the campus.

Attendance:

- Attendance is compulsory and leave can be availed in unavoidable circumstances with the knowledge of parents and permission of Principal.
- Be punctual in all the activities taking place in the campus.
- A student shall be permitted to appear for the end semester university examination only if he/she satisfies the Kerala University/KTU requirements.
- Students eligible for medical/duty leave shall submit the completed applications within 3 days and this will be considered for attendance calculations as per university norms.

Mobile phone:

- Students are permitted to use mobile phones during interval time only outside the buildings in the campus. It must be in switch-off mode inside the classrooms.
- If a violation is observed, the phone will be seized by Principal and parents can personally claim it back from the Principal after paying a fine of Rs.500/-. If such a violation is repeated, the seized phone shall be retained till the end of the semester and parents can personally get it back on payment of fine amounting to Rs.1000/.

Series Test and Assignments:

- Assignments should be submitted on time.
- Two centralized series examinations will be conducted in each semester as per the college calendar and no further tests will be conducted.
- Absence in series test should be intimated in advance to Advisor/HoD and shall be permitted only on medical grounds/valid reasons. Absentees

should get a "Certificate for retest" from Principal within one week of the completion of series test and should be handed over to HoD.

PTA:

The parents will be summoned for meeting the Principal, if:

- The student fails to get pass in all subjects in the series test.
- The average of series test marks falls below 60%.
- Due to any other specific reason that arises in the campus.

Industrial Visit and Tours:

- Industrial Visit (IV) of the 5th semester students shall be conducted immediately after the 1st series test taking a **maximum of 7 days** commencing on a Sunday and ending on the subsequent Saturday.
- Road journey will not be permitted during night hours between 9pm and 5am. Stay should be planned and arranged accordingly.
- Advisors should guide their students in arranging the tour and atleast two teaching faculty of the respective department must accompany them. If the student strength exceeds 60, one faculty to be added for every additional thirty students. A female faculty should accompany the students, if female students are present.
- All rules regarding IV listed in GO No 11170/J2/13/H.Edn dated 27.05.2013 shall be strictly adhered to. Advisors should check the tour proposal thoroughly and submit to Principal through HoD.

Extra and Co-curricular Activities:

- The intercollegiate cultural and technical fest (Equinox) organized every year shall be conducted in the month of February (preferably 2nd Friday and Saturday). All students must attend the programme.
- Prior permission from Principal should be obtained for availing duty leave towards attending Extra and Co-curricular activities.

Duty leave:

- Any duty leave availed with the permission of the authorities shall be approved within 3 working days after availing leave.
- Extra duty leave can be availed with prior permission from Principal for taking part in placement drives, intercollegiate fest, youth festival and sports events.

Sports day:

- Sports day shall be conducted immediately after the Equinox.

Mal-practices:

- Any mal-practices in the series test shall result in debarring from all the exams in that series test
- Malpractices in University examinations will be handled as per University rules.

Miscellaneous:

- Conduct of any kind of special programs need prior permission from Principal.
- Birthdays and similar celebrations are strictly prohibited inside the classroom and campus.
- Any other actions by the student causing indiscipline in the campus will be dealt by the Principal and appropriate action will be initiated.

Summary: The above rules are framed for the smooth conduct of the curricular, co-curricular and extra-curricular activities of the Institution in a conducive environment for the overall benefit of students. This will definitely enhance the academic ambience of the campus ultimately leading to the fulfillment of the goals set by the Institution.

2.3 Committees

Internal Complaint Committee (ICC)

The women's Cell has been re-constituted as The Internal Complaint Committee (ICC) (As per section 4 Sexual Harassment of Women at workplace (Prevenion, prohibition and Redressal) Act 2013 w.e.f 11th January 2016. The Committee is authorized to look into the complaints from female staff and students and advise the Principal for appropriate action. The role of the committee is to monitor and maintain a healthy discipline in the college Campus. The members of the committee for Teaching & Non-teaching staff are:-

1.	Dr. Pennamma Jose	Management representative	Member
2.	Ms Aniamma Thomas	Management representative	Member
3.	Ms. Swapna M	EEE Dept	Convenor
4.	Ms. Lakshmi Chandran	CS & IT Dept	Member
5.	Ms. Divya Subhash	EC Dept	Member

Anti-Ragging Squad

An Anti-Ragging Squad is re-constituted in the college for academic year 2016-17 with immediate effect. The squad shall make surprise raids in the areas earmarked for them and identify and check any activities which can develop into a ragging incident. The squad shall in particular keep in view the places where the freshers and seniors get chance to interact. The squad shall also inform undersigned, if any preventive actions are to be taken in any area.

1.	College Main Block	Dr. Retnakumari Amma, Asso.Professor, Physics Sri. Sushanth S.G., Asst. Professor, Maths Sri. Rajappan Nair S, Security
2.	EC & CS/IT Block	Sri Binu Chacko, Asst. Professor, EC Sri. Aswin P. Chandran, Asso. Professor, CS
3.	Mechancial & Electrical Block	Sri. Niyas Salim, Asst. Professor, ME Smt. Swapna M. Asst. Professor, EE
4.	Library & MBA Block	Sri. Reji John, Asst. Professor, MBA Smt. Vidya K.S. Library Assistant
5.	Workshops & Mechanical Lab areas	Sri. Thomas R, Lab Instructor Sri. Mathukutty A.V, Trade Instructor Sri. Jose George, Trade Instructor
6.	Canteen & Premises	Sri. Srikanth N, Faculty, Hotel Mangement Sri. Justin G. Russel, Asst. Professor, MCA Sri. Shaji Joseph, Canteen Supervisor
7.	Physical Education Premises	Mr. Robin Sebastian, Physical Education
8.	Mens Hostels	Sri Sabarinath A.R, Asst. Professor, ME Sri Tony Jacob, Asst. Professor, MBA Sri. Aby C. Jacob, Asst. Workshop Supdt.
9.	Ladies Hostels	Smt. Beshiba Wilson, Asso. Professor, IT Smt. Soorya SR, Asst. Professor, EC Sr. Vinitta, Asst. Librarian

Website Committee

1.	Mr. Philip John	Secretary, LMCES
2.	Mr. Philip C.T	Treasurer, LMCES
3.	Prof. P.M. Hormese	Director, LMCST
4.	Dr. V. Syam Prakash	Principal, LMCST
5.	Prof. Davy Cherian	Dept. of C.E
6.	Mrs. Lekshmi Chandran	Co-ordinator, Asst.Prof. Dept of CSE/IT
Members		
1.	Mr. Ignatius C.A	Advisor, R & D
2.	Prof. Kesavan Nair M.P	HOD, Dept. of Management Studies
3.	Ms. Neethu Mohan	HOD, Dept. of Computer Applications
4.	Dr. R. Retnakumari Amma	HOD, Dept. of Applied Sciences
5.	Prof. Franklin P. Joshua	HOD, Dept. of M.E.
6.	Prof. Mohan S.	HOD, Dept. of C.E
7.	Ms.Swapna M	HOD, Dept. of E.E.E
8.	Mr. Ram Prasad Tripathy	HOD, Dept. of E.C.E
9.	Ms.Beshiba Wilson	HOD, Dept. of C.S.E./I.T
10.	Mr. Anoop S.S.	System Administrator
11.	Mr. Aby C. Jacob	Workshop Asst. Supdt.

Welfare Committee

A student Welfare Committee has been constituted in the college w.e.f 21st October 2015. The role of the committee is to monitor and maintain the welfare of students. The members of the committee are:-

1.	Dr. V. Syam Prakash	Principal	College	Chairman
2.	Smt. Sreekala Devi	Asso.Prof	EE Dept.	Convener
3.	Smt. Carold Wilson Lazer	Asso. Prof	ASH Dept.	Member
4.	Smt. Lekshmi Surendran	Asst. Prof	ASH Dept.	Member
5.	Sri. B. Prabhakaran	Workshop Supdt	Workshop	Member
6.	Sri. Sammil S	Asst. Prof	ME Dept	Member
7.	Sri. Daniel C. Ribu	Asst. Prof	ME Dept	Member

8.	Smt. Ashima C R	Asst. Prof	EE Dept	Member
9.	Smt. Parvathy Harikumar	Asst. Prof	EC Dept	Member
10.	Smt. Bincy Louis	Asst. Prof	EC Dept	Member
11.	Smt. Manju M.S.	Asst. Prof	EC Dept	Member
12.	Smt. Priya Sekhar	Asst. Prof	CS&IT Dept	Member
13	Smt. Lekshmi Chandran	Asst. Prof	CS&IT Dept	Member
14.	Smt. Christy Jojy	Asst. Prof	CS&IT Dept	Member
15.	Sri. Renjith Thomas	Asst. Prof	MBA Dept	Member
16.	Smt. Sherin Joseph	Asst. Prof	MCA Dept	Member
17.	Sri. Robin Sebastian	Asst. Prof	Physcial Edu	Member

Anti- Raggng Committee

An Anti-Ragging Squad is re-constituted in the college for academic year 2015-16 with immedite effect with the following members:

1.	Dr. V. Syam Prakash, Principal	Chairman
2.	Shri A.T. Thomas, Vice President, LMCES	Member
3.	Fr. Varghese Edachthara, Member, Governing Board, in-charge of Hostels	Member
4.	Sri John Philipose-Asst. Prof. Mechanical Engg.	Member
5.	Sri. B. Prabhakaran, Workshop Supdt	Member
6.	Sri. Madhusudan Nair, Representative of Parents	Member
7.	Sri. E.V. Varkey, Deepika Daily	Member
8.	Sri. Shanavas Khan M.H. Nedumangad	Member
9.	Sri. R. Biju Kumar, Circle Inspector of Police Kattakada, Representative of Police	Member
10.	Smt. Santha Jose, Representative of NGO Nominee, ASRAYA, Trivandrum	Member
11.	Sri. Chandradas S.V, Lab Instructor, LMCST	
12.	Sri. Govind Gangadhar S7, Cs	Member
12.	Sri. Aravind B, S1 & 2, Representative of Freshers S1, S2 ME A	Member

Students Grievance Redressal Committee

Students Grievance Redressal Committee has beeb re-constituted in the college w.e.f. 11th January 2016. The role of the committee is to monitor and maintain a healthy discipline in the College Campus. The members of the committee are:-

1.	Dr. V. Syam Prakash	Principal	College	Chairman
2.	Smt. Swapna M	Associate Prof.	EE Dept	Convenor
3.	Sri. Carold Wilson Lazer	Asso. Prof.	ASH Dept	Co-ordinator
4.	Prof. Davy Cherian	Professor	Civil Dept	Member
5.	Smt. Lekshmi Chandran	Asst. Prof.	CS&IT Dept	Member
6.	Sri. Jayaram	Asst. Prof.	ME Dept	Member
7.	Sri. Manju MS	Asst. Prof	EC Dept	Member
8.	Smt. Chithra A.S	Asst. Prof.	CS &IT Dept	Member
9.	Sri. Tony Jacob	Asst. Prof.	MBA Dept	Member
10.	Sri Justin G Russel	Asst. Prof.	MCA Dept	Member

Internal Complaint Committee (ICC)

The women's Cell has been re-constituted as The Internal Complaint Committee (ICC) (As per section 4 sexual Harassment of Women at workplace Prevention, Prohibition and Redressal) Act 2013 w.e.f 11 th January 2016. The Committee is authorized to look into the complaints from female staff and students and advise the Principal for appropriate action. The role of the committee is to monitor and maintain a healthy discipline in the College Campus. The members of the committee for House-keeping staff are:-

1.	Dr. Pennamma Jose	Management representative	Member
2.	Ms Aniamma Thomas	Management representative	Member
3.	Ms. Swapna M	EEE Dept	Convenor
4.	Ms. Sheela V	Sweeper	Member
5.	Ms. T. Rajalekshmi	Pantry Attendant	Member
6.	Ms. Ragini S	Pantry Attendant	Member
7.	Ms. Bindu	Sweeper	Member

Staff Grievance Redressal Committee

SI No	Department	Representative
1	Civil Engg	Prof. Mohan S.
2	ME	Prof. Franklin P. Joshua
3	EEE	Smt. Swapna M
4	ECE	Sri. Ram Prasad Tripathy (Convener)
5	CSE & IT	Smt. Beshiba Wilson
6	Management Studies	Prof. Kesavan Nair M.P.
7	Computer Applications	Smt. Selma Joseph
8	Applied Sciences & Humanities	Dr. K. Retnakumari Amma

1. Grievances, if any, should be in writing, dated and signed. Name and Department must be given.
2. It should be submitted to the respective departmental representative given above.

Discipline Committee & Academic Committee

A Discipline Committee has been constituted with the following members representing each department.

No	Department	Representative
1	Applied Sciences & Humanities	Mr. Carold Wilson Lazer J (Coordinator) Mr. Susanth S.G.
2	Civil	Prof. Davy Cherian
3	Workshop	Mr. B. Prabhakaran Mr. Aby C Jacob
4	EEE	Ms. Sreekala Devi Ms. Priya P.S.
5	ECE	Mr. Dinakar Das C.N.

6	CSE & IT	Ms. Priya Sekhar Ms. Sonia George Ms. Lekshmi Chandran. Ms. Renetha J.B
7	ME	Mr. Sabarinath A.R. Mr. Krishna Prasanth Mr. Susanth S.G
8	Management Studies	Mr. Reji John
9	Computer Applications	Mr. Justin G Russel
10	Physical Education	Mr. Robin Sebastian

2.4. College Council

The College Council of Lourdes Matha College of Science & Technology consists of 13 members. The College Council functions as the Advisory Body for all academic, administrative & disciplinary matters. The Council meets regularly on third Monday of every month. Emergency meetings may be convened in case of necessity.

2.5 Working Hours

Class time : 8.30 a.m.to 4.00 p.m.
College Office : 8.30 a.m.to 4.00 p.m.
Library : 8.30 a.m.to 6.00 p.m.

3. FACILITIES

3.1. Central Library and Information Centre

All the members of staff and students of the College are entitled to use the Library.

E-Journal Packages:

- IEEE
- Science Direct
- J-Gate
- ASCE

Rules and Regulations:-

1. All the personal belongings such as text books, note books, files, briefcases, umbrellas etc. should be kept in the property counter. However calculator and plain paper for taking down notes can be taken into the library.

2. Books in the reference section are not open for borrowing.
3. The library is kept open on all working days, at the times which be specified on the notice board. The Library is kept open from 8.30 a.m. to 6.00 p.m.
4. Strict silence should be observed within the Library. The student must show his/her identity card when demanded by the Library staff.
5. Writing or underlining in the books, periodicals maps etc. is not allowed. If required at racing may be taken with the permission of the librarian. Photocopying facilities is available for the students with specific recommendation of the concerned Group/ Advisor/ H.O.D.
6. The person in whose name a book / periodical is issued will be held responsible for the care of the same. He will have to bear the compensation for any damages or loss either by replacing or by paying double the cost as decided by the institution.
7. The number of books that can be borrowed from the central library is as follows

   UG Students - 3 books for 14 days
   PG Students - 4 books for 14 days
   Faculties - 6 books for 3 months
   Non-teaching Staff -3 books for 3 months

   These books can be renewed 3 times if there is no reservation for the same.
8. The period of loan will be 14 days. If a member fails to return the book on the 14th day, a fine of **Re.1/- per day, per book will be levied for the first week, Rs.2/- per day per book for the second week and Rs.5/- per day per book for the subsequent weeks**. If a student is absent on medical ground the payment of fine will be waived if recommended by the concerned Head of the Department. No further issue of book will be made till all the dues are cleared.
9. A book which is temporarily in special demand may be lent for a shorter period than 14 days. The Librarian may at any time terminate loans.
10. Members are not allowed to sub-lend the books borrowed from the Library.
11. No Book shall be issued which in the opinion of the Librarian is not in sufficiently good condition for safe handling.

12. Periodicals are regarded as reference books.

13. New Books received will be displayed for a fortnight in new arrivals. These are available for issue at the end of the fortnight.

3.2 IIT Bombay Remote Centre

The College is a remote centre for providing QIP training to faculty members of engineering colleges through video conferencing. Our college is a 5 Star rated remote centre of IIT Bombay.

3.3 Campus Management Software

An all in one integrated campus automation software that manages administrative, curricular and co curricular activities is being installed in the campus.

3.4 Language Laboratory

The College has set up a language laboratory to assist the students to develop their communication skills. The laboratory has both audio and video facilities to learn any language - presently English and German are being taught here. The students are also being given an opportunity to develop their personality by attending the Personality Development Course.

3.5. Career Guidance & Placement Unit

The Placement and Training Cell of the College is working under the leadership of Faculty members and students from various departments.

The cell is managed by the following dynamic and committed members of the faculty

- Mr.Aswin P. Chandran (Placement Officer)
- Mr.Justin G. Russel
- Ms.Renetha J.B.
- Prasanth Kumar V.S.
- Mr. Tony Jacob
- Ammu Anna Mathew

The Cell arranges hands-on training, conducts industry interaction and reputed talks of experts like NASSCOM Director, Finishing Schools, etc.

The following companies visit our campus for placement drives:

- Subex
- Infosys
- SunTech Software Solutions.
- Satyam Computers

- IBS
- Mphasis
- Hages Business Solutions
- HCL
- X-Stream Software
- MobME
- SoftLand
- Attinad
- Vinod International (core)
- Speridian
- USTGlobal
- Allsec
- NEST
- Travancore Analytics
- RM ESI
- Spericon
- American Mega Trends

We have hosted Placement drive for Microsoft & Wipro.

3.6 Research, Consultancy and Extension Activities

The Research & Development activities at Lourdes Matha College of Science and Technology (LMCST) are guided by the Research Advisory Council and the R & D activities, innovative projects by students and sponsored research projects by the faculty members are being coordinated by the research division set up in the college as Lourdes Innovation Facility for Excellence (LIFE). The mission of LIFE@LMCST is to innovate excellence in academic, technology development and R & D activities. This is achieved by providing technical support for innovate ideas of faculty members and students, by integrating the academic projects with the research interests and by sharing research and development experiences in advanced topics among the students and faculty members through workshops, conferences and seminars. LIFE@LMCST also aims at developing and encouraging enterpreneurship skills among the students. The activities of LIFE are guided by Mr.Ignatious C.A. (Advisor, R & D).

1The core committee of the Lourdes Innovation Facility for Excellence (LIFE) is constituted as below:

1.	**Principal, LMCST**	Chairman
2.	**HOD** (EEE)	Member/Coordinator
3.	**HOD** (ECE)	Member
4.	**HOD** (ME)	Member
5.	**HOD** (CSE)	Member
6.	**HOD** (Civil Engg.)	Member
7.	**HOD** (Dept. of Computer Applications)	Member

8. HOD (Dept. of Management Studies)	Member
9. Prof. Roy K. Varghese	Dept. Coordinator (Applied Sciences)
10. Ms. Haritha Simon	Dept. Coordinator (Dept. of Management Studies)
11. Mr. Daniel C. Ribu	Dept. Coordinator (ME)
12. Ms. Chithira Rakshmi G.	Dept. Coordinator (CSE)
13. Ms. Cibumol B. Babu	Dept. Coordinator (EEE)
14. Ms. Debarati Ganguly	Dept. Coordinator (ECE)
15. Ms. Smrithi Cheriyath	Dept. Coordinator (CE)
16. Ms. Anjana J	Dept. Coordinator (Dept. of Computer Applications)
17. Mr.Ignatious C.A.	Member Secretary

3.7 Industry - Institute - Interaction Cell

An Industry - Institute Interaction are happening at large facilitate greater collaboration of the college with the neighboring as well as global Industries. The various industries initiatives are:

a. Advanced Partnership with Infosys through Campus Connect.

b. Partnership with UST Global

3.8 Parent-Teacher Interaction

Parent Teacher meetings are arranged with a view to maintaining effective interaction between the Institution and the parents. It also meets whenever necessary to discuss the issues connected with the smooth functioning of the College.

3.9 Technical Associations

Each branch of study has a Student's Technical Association which organizes

- Periodic Seminars in emerging areas
- Technical Tours and Visits.
- Programmes for personal and professional development and networking with Technical Experts.

Institutional Membership

LMCST is an Institutional member of the following:

- Institution of Engineers - Life Membership Number : IM-139
- ISTE " : IM-1139
- CSI " : 10144

Student Branches

- **IEEE Student Branch :** Institute of Electrical &Electronics Engineers, Inc., a non-profit organization, is the world's leading professional association for the advancement of technology. The student Branch gives students the opportunity to meet and learn from fellow students, as well as faulty members and professionals in the field.
- **CSI Student Branch:** Computer Society of India is a Professional Body with 72 Chapters and over 511 Students branches in Engineering Colleges throughout India. It has association with similar societies other countries. A CSI student's branch with a membership of over hundred students has been functional since October 2005. Faculties and students of Computer Science & IT Departments actively participate in the activities of CSI.
- **ISTE Student Branch :** The major objective of the Indian Society for Technical Education is to assist and contribute in the production and development of top quality professional engineers and technicians needed by the industries and other organizations

3.10 Alumni Association:

The Lourdes Matha College of Science & Technology Alumni Association (LOMAA) has been registered and the following are the office bearers for 2015-2016.

President	: Principal, LMCST (Ex-Officio)
Vice President	: Mr. Naveen Mohan
Secretary	: Mr. Justin G. Russel (Asst. Prof. Dept of MCA)
Joint Secretary	: Mr. Rinku Mathew
Treasurer	: Ms. Renetha J.B. (Asso. Prof. Dept. of CS/IT)
Immediate Past Secretary	: Mr. Aswin P. Chandran (Asso.Prof. Dept. of CS/IT)

4. Amenities

4.1. College Hostels

Hostel is second home to mould the students as excellent professionals with good discipline and right attitude. The College has excellent residential facilities for the students admitted to the various courses. There are two hostels in the campus. St. Thomas Hostel for Boys and Assisi Hostel for Girls. Hostels have a common room with LED television & cable connection for recereation facilities. The hostels have separate well equipped Mess, Kitchen and Dining Hall, Local/national newspapers are also subscribed with a view to bring the overall development of personality of the boarders into play. There is a strict set of hostel rules regarding general discipline, study time, mess time etc. and all the expected to follow the rules. Raggin in any form in strictly prohibited by law (Kerala prohibition of Ragging Act 1998 section 3 which makes ragging Punishable)

St. Thomas Boys Hostel

St. Thomas Hostel can accomodate 210 inmates. Hostel administration is managed by a Priest, who is the Chief Warden and a team of Wardens drawn from the faculty. Hostel Executive Committee takes decisions on routine matters. The hostel is set-up in a three storeyed building. Biometric system has been introduced to monitor the attendance and presence of students in the hostel. Hostel has full-fledged supporting staff, security staff and other workers. A chapel is provided, so that catholic studens can attend the daily Holy Mass, and prayer meetings. During study time hostel inmates are expected to observe complete silence, they can make personal studies in their own rooms and combined studies in the study hall.

Warden: Rev. Fr. Varghese Edachethra
Phone: No. 9446197209, 0472-2851331

Assisi Ladies Hostel

Assisi Hostel is run by Franciscan Clarist Sisters. This Hostel can accommodate about 75 girls. The Management evinces keen interest in ensuring that the living of the boarders on the campus should be secure, safe and academic oriented. A chapel is provided, so that catholic students

can attend daily Holy Mass, and prayer meetings. Hostel, with its beautifully landscaped and carefully tended garderns, provides and ideal environment for a congenial learning experience.

4.2. Transportation

College Buses will be available for staff and students. They will be plying from various points in Trivandrum, Balaramapuram, Neyyattinkara and Nedumangad to College Campus and back on all working days.

4.3. Canteen

The college is having a modern canteen. More than 200 students and faculty members can be served simultaneously. It houses an elegantly designed kitchen which epitomizes cleanliness.

4.4. Book Stall

A good collection of Technical Books is available in the Booksstall. Stationery items are also available in the shop.

4.5. Robotics club

An industry initiative promoted for naturing the new trends in the field of "Robotics". It is done in partnership with IIT Bombay.

4.6. Photographic Club

It is start up initiative to attract as well as encourage the art of photography. Both the faculty members and students with a taste for this art are participants in the club.

4.7. NSS Unit

The National Service Scheme unit No. 230 believes in serving the rural community surrounding the College and well as celebrating days of National importance.

4.8. Staff Club

It's the forum where both teaching as well as non-teaching staff get together to celebrate festival events like onam and Christmas. It also supports their members and relatives, students in their exigency. The club meets monthly to interact with each other so as to develop a very healthy and strong bond of friendship.

KERALA TECHNOLOGICAL UNIVERSITY

CET Campus, Thiruvananthapuram, Kerala-695016

ORDINANCE

For

Bachelor of Technology B.Tech./B.Tech. (Honours)

In exercise of the Powers conferred under Clause 44 of the Ordinance, the Executive Committee of the University hereby promulgate the Ordinance for the University for the Academic Year 2015-2016.This Ordinance shall come into effect from the date of its publication in the Gazette.

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01 Admission to Bachelor of Technology / B.Tech. / B.Tech. (Honours)
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8. Amendment to Ordinance/Regulations/Rules

Rules to carry out the purpose of the Ordinance

Addendum

1. Admission to Bachelor of Technology / B.Tech. / B.Tech. (Honours)

a. Eligibility for admission to the B.Tech., programme, admission policy and procedure shall be decided from time to time by following the guidelines issued by the Government of Kerala and the Government of India and other statutory body such as AICTE.

b. Subject to Clause 1(a), Admission to B.Tech., shall be based on the guidelines given by the State and Central Governments on reservation. Candidates for admission to B.Tech., programme shall have passed the Higher Secondary Examination, Kerala or 12th Standard V.H.S.E., C.B.S.E., I.S.C or any other examination considered equivalent to the above mentioned ones. Other eligibility criteria for admission is currentlyprescribed by the Government of Kerala through Government orders which is based on the entrance examination conducted by the Commission for Entrance Examinations, Government of Kerala and the marks in the qualifying examination subject to the relaxations allowed for backward classes and other communities as specified from time to time.

c. The Branches of study and number of students admitted are to be based on the approval by the All India Council for Technical Education and the Kerala Technological University.

d. Notwithstanding all that is stated above, the admission policy may be modified from time to time by the University, particularly to confirm to directions from the Government of Kerala and the Government of India.

e. The B.Tech., / B.Tech. (Honours) programme is a credit based programme. The duration of the B. Tech / B. Tech (Honours) programme will normally be four academic years spanning 8 semesters. The maximum duration shall be six academic years spanning 12 semesters.

2. Examination

a. At the end of the semester, end semester examination will be conducted in all lecture based courses offered in the semester and will normally be of three hours duration, unless otherwise specified. Supplementary examinations shall be conducted before the commencement of the next semester, for students who are eligible and have registered for them.

b. Students, who have completed a course but could not write the end semesterexamination for valid reasons like illness or personal exigencies, are allowed to write the supplementary examination or the end semester examination at the next opportunity and earn the credits without having to register for the course again provided they meet other eligibility criteria.

c. The main eligibility criteria for the end semester examination are attendance in the course, internal marks and no pending disciplinary action. The minimum attendance for appearing for the end semester examination is 75% in each course. Further, the internal evaluation marks in the course should be 45% or above. Students who do not meet these eligibility criteria are awarded an FE grade and have to register for the course again.

d. Students who could not write the end semester examination due to health reasons or other exigencies can register for the supplementary examination, with the approval of the principal provided they have 45% or above marks in the internal evaluations for the course. Candidates who received F grade can also write the supplementary examination. Grades awarded in the supplementary examination will be taken as the end semester grades in these courses.

3. Eligibility for Award of Degree

The award of B. Tech. / B. Tech. (Honours) degree shall be based on the recommendation of the Academic Committee and the approval of the Board of Governors and in accordance with the academic regulations, if any, issued for the said purpose by the University.

Award of B. Tech. Degree

A student will be eligible for the award of B. Tech. Degree of the University on satisfying the following requirements.

i) Earned credits for all the core courses and the Project.
ii) Earned the required minimum credits as specified in the curriculum for the branch of study.
iii) No pending disciplinary action.

4. Fee charged by the University

Fee charged for the programme shall be decided by the University from time to time and informed to all concerned for compliance.

5. Discipline of the student – Action against breach of discipline

Every college shall have a Student's Welfare Committee and a Disciplinary Action Committee, constituted by the Principal of the college. Each college should have a Grievance Redressal and Appeals Committee constituted by the Principal to address the grievances of the students and to consider their appeals on any decisions made by the college. Details on the constitution and terms of reference are outlined in 7-x, 7-y, and 7-z.

6. Breach of guidelines and unfair practices in Examinations

These are viewed seriously and appropriate actions are to be taken by the colleges as detailed in 7-x.

a. Language of Instruction and Examination.

Unless otherwise stated, the language of instruction and examinations shall be English.

b. Academic Calendar.

The University shall publish in its website the academic calendar for every academic semester indicating the commencement of the semester and beginning of instruction. It will specify the course

registration and enrolment dates, the schedule for mandatory internal tests for theory courses, dates by which laboratory/practical evaluations are to be completed, date for finalization of internal marks, last instruction day in the semester, planned schedule of end semester examinations and result declaration as well as approved holidays falling within the semester. Schedules for the supplementary examinations and result declaration dates are to be included in the calendar. Summer course schedule and result declaration have also to be indicated in the calendar. Additionally colleges may publish their academic calendar, in line with the University academic calendar, indicating other schedules and events they plan to conduct during the semester.

c. Branches of B. Tech. Programmes.

The Branches of B. Tech. /B. Tech. (Honours) programme offered by the University are listed separately at the end of this Ordinance

d. B. Tech. Programme Structure

i) B. Tech. / B. Tech. (Honours) programme in all branches of study is structured on a credit based system following the semester pattern with continuous evaluation allowing flexibility for students to decide on the duration of programme completion.

ii) The duration for the B. Tech. /B. Tech. (Honours) programme in all branches of study, will normally be 8 semesters.

iii) The maximum duration shall be six academic years spanning 12 semesters.

iv) Each semester shall have 72 instructional days, followed by end semester examinations.

v) A student can opt for B.Tech. (Honours) at the end of the fourth semester.

vi) The curriculum of any branch of the B. Tech. programme is designed to have a minimum of 180 academic credits and 2 additional pass/fail credits, for the award of the degree.

vii) The University follows Credit System and Credits are apportionedamong the following knowledge segments.

B.Tech. Programme

Knowledge Segments	**Credits**
Basic Sciences]	10 [8 Theory+ 2 Labs]
Mathematics	16
Humanities	9
Basic Engineering	29 [25 Theory +4 Labs]
Professional Engineering	89 [80 Theory +9 Labs]
Electives	15
Seminar	2
Comprehensive Viva	2
Design Project	2
Project	6
Total Academic Credits:	**180**
Student's Activities	2 [Audit-Pass/Fail]
Total credits for B.Tech. Degree	182

Credits are assigned to courses based on the following general pattern.

One credit for each lecture hour per week for one semester
One credit for each tutorial hour per week for one semester
One credit for each laboratory/ practical session of 2 or 3 hrs, per week for one semester

viii) In a semester normally up to six lecture based courses and threelaboratory/practical courses, carrying a maximum credit of 26, could be offered.

ix) University may allow students to transfer credits they have earned at other Universities and Academic Institutions, as per the guidelines given by the Academic Committee and approved by the Board of Governors.

x) Student Activities Points:

To be an engineer capable of competing globally, in addition to technical knowledge and skills, students should develop excellent soft skills, nurture team work and leadership qualities and have an entrepreneurial and trail blazing outlook. To achieve this, in addition to academics, students are to actively engage in co-curricular and extracurricular activities. For such activities, points are allotted. On

getting a minimum of 100 activity points the student passes the course and earns credits which do not count for the CGPA but mandatory for the award of the degree. Listing of these activities and the maximum points that could be earned by engaging in them are given at the end of this document. Additional activities could be included in the list with the approval of the Academic Committee.

e. Curriculum, List of Courses and Syllabi

i) Every branch of study in the B.Tech., programme will have a curriculum, list of courses, syllabi and course plans approved by the Academic Committee of the University.

ii) Courses are categorized as Core Theory (CT), Core Practice (CP) and Electives (EL).

iii) Each course has a course number. Course number includes the offering department or knowledge segment code and a three digit number. Knowledge segment code is used when a course is offered by any one or more departments with the same course content and syllabus. Details on this are given under Rule, RU-1.

f. Faculty Advisor/Counsellor

All students shall have faculty advisors whose role will be:-
To guide and help students on academics
To monitor their progress in academics and advise them
To counsel them and hand-hold them in any difficulty

g. Course Registration and Enrolment

It is mandatory for students to register for the courses they want to attend in a semester. Students admitted freshly to the first semester, are advised to register for all courses listed for the semester. However they do not have to enrol for the semester. All other students are required to register at the end of the semester for the courses they desire to take in the coming semester. They have to enrol for these courses at the beginning of the new semester, based on the previous semester results. This allows them to make changes in the list of courses already registered for. Before enrolment, students should clear all dues including any fees to be paid and should not have any disciplinary issues pending. The dates for registration and enrolment will be given in the academic calendar. Any

late registration or enrolment, allowed up to 7 working days from the stipulated date, will attract a late fee.

A student can withdraw from a course or substitute one already registered by another on valid reasons with the approval of the faculty advisor. However this has to be done within seven working days from the commencement of the semester. The maximum number of credits a student can register in a semester is limited to 26.

h. Course Completion and Earning of Credits

Students registered and later enrolled for a course have to attend the course regularly and meet the attendance rules of the university [RU-2] and appear for all the internal evaluation procedures for the completion of the course. Credits for the course are earned only on getting a pass grade in the composite evaluation.

i) Core courses, Prerequisites and Electives

All courses listed in the curriculum, other than the electives, are core courses. Earning credits in the core courses is mandatory for the B. Tech. degree. For electives, failure to earn credits does not necessarily require repeating the course. Instead another approved elective is permitted as a replacement course by the faculty advisor concerned. For some courses there could be a prerequisite course completion requirement for registration.

J) Summer Courses

Students who could not earn the required minimum credits at the end of the second or fourth semester have two options to continue with the studies. They may register again for the courses, when they are offered in the next academic year.However, there is also a provision to run summer courses in failed courses for these students who may register and attend the course and write the final examination. This provision is only for students who have got 45% or more in the internal evaluation for the courses they attended in the regular semester.

Students should have 75% attendance in the summer course to write the examination.

For the final grading their internal evaluation marks obtained in the regularsemester in which they had undergone the course shall be

applicable. Summer courses are to be conducted for a minimum of 20 contact hours for each course. Summer courses are to be offered only at the end of the second and fourth semesters for the courses covered till that semester. They will be conducted either by all colleges or only by some, depending on the number of students registering for them. Details of summer courses planned will be announced by the colleges after the declaration of the even semester results. Final examination for summer courses will be conducted by the University. Based on the availability of faculty and the number of students opting for courses, it will be the prerogative of the colleges to decide on the summer courses to be offered.

Options for the fifth and higher semesters

For higher semesters, i.e., fifth semester onwards, summer courses are not offered. Failed students who have less than 45% marks in internal assessments have to register again for the course in the regular semester in which it is offered and complete the course as per the regulations and appear for the end semester examination. Failed students having 45% marks or more in internal assessments have the option to register again for the course as mentioned above or register only for the end semester examination without attending the course again. A separate registration format will be available for this. This option is available in all semesters.

k) Contact Courses

If a student has to earn credits only just for one course to qualify for the degree after completing eight semesters of study, the college concerned may offer a contact course on a written request by the student. The contact course is considered as fresh registration and is to be offered by the teacher concerned who shall conduct the internal evaluation procedures and allot the marks as per the regulations. Minimum contact hours for the course shall be 20. The final examination will be conducted by the college and shall be monitored by the external academic auditor. Question paper for the examination will be given by the Controller of Examination. No grade above C shall be given for a contact course.

l) Academic Assessment/Evaluation

Academic Evaluation of Courses

University follows a continuous academic evaluation procedure.
Academic evaluation procedure and corresponding weights are as follows:-

a) For theory courses: - 1/3rd weightage for internal evaluation and 2/3rd for end semester examination.

For convenience, the maximum marks for internal evaluation and end semester examination for theory courses are fixed as 50 and 100 respectively.

Scheme of evaluation is as follows.

i) Two internal tests each of 20 marks and of one hour duration. (Internally by the College)

ii) Tutorials/Assignments/Mini Projects carrying 10 marks. (Internally by the College)

iii) End Semester examination carrying 100 marks. (Conducted by the University)

All the above evaluations are mandatory requirements to earn credits. Students who have missed either the first or the second test can register with the consent of the faculty and the Head of the Department (HOD) concerned for a retest which shall be conducted soon after the completion of the second test, but before the end semester examination. The re-test will cover both first and second test course plans. Those who have missed both the tests are not eligible to appear for the end semester examination.

However if one misses both tests due to medical reasons or other personal exigencies, based on genuine evidence, a single test of 2 hour duration for 40 marks will be conducted covering the whole syllabus, before the end semester examinations. Decision on this will be taken by the Principal and verified by the external academic auditor.

b) For Laboratory /Practical /Workshop courses

i) Practical records /Outputs 60 marks (Internally by the College)

ii) Regular class Viva 10 marks (Internally by the College)

iii) Final written test/quiz 30 marks (Internally by the College)

All the above assessments are mandatory to earn credits. If not, the student has to complete the course/assessments during his free time in consultation with the faculty members. On completion of these, grades will be assigned. In case the Practical /Laboratory/Workshop courses are not completed in the semester, grade I (incomplete) will be awarded against the course and the final grade will be given only after the completion of the course/ assessments.

c) Comprehensive Examination

As students appear for placements from seventh semester onwards, comprehensive examination is to be completed in the sixth semester. This examination will be a written cum oral examination covering broadly all courses so far completed [RU-5].

d) Seminar

Each student has to give a seminar on a professional topic of current interest in consultation with the faculty member in charge of the seminar in the Department. The seminar will be evaluated based on RU-6

e) Design Project

Each student or a group of students has to take up a design project. The project topic could be arrived at in consultation with any faculty member in the department. The Evaluation of the project is to be done in two stages. Two project progress evaluations each carrying 20 marks and a final report evaluation and presentation of the project for 60 marks. The project supervisor and two other faculty members from the same or any other department, nominated by the Head of the Department form the evaluation board.

f) Final Semester Project

Students, either individually or in a small batch not exceeding four, have to do a project approved by their faculty supervisor.

Evaluation scheme is given below:-

i) Two progress assessments 20% by the faculty supervisor/s
ii) Final Project Report 30% by the Assessment Board
iii) Project presentation and Viva 50% by the Assessment Board

If the project work is not completed satisfactorily, the student has to put in more work and appear again for assessment on a specified date, not earlier than one month after the first evaluation. If the student fails in the project, a fresh registration for the project for one semester is mandatory.

The project assessment board shall consist of the following members.

Chairman: Head of the Department
Members: Project supervisor/s of the student
One faculty member from the Department

One faculty member from a sister Department
An external expert, either from an academic/research institute or industry

m) Eligibility to Continue

A student has to earn a minimum number of credits in a semester to be eligible to register for the new courses offered in the next semester. In odd semesters if this requirement is not met, the student is to be forewarned and allowed to continue to the next even semester. However at the end of even semesters this requirement will be strictly implemented. Summer courses are offered to those who do not satisfy this norm after the 2nd as well as the 4th semesters. Students who do not meet this requirement are not permitted to register for new courses in the higher semesters. They have to register for the failed courses in normal semesters in which they are offered subject to the limitations imposed by the ordinances and course timetable.

Action plan, for dealing with course arrears in theory courses at the end of each semester to continue with the programme, is given below. Faculty advisors shall monitor advice and support the students in this. Students should be informed about the minimum cumulative credits requirement to register for higher semester courses.

Eligibility Criteria for Registering for Higher Semester Courses

Semester	Allotted Credits	Cumulative Credits	Minimum cumulative credits required to register for courses in higher semesters
First	24	24	Not insisted
Second	23	47	35
Third	24	71	Not insisted
Fourth	23	94	80
Fifth	23	117	Not insisted
Sixth	23	140	126
Seventh	22	162	Not insisted
Eighth	18	180	

n) Course Committees and Class Committees

These committees are to be in place in each college affiliated to the University.

a) Course Committee

This is for common courses (electives are excluded) offered to students admitted for the B. Tech. programme irrespective of their branch of study. Each of such courses will have a course committee constituted by the Principal of the college.

The chairman of the course committee shall be a senior faculty member not offering the course.

Members:-

i) All teachers offering the course.
ii) Four student representatives nominated by the Principal.

b) Class Committee

Beginning from the third semester, all branches of study will have class committees for every semester constituted by the respective Heads of Departments.

The chairman of the committee shall be a senior faculty member who does not offer any course during that semester.

Members:-

i) All faculty members teaching courses in that semester.
ii) Two student representatives nominated by the head of the Department.

The course committees and class committees shall meet at least thrice in a semester – the first at the beginning of the semester, the second and the third after the first and the second internal tests respectively. Both committees should monitor the conduct of the courses, adherence to the course plan and time schedule, completion of the syllabus, standards of internal tests, evaluation process and difficulties faced by the students and take suitable remedial actions at the appropriate time. At the end of the semester, the committee should meet without student representatives to review the conduct of the course and finalize the internal assessment marks and approve them.

o) Eligibility for writing the end semester examination and for grading

Students with 45% or more marks in internal assessment in a course shall only be permitted to write the end semester examination in that course. Those with less than 45% internal marks shall be awarded FE grade and have to register for the course again.

A student should have a minimum of 45% marks in the end semester examination to be eligible for grading in a course. Otherwise he/she will be considered to have failed in the course and an F grade will be awarded.

Internal marks given to the students who got 45% marks or more in the end semester examination shall be regulated in line with the end semester examination performance. Internal mark percentage shall not exceed 25% over the end semester mark %.

(For example if the end semester mark % is 45, then the maximum internal mark % is to be 45+25 = 70 %.)

In case the student writes the supplementary examination, the mark got in that will be taken into consideration for regulating the internal marks.

Those who have more than 45% marks in the end semester examination are awarded the grade based on both internal assessment and end semester examination marks. A student earns credits for a course if the grade is P or above.

p) Award of Grades

Grading is based on the % marks obtained by the student in a course, as given in 7q. The grade card will only give the grades against the courses the student has registered.

Semester grade card will give the grade for each registered course, Semester Grade Point Average (SGPA) for the semester as well as Cumulative Grade Point Average (CGPA).

q) Grades and Grade Points

Grades and Grade Points as per UGC guidelines is to be followed by the University

Grades	Grade Point (GP)	% of Total Marks obtained in the course
O (Outstanding)	10	90% and above
A+ (Excellent)	9	85% and above but less than 90%
A (Very Good)	8	80% and above but less than 85%
B+ (Good)	7	70% and above but less than 80%
B (Above Average)	6	60% and above but less than 70%
C (Average)	5	50% and above but less than 60%
P (Pass)	4	45% and above but less than 50%
F (Fail) 0 Less than		45%
FE	0	Failed due to eligibility criteria [7-o]
I Course Incomplete		

SGPA and CGPA are calculated based on the above grading norms and are explained at the end of this document.

r) Academic Auditing

The University shall have a detailed academic auditing procedure in place comprising of an internal academic auditing cell within the colleges and an external academic auditing for each college. The internal academic auditing cell in each college shall oversee and monitor all the academic activities including all internal evaluations and examinations. This cell is to prepare academic audit statements for each semester at regular intervals. These reports are to be presented to the external academic auditor approved by the University, who will use it as a reference for his independent auditing and for the final report to the University.

Academic auditing shall cover:-

i) Course delivery covering syllabus, adherence to course plan, quality of question papers for internal examinations, internal evaluation, laboratory experiments, practical assignments, mini projects and conduct of practical classes and their evaluation.

ii) Co-curricular and Extra-curricular activities available for students, their organization and the mechanism of monitoring of activities points earned by the students.

iii) Academic functioning of the college encompassing students, faculty andcollege administration covering punctuality, attendance, discipline, academic environment, academic accountability, academic achievements and benchmarking.

s) Break of Study

A student may break study for a maximum duration of two semesters, preferably in one academic year, to initiate start-up ventures, product development etc. This is however permitted only on successfully completing the courses listed out in the first four semesters. Request for this with ample evidence to the seriousness of the venture should be forwarded to the college principal for approval. [RU-3]

Break of study on serious health reasons is also permitted with the approval of the college Principal. [RU-3]

All such cases of break of study are to be reported to the University. In both the cases, the maximum duration for completing the B. Tech. programme will still be twelve semesters.

t) Revaluation and Grade Improvement

There is no provision for revaluation of the end semester answer books or for improving the grade.

However, the student is permitted to check the answer books of the end semester examination after the results are declared. Any discrepancy in evaluation could be brought to the notice of the teacher concerned who will initiate appropriate action on this. The decision of the Controller of Examination shall be final on this.

u) Grade Cards

Students who have written the end semester examination will be given the grade cards for the registered courses, in every semester by the respective colleges. On earning the required credits for the degree, a consolidated grade sheet for the B. Tech programme will be given by the University.

v) B. Tech Degree

B.Tech. degree will not have any classifications like distinction or first class.

w) B. Tech. (Honours)

Accredited departments in institutions, having at least two post graduate programmes, may offer B. Tech. (Honours). It should be noted that

students with a CGPA above 8 at the end of the fourth semester and having no credit arrears only are eligible for this option. As only selected institutions may have this provision, students cannot demand this or move later to an institute where this is available. Students have to earn 12 additional credits to get B. Tech (Honours). Furthermore their CGPA at the end of the programme should be 8 or higher. Those who opted for B. Tech (Honours) but unable to earn the required additional credits in 8 semesters or whose final CGPA is less than 8 shall automatically fall back to the B. Tech. programme. However, additional course credits and the grades thus far earned by them will be shown in the grade card but not included for the CGPA.

x) Academic Discipline and Malpractices in Examinations

Every student is required to observe discipline and decorous behaviour. Any act of indiscipline, misbehaviour and unfair practice in examinations will be referred to the Disciplinary Action Committee (DAC). Malpractices in examinations shall be viewed seriously and any such incident observed or reported by a faculty member or an invigilator associated with the examinations shall be reported to the Principal who in turn shall refer it to DAC. On the basis of the report and evidence available or gathered, DAC shall immediately initiate an enquiry giving the concerned student a chance to explain his/her case. Based on this the committee shall recommend the course of action in line with the guidelines formulated for this by the Controller of Examination of the University and forward it to the Principal for action.

Actions are to be based on the severity of the offence and are to be dealt with, on a course basis. Guidelines on this shall be given by the Controller of Examination which is to be followed by the Disciplinary Action Committee of the college.

The student may appeal to the Grievances and Appeals Committee for a relook on the matter. Based on the committee's report, the Principal shall take a final decision on the matter.

DAC shall be headed by a department head and shall have three other faculty members drawn from different departments as members. In case of malpractices in end semester examinations, the report given by the college DAC and the action taken by the Principal shall be intimated to the Controller of Examination of the University

y) Student's Welfare Committee

Every college shall have a Student's Welfare Committee, constituted by the Principal of the college. This committee shall have at least three faculty members as members and the chairman shall be a senior faculty member in the rank of a Professor. This committee is entrusted with the task of looking after the welfare of the students by taking appropriate steps with the concurrence of the principal.

z) Grievances and Appeals Committee

Each college should have a Grievances Redress Committee constituted by the Principal to address the grievances of the students and to consider their appeals on any decisions made by the college. This committee consisting of at least three faculty members and chaired by a senior professor shall look into student's grievances and appeals and give its recommendations to the Principal for action.

8) Amendment to Ordinance/ Regulations/Rules

Notwithstanding all that has been stated above, the University has the right to modify any of the above Ordinance/Rules/regulations from time to time.

RULES:

RU-1 Course Code and Course Number

Each course is identified by a course code and a three digit number. The two letter code refers to the department offering the course or the knowledge segment of the course. The knowledge segment code is used when the course is to be offered by different departments either individually or together but having the same syllabus and course plan.

Course Number: MA 101 -This refers to a course in Mathematics with the course number 101.

Course Number: BE 102 - This refers to a course in Basic Engineering.

Course Number is a three digit number and the first digit refers to the Academic year in which the course is normally offered, i.e. 1, 2, 3, or 4 for the B. Tech. Programme of four year duration. Of the other two digits, the last digit identifies whether the course is offered normally in the odd (odd number), even (even number) or in both the semesters (zero). The middle number could be any digit.

MA 101 is a course in Mathematics offered in the first semester.
EE 344 is a course in Electrical Engineering offered in the sixth semester.
PH 110 is a course in Physics offered both the first and second semesters.
BE 102 is a course in Basic Engineering offered by one or many departments.

These course numbers are to be given in the curriculum and syllabi.

RU-2 Attendance

Attendance is marked for each course. While 75% attendance is mandatory for writing the end semester examination in that course, students are expected to have 100% attendance. However under unavoidable circumstances students are permitted to take leave. Leave is normally sanctioned for any approved activity taken up by students outside the college covering sports and other extracurricular activities. Leave is also permitted on medical grounds or on personal exigencies. Leave of absence for all these is limited to 25% of the academic contact hours for the course.

In case of long illness or major personal tragedies/contingencies the college Principal can relax the minimum attendance requirement to 60%, to write the end semester examination. This is permitted for one or more courses registered in the semester. Principal shall keep all records which led to his decision on attendance, for verification by the Academic Auditor. However this concession is applicable only to any two semesters during the entire programme. In case of prolonged illness, break of study is permitted as per RU-3.

RU-3 Break of Study

A student is permitted to have a break of study.

i) In case of accident or serious illness needing prolonged hospitalization and rest.
ii) In case the student has a bright idea and would like to initiate a start-up venture or develop a new product.
iii) In case of any personal reasons that need a break in study.

For break of study due to illness, student should submit all necessary medical reports together with the recommendation of the doctor treating

him giving definite reasons for break of study and its duration. Before joining back the student should submit the fitness certificate from the doctor who treated him.

Students who want to initiate a start-up venture or a product development, have to submit a project report, clearly indicating the purpose, action plan, technical details, funding details and future plans to the college Principal. The Principal shall evaluate the proposal by constituting an expert team consisting of a technocrat and a bank executive and take an appropriate decision based on the team's recommendation. In the semester system followed by the University, break of study for an academic year is preferred over a semester break.

Students who want a break in study due to personal reasons shall convince the Principal on the genuine need for it by giving authentic evidence for the same.

RU-4 Leave of Absence

Students who want to take leave under RU2 have to submit a leave letter to the teacher conducting the course. This letter is to be forwarded to the Head of the Department with recommendation of the teacher indicating the total leave of absence the student has so far availed. Leave is to be sanctioned by the Head of the Department. For medical leave over three days, medical certificate indicating the need for leave is required. After any medical leave exceeding five instruction days, on rejoining, the student has to produce the fitness certificate given by the doctor.

RU-5 Comprehensive Examination

This examination consists of two parts. Part one a written test and the other an oral one.

The written examination shall be objective type of 1 hour duration and shall have 50 marks and is to be conducted by the concerned department. Chairman of the oral examination board shall be a senior faculty in the department and the members include two other faculty members of the department and an external expert from another academic institute or an industry. Oral examination shall carry 50 marks. Comprehensive examination may be conducted any time during the 6th semester with sufficient notice given to the students.

RU-6 Seminar

Students have to prepare a detailed report on the topic of the seminar and submit it to the teacher concerned. The seminar is to be of 20 minutes duration with another 5 minutes given for questions and answers. All students in the class have to attend the seminar without fail. Evaluation will be based on the report, seminar presentation as well as on the ability of the student to answer the questions put forward. Faculty member in charge of the seminar and another faculty member in the department nominated by the Head of the Department are the evaluators for the seminar. Distribution of marks for the seminar is as follows.

Marks for the report: 30%
Presentation: 40%
Ability to answer questions on the topic: 30%

RU-7 Ragging

Ragging of any nature is a criminal and non-bailable offence. Involvement in ragging shall lead to stringent punishment, including imprisonment as per the law of the land. A student, whose involvement in ragging is established, shall be summarily dismissed from the college. Each student of the Institute, along with his/her parent, is required to give an undertaking in this regard and the same is to be submitted at the time of registration.

Addendum:-

1. Calculation of SGPA/CGPA

Semester Grade Point Average (SGPA) and Cumulative Grade Point Average (CGPA) are calculated as follows.

SGPA = $\Sigma(Ci \times GP_i)/\Sigma C_i$ where Ci is the credit assigned for a course and GPi is the grade point for that course. Summation is done for all courses registered by the student in the semester. Here the failed courses are also accounted.

CGPA = $\Sigma(C_i \times GP_i)/\Sigma C_i$ where Ci is the credit assigned for a course and GPi is the grade point for that course. Summation is done for all courses registered by the student during all the semesters for which the CGPA is

needed. Here the failed courses are also accounted. CGPA of all courses passed may also be given.

CGPA for the B. Tech programme is arrived at by considering all course credits that are needed for the degree and their respective grade points.

2. Student Activity Points

Activities that a student can engage in and the maximum quantum of points that can be earned from them are listed below.

i) National Level Activities

Code	Name of activity	Max. Activity Points	Minimum Duration
NA1	N S O	70	Two Semesters
NA2	N C C	70	Two Semesters
NA3	N S S	70	Two Semesters

ii) College Level Activities

CA1	Active Member/Office bearer of Professional Societies (Student Chapters)	30/40	Four Semesters
CA2	Elected Office bearer of Student forums	30	Two semesters
CA3	Member/Captain- College Athletic/ Games teams	20/30	Two Semesters
CA3	Executive Member of Student Clubs	20	Two Semesters
CA4	Volunteer for important College functions	20	Two Semesters
CA5	Committee member/ Organizer of Tech Fest/Cultural Fest/ Conference	20/30	Two Semesters
CA6	Placed within top three in Paper presentation/debate/ cultural competitions etc	30	
CA7	Placed within top three in State level Sports/Games/	30	

Additional 20 points are given for CA3/CA7 if the achievement is at the national level.

iii) Entrepreneurship

EA1	Any Creative Project execution	40
EA2	Awards for Projects	60
EA3	Initiation of Start-ups	60
EA4	Attracted Venture Capital	80
EA5	Filed a Patent	80
EA6	Completed Prototype Development	80

iv) Self Initiatives

SA1	Attend a National Conference	20
SA2	Attend an Int. National Conference	30
SA3	Published/ got an Award for a Technical paper.	30/40
SA4	Organiser of student level Technical Conf/Competition	30
SA5	Foreign language skills	50
SA6	Online courses taken& completed	50

MODIFIED CURRICULUM FOR B.TECH DEGREE SEMESTERS I AND II

2016

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SEMESTER I

Slot	Course No.	Subject	L-T-P	Hours	Credits
A	MA101	Calculus	3-1-0	4	4
B	PH100	Engineering Physics	3-1-0	4	4
(1/2)	CY100	Engineering Chemistry	3-1-0	4	4
C	BE100	Engineering Mechanics	3-1-0	4	4
(1/2)	BE110	Engineering Graphics	1-1-3	5	3
D	BE101-0X	Introduction to _Engineering	2-1-0	3	3
E	BE103	Introduction to Sustainable Engg..	2-0-1	3	3
F	CE100	Basics of Civil Engineering	2-1-0	3	3
	ME100	Basics of Mechanical Engg..	2-1-0	3	3
(1/4)	EE100	Basics of Electrical Engineering	2-1-0	3	3
	EC100	Basics of Electronics Engineering	2-1-0	3	3
S	PH110	Engineering Physics Lab	0-0-2	2	1
(1/2)	CY110	Engineering Chemistry Lab	0-0-2	2	1
T (2/4)	CE110/ME110/ EE110/EC110/ CS110/CH110	Basic Engineering Workshops (CS110 for CS and related + branches and CH110 for CH and related branches only)	0-0-2 0-0-2	2 2	1 1
U		U100 Language lab/CAD Practice/Bridge courses/Micro Projects etc	0-0-(2/3)	(2/3)	
				30	24/23
V		V100 Entrepreneurship/ TBI/NCC/NSS/ Physical Edn. etc	0-0-2	2	Activity points

Notes:

1. Basic Engineering course of the parent branch included as Introduction to _____ Engineering. (3 credits)

List of Courses offered under BE 101-0X and Branches associated with each course

1. BE101-01 Introduction to Civil Engineering

Civil Engineering

2. BE101-02 Introduction to Mechanical Engineering Sciences

Aeronautical Engineering, Automobile Engineering, Food Technology, Industrial Engineering, Mechanical Engineering, Mechanical Engineering (Automobile), Mechanical Engineering (Production), Mechatronics, Metallurgy, Naval Architecture & Ship Building , Production Engineering.

3. BE101-03 Introduction to Electrical Engineering

Electrical & Electronics Engineering.

4. BE101-04 Introduction to Electronics Engineering

Applied Electronics & Instrumentation Engineering, Biomedical Engineering, Electronics & Biomedical Engineering, Electronics & Communication Engineering, Electronics & Instrumentation Engineering, Instrumentation & Control Engineering.

5. BE101-05 Introduction to Computing and Problem Solving

Computer Science & Engineering, Information Technology.

6. BE101-06 Introduction to Chemical Engineering

Biotechnology/ Biotechnology & Biochemical Engineering, Chemical Engineering,

2. Institutions can recommend one of four other Basic Engineering courses offered during this semester for every branch. However, the basic course selected should exclude the one corresponding to their branch of specialization. eg. Student who took Introduction to Civil Engineering should not take Basics of Civil Engineering; student who took Introduction to Electrical Engineering should not take Basics of Electrical Engineering

3. The six basic engineering workshops will be connected with the Introductory or Basics of Engineering courses offered. The students should attend two workshops in Semester 1 and two in Semester 2.
For example, students opting Introduction to Civil Engineering or Basics of Civil Engineering should attend the Civil Engineering Workshop, students opting Introduction to Mechanical Engineering or Basics of Mechanical Engineering should attend the Mechanical Engineering Workshop, students opting Introduction to Chemical Engineering should attend the Chemical Engineering Workshop and students opting Introduction to Computing and Problem Solving should attend the Computer Science Workshop etc. In addition, the students should attend one more workshop course in Semester 1, corresponding to the other Basic Engineering course they had been assigned by the institution. The workshop

courses corresponding to both introductory and basic courses are same. However, the institutions may allot exercises or experiments listed in the syllabus based on the contents of corresponding theory course.

4. Engineering Physics and Engineering Chemistry shall be offered in both semesters. Institutions can advise students belonging to about 50% of the number of branches in the institution to opt for Engineering Physics in S1 and Engineering Chemistry in S2 and vice versa. Students opting for Engineering Physics in S1 should attend Engineering Physics Lab in S1 and students opting for Engineering Chemistry in S1 should opt for Engineering Chemistry Lab in S1.

5. Engineering Mechanics and Engineering Graphics shall be offered in both semesters. Institutions can advise students belonging to about 50% of number of branches in the institution to opt for Engineering Mechanics in Semester 1 and Engineering Graphics in Semester 2 and vice versa.

6. It may be noted that for items 4 and 5 above, all students belonging to a particular branch of study must be assigned the same course during one semester. For example, all students belonging to Electrical and Electronics Engineering in an institution may be assigned Engineering Physics and Engineering Physics lab, while all students in Electronics and Communication Engineering branch may be assigned Engineering Chemistry and Chemistry lab. Likewise, all students in Civil Engineering branch may be assigned Engineering Graphics, while all students in Mechanical Engineering branch may be allotted the Engineering Mechanics in Semester 1 and vice versa in Semester 2.

7. For Course U, the Institutions should conduct diagnostic tests to identify the training requirements of each student and advise them to attend the suitable programme. The students who excel in all diagnostic tests can be assigned Micro projects under the guidance of faculty members. The classes for which BE110 Engineering Graphics is offered under slot C may be divided into two batches and these batches shall attend CAD Practice lab & Language Lab in alternate weeks.

8. Course V is for earning activity points outside academic hours, the details are covered in rules and regulations of KTU.

SEMESTER II

Slot	Course No.	Subject	L-T-P	Hours	Credits
A	MA102	Differential Equations	3-1-0	4	4
B	PH100	Engineering Physics	3-1-0	4	4
(1/2)	CY100	Engineering Chemistry	3-1-0	4	4
C	BE100	Engineering Mechanics	3-1-0	4	4
(1/2)	BE110	Engineering Graphics	1-1-3	5	3
D	BE102	Design & Engineering	2-0-2	4	3
	CE 100	Basics of Civil Engineering	2-1-0	3	3
E, F	ME 100	Basics of Mechanical Engg..	2-1-0	3	3
(2/4)	EE 100	Basics of Electrical Engineering	2-1-0	3	3
	EC 100	Basics of Electronics Engineering	2-1-0	3	3
	CS 100	Computer Programming (Only for CSE & IT branches)	2-1-0	3	3
S	PH110	Engineering Physics Lab	0-0-2	2	1
(1/2)	CY110	Engineering Chemistry Lab	0-0-2	2	1
T	CE110/ME110/ EE110/EC110	Basic Engineering Workshops	0-0-2	2	1
	CS 120	Computer Programming Lab (only for CSE & IT Branches)	+		
(2/4)			0-0-2	2	1
U		U100 Language lab / CAD Practice/ Bridge courses/ Micro Projects etc	0-0-(1/2)	(1/2)	
				30	24/23
V		V100 Entrepreneurship / TBI/NCC/NSS/ Physical Edn. etc	0-0-2	2	Activity points

Note 1: Institutions can assign two of four of Basics of Engineering courses not already taken by the student in the previous semester and the corresponding Workshop courses in Semester 2. CS 100 Basics of Computer Programming & CS120 Computer Programming Lab are mandatory for Computer Science & Engineering and Information Technology branches. Other branches are not allowed to opt these courses.

Note 2: For Course U, the classes for which BE110 Engineering Graphics is offered under slot C may be divided into two batches and these batches shall attend CAD Practice lab & Language Lab in alternate weeks.

Note: The Curriculum for Semesters I and II 2015 is slightly modified. The modifications are highlighted in red colour. The modified curriculum will not affect failed students of 2015 batch

Curriculum
for
B.Tech Degree
Semesters III to VIII
2016

BRANCH: Civil Engineering
SEMESTER - 3

Course Code	Course Name	L-T-P	Credits	Exam Slot
MA201	Linear Algebra & Complex Analysis	3-1-0	4	A
CE201	Mechanics of Solids	3-1-0	4	B
CE203	Fluid Mechanics	I 3-1-0	4	C
CE205	Engineering Geology	3-0-1	4	D
CE207 HS200/	Surveying	3-0-0 3-0-0/	3 3	E F
HS210	Business Economics/Life Skills	2-0-2		
CE231	Civil Engineering Drafting Lab	0-0-3	1	S
CE233	Surveying Lab	0-0-3	1	T

Total Credits = 24 Hours: 28/29
Cumulative Credits= 71

BRANCH: Civil Engineering
SEMESTER - 4

Course Code	Course Name	L-T-P	Credits	Exam Slot
MA202	Probability Distributions, Transforms and Numerical Methods	3-1-0	4	A
CE202	Structural Analysis I	3-1-0	4	B
CE204	Construction Technology	4-0-0	4	C
CE206	Fluid Mechanics II	3-0-0	3	D
CE208	Geotechnical Engineering I	3-0-0	3	E
HS210/ HS200	Life Skills/Business Economics	2-0-2/ 3-0-0	3	F
CE232	Materials Testing Lab I	0-0-3	1	S
CE234	Fluid Mechanics Lab	0-0-3	1	T

Total Credits = 23 Hours 28/27
Cumulative Credits= 94

BRANCH: Civil Engineering

SEMESTER - 5

Course Code	Course Name	L-T-P	Credits	Exam Slot
CE301	Design of Concrete Structures I	3-1-0	4	A
CE303	Structural Analysis II	3-0-0	3	B
CE305	Geotechnical Engineering II	3-0-0	3	C
CE307	Geomatics	3-0-0	3	D
CE309	Water Resources Engineering Elective 1	3-0-0 3-0-0	3 3	E F
CE341	Design Project	0-1-2	2	S
CE331	Materials Testing Lab II	0-0-3	1	T
CE333	Geotechnical Engineering Lab	0-0-3	1	U

Total Credits = 23 Hours: 28 **Cumulative Credits= 117**

Elective 1:- 1. CE361 Advanced Concrete Technology
2. CE363 Geotechnical Investigation
3. CE365 Functional Design of Buildings
4. CE367 Water Conveyance Systems
5. CE369 Disaster Management
6. CE371 Environment and Pollution
7. CE373 Advanced Mechanics of Materials

BRANCH: Civil Engineering

SEMESTER - 6

Course Code	Course Name	L-T-P	Credits	Exam Slot
CE302	Design of Hydraulic Structures	4-0-0	4	A
CE304	Design of Concrete Structures II	3-0-0	3	B
CE306	Computer Programming and Computational Techniques	3-0-0	3	C
CE308	Transportation Engineering I	3-0-0	3	D
HS300	Principles of Management	3-0-0	3	E
	Elective 2	3-0-0	3	F
CE332	Transportation Engineering Lab	0-0-3	1	S
CE334	Computer Aided Civil Engineering Lab	0-0-3	1	T
CE352	Comprehensive Exam 0-1-1 2 U			

Total Credits = 23 Hours: 27 **Cumulative Credits= 140**

Elective 2:-

1. CE362 Ground Improvement Techniques
2. CE364 Advanced Foundation Engineering
3. CE366 Traffic Engineering and Management
4. CE368 Prestressed Concrete
5. CE372 Engineering Hydrology
6. CE374 Air Quality Management

BRANCH: Civil Engineering

SEMESTER - 7

Course Code	Course Name	L-T-P	Credits	Exam Slot
CE401	Design of Steel Structures	4-0-0	4	A
CE403	Structural Analysis III	3-0-0	3	B
CE405	Environmental Engineering I	-0-0	3	C
CE407	Transportation Engineering II	3-0-0	3	D
CE409	Quantity Surveying and Valuation	3-0-0	3	E
	Elective	3 3-0-0	3	F
CE451	Seminar & Project Preliminary	0-1-4	2	S
CE431	Environmental Engineering Lab	0-0-3	1	T

Total Credits = 22 Hours: 27
Cumulative Credits= 162

Elective 3:-

1. CE461 Water Hydrodynamics and Coastal Engineering
2. CE463 Bridge Engineering
3. CE465 Geo-Environmental Engineering
4. CE467 Highway Pavement Design
5. CE469 Environmental Impact Assessment
6. CE471 Advanced Structural Design
4. CE473 Advanced Computational Techniques and Optimization

BRANCH: Civil Engineering

SEMESTER - 8

Course Code	Course Name	L-T-P	Credits	Exam Slot
CE402	Environmental Engineering II	3-0-0	3	A
CE404	Civil Engineering Project Management	3-0-0	3	B
	Elective	4 3-0-0	3	C
	Elective 5 (Non Departmental)	3-0-0	3	D
CE492	Project		6	

Total Credits = 18 **Hours: 30**

Cumulative Credits= 180

Elective 4:-

1. CE462 Town and Country Planning
2. CE464 Reinforced Soil Structures and Geosynthetics
3. CE466 Finite Element Methods
4. CE468 Structural Dynamics and Earthquake Resistant Design
5. CE472 Transportation Planning
6. CE474 Municipal Solid Waste Management

BRANCH: *Computer Science & Engineering*

SEMESTER - 3

Course Code	Course Name	L-T-P	Credits	Exam Slot
MA201	Linear Algebra & Complex Analysis	3-1-0	4	A
CS201	Discrete Computational Structures	3-1-0	4	B
CS203	Switching Theory and Logic Design	3-1-0	4	C
CS205	Data Structures	3-1-0	4	D
CS207	Electronics Devices & Circuits	3-0-0	3	E
HS210/ HS200	Life Skills/Business Economics	2-0-2/ 3-0-0	3	F
CS231	Data Structures Lab	0-0-3	1	S
CS233	Electronics Circuits Lab	0-0-3	1	T

Total Credits = 24 Hours: 28/29

Cumulative Credits= 71

BRANCH: *Computer Science & Engineering*

SEMESTER - 4

Course Code	Course Name	L-T-P	Credits	Exam Slot
MA202	Probability Distributions, Transforms and Numerical Methods	3-1-0	4	A
CS202	Computer Organization and Architecture	3-1-0	4	B
CS204	Operating Systems	3-1-0	4	C
CS206	Object Oriented Design and Programming	2-1-0	3	D
CS208	Principles of Database Design	2-1-0	3	E
HS200/ HS210	Business Economics/Life Skills	3-0-0/ 2-0-2	3	F
CS232	Free and Open Source Software Lab	0-0-3	1	S
CS234	Digital Systems Lab	0-0-3	1	T

Total Credits = 23 Hours 28/27 **Cumulative Credits= 94**

BRANCH: Computer Science & Engineering

SEMESTER - 5

Course Code	Course Name	L-T-P	Credits	Exam Slot
CS301	Theory of Computation	3-1-0	4	A
CS303	System Software	2-1-0	3	B
CS305	Microprocessors and Microcontrollers	2-1-0	3	C
CS307	Data Communication	3-0-0	3	D
CS309	Graph Theory and Combinatorics Elective 1	2-0-2 3-0-0	3 3	E F
CS341	Design Project	0-1-2	2	S
CS331	System Software Lab	0-0-3	1	T
CS333	Application Software Development Lab	0-0-3	1	U

Total Credits = 23 Hours: 29 **Cumulative Credits= 117**

Elective 1:- 1. CS361 Soft Computing
2. CS363 Signals and Systems
3. CS365 Optimization Techniques
4. CS367 Logic for Computer Science
5. CS369 Digital System Testing & Testable Design

BRANCH: Computer Science & Engineering

SEMESTER - 6

Course Code	Course Name	L-T-P	Credits	Exam Slot
CS301	Theory of Computation	3-1-0	4	A
CS302	Design and Analysis of Algorithms	3-1-0	4	A
CS304	Compiler Design	3-0-0	3	B
CS306	Computer Networks	3-0-0	3	C
CS308	Software Engineering and Project Management	3-0-0	3	D
HS300	Principles of Management	3-0-0	3	E
	Elective 2	3-0-0	3	F
CS332	Microprocessor Lab	0-0-3	1	S
CS334	Network Programming Lab	0-0-3	1	T
CS352	Comprehensive Exam	0-1-1	2	U

Total Credits = 23 Hours: 27 **Cumulative Credits= 140**

Elective 2:-

1. CS362 Computer Vision
2. CS364 Mobile Computing
3. CS366 Natural Language Processing
4. CS368 Web Technologies
5. CS372 High Performance Computing

BRANCH: Computer Science & Engineering

SEMESTER - 7

Course Code	Course Name	L-T-P	Credits	Exam Slot
CS401	Computer Graphics	4-0-0	4	A
CS403	Programming Paradigms	3-0-0	3	B
CS405	Computer System Architecture	3-0-0	3	C
CS407	Distributed Computing	3-0-0	3	D
CS409	Cryptography and Network Security	3-0-0	3	E
	Elective 3	3-0-0	3	F
CS451	Seminar & Project Preliminary	0-1-4	2	S
CS431	Compiler Design Lab	0-0-3	1	T

Total Credits = 22 Hours: 27 **Cumulative Credits= 162**

Elective 3:-

1. CS461 Computational Geometry
2. CS463 Digital Image Processing
3. CS465 Bio Informatics
4. CS467 Machine Learning
5. CS469 Computational Complexity

BRANCH: Computer Science & Engineering

SEMESTER - 8

Course Code	Course Name	L-T-P	Credits	Exam Slot
CS402	Data Mining and Ware Housing	3-0-0	3	A
CS404	Embedded Systems	3-0-0	3	B
	Elective 4	3-0-0	3	C
	Elective 5 (Non Departmental)	3-0-0	3	D
CS492	Project		6	

Total Credits = 18 Hours: 30 Cumulative Credits= 180

Elective 4:-

1. CS462 Fuzzy Set Theory and Applications
2. CS464 Artificial Intelligence
3. CS466 Data Science
4. CS468 Cloud Computing
5. CS472 Principles of Information Security

BRANCH: Electrical & Electronics Engineering

SEMESTER - 3

Course Code	Course Name	L-T-P	Credits	Exam Slot
MA201	Linear Algebra & Complex Analysis	3-1-0	4	A
EE201	Circuits and Networks	3-1-0	4	B
EE203	Analog Electronic Circuits	3-1-0	4	C
EE205	DC Machines and Transformers	3-1-0	4	D
EE207	Computer Programming	2-1-0	3	E
HS200/ HS210	Business Economics/Life Skills	3-0-0/ 2-0-2	3	F
EE231	Electronic Circuits Lab	0-0-3	1	S
EE233	Programming Lab	0-0-3	1	T

Total Credits = 24 Hours: 28/29 Cumulative Credits= 71

BRANCH: Electrical & Electronics Engineering

SEMESTER - 4

Course Code	Course Name	L-T-P	Credits	Exam Slot
MA202	Probability Distributions, Transforms and Numerical Methods	3-1-0	4	A
EE202	Synchronous and Induction Machines	3-1-0	4	B
EE204	Digital Electronics and Logic Design	2-1-0	3	C
EE206	Material Science	3-0-0	3	D
EE208	Measurements and Instrumentation	3-1-0	4	E
HS210/ HS200	Life Skills/Business Economics	2-0-2/ 3-0-0	3	F
EE232	Electrical Machines Lab I	0-0-3	1	S
EE234	Circuits and Measurements Lab	0-0-3	1	T

Total Credits = 23 Hours 28/27 Cumulative Credits= 94

BRANCH: Electrical & Electronics Engineering

SEMESTER - 5

Course Code	Course Name	L-T-P	Credits	Exam Slot
EE301	Power Generation, Transmission and Protection	3-1-0	4	A
EE303	Linear Control Systems	2-1-0	3	B
EE305	Power Electronics	3-0-0	3	C
EE307	Signals and Systems	3-0-0	3	D
EE309	Microprocessor and Embedded Systems	2-1-0	3	E
	Elective 1	3-0-0	3	F
EE341	Design Project	0-1-2	2	S
EE331	Digital Circuits and Embedded Systems Lab	0-0-3	1	T
EE333	Electrical Machines Lab II	0-0-3	1	U

Total Credits = 23 Hours: 28 Cumulative Credits= 117

Elective 1:- 1. EE361 Object Oriented Programming
2. EE363 Computer Organization and Architecture
3. EE365 Digital System Design
4. EE367 New and Renewable Energy Systems
5. EE369 High Voltage Engineering

BRANCH: Electrical & Electronics Engineering

SEMESTER - 6

Course Code	Course Name	L-T-P	Credits	Exam Slot
EE302	Electromagnetics	2-1-0	3	A
EE304	Advanced Control Theory	3-1-0	4	B
EE306	Power System Analysis	3-0-0	3	C
EE308	Electric Drives	3-0-0	3	D
HS300	Principles of Management	3-0-0	3	E
	Elective 2	3-0-0	3	F
EE332	Systems and Control Lab	0-0-3	1	S
EE334	Power Electronics & Drives Lab	0-0-3	1	T
EE352	Comprehensive Exam	0-1-1	2	U

Total Credits = 23 Hours: 27 Cumulative Credits= 140

Elective 2:-

1. EE362 Data Structures and Algorithms
2. EE364 Switched Mode Power Converters
3. EE366 Illumination Technology
4. EE368 Soft Computing
5. EE372 Biomedical Instrumentation

BRANCH: Electrical & Electronics Engineering

SEMESTER - 7

Course Code	Course Name	L-T-P	Credits	Exam Slot
EE401	Electronic Communication	2-1-0	3	A
EE403	Distributed Generation and Smart Grids	3-0-0	3	B
EE405	Electrical System Design	3-1-0	4	C
EE407	Digital Signal Processing	3-0-0	3	D
EE409	Electrical Machine Design	3-0-0	3	E
	Elective	3 3-0-0	3	F
EE451	Seminar & Project Preliminary	0-1-4	2	S
EE431	Power System Lab	0-0-3	1	T

Total Credits = 22 Hours: 27 Cumulative Credits= 162

Elective 3:-

1. EE461 Modern Operating Systems
2. EE463 Computer Aided Power Systems Analysis
3. EE465 Power Quality
4. EE467 Nonlinear Control Systems
5. EE469 Electric and Hybrid Vehicles

BRANCH: Electrical & Electronics Engineering

SEMESTER - 8

Course Code	Course Name	L-T-P	Credits	Exam Slot
EE402	Special Electric Machines	3-0-0	3	A
EE404	Industrial Instrumentation & Automation	3-0-0	3	B
	Elective	4 3-0-0	3	C
	Elective 5 (Non Departmental)	3-0-0	3	D
EE492	Project 6			

Total Credits = 18 Hours: 30 Cumulative Credits= 180

Elective 4:-

1. EE462 Design of Digital Control Systems
2. EE464 FACTS
3. EE466 Digital Image Processing
4. EE468 Computer Networks
5. EE472 Internet of Things
6. EE474 Energy Management and Auditing

BRANCH: Electronics & Communication Engineering

SEMESTER - 3

Course Code	Course Name	L-T-P	Credits	Exam Slot
MA201	Linear Algebra & Complex Analysis	3-1-0	4	A
EC201	Network Theory	3-1-0	4	B
EC203	Solid State Devices	3-1-0	4	C
EC205	Electronic Circuits	3-1-0	4	D
EC207	Logic Circuit Design	3-0-0	3	E
HS200/ HS210	Business Economics/Life Skills	3-0-0/ 2-0-2	3	F
EC231	Electronic Devices & Circuits Lab	0-0-3	1	S
EC223	Electronic Design Automation Lab	0-0-3	1	T

Total Credits = 24 Hours: 28/29 Cumulative Credits= 71

BRANCH: Electronics & Communication Engineering
SEMESTER - 4

Course Code	Course Name	L-T-P	Credits	Exam Slot
MA204	Probability, Random Processes and Numerical Methods	3-1-0	4	A
EC202	Signals & Systems	3-1-0	4	B
EC204	Analog Integrated Circuits	4-0-0	4	C
EC206	Computer Organization	3-0-0	3	D
EC208	Analog Communication Engineering	3-0-0	3	E
HS210/ HS200	Life Skills/Business Economics	2-0-2/ 3-0-0	3	F
EC232	Analog Integrated Circuits Lab	0-0-3	1	S
EC230	Logic Circuit Design Lab	0-0-3	1	T

Total Credits = 23 **Hours 27/28** **Cumulative Credits= 94**

BRANCH: Electronics & Communication Engineering
SEMESTER - 5

Course Code	Course Name	L-T-P	Credits	Exam Slot
EC301	Digital Signal Processing	3-1-0	4	A
EC303	Applied Electromagnetic Theory	3-0-0	3	B
EC305	Microprocessors & Microcontrollers	3-0-0	3	C
EC307	Power Electronics & Instrumentation	3-0-0	3	D
HS300	Principles of Management	3-0-0	3	E
	Elective 1	3-0-0	3	F
EC341	Design Project	0-1-2	2	S
EC333	Digital Signal Processing Lab	0-0-3	1	T
EC335	Power Electronics & Instrumentation Lab	0-0-3	1	U

Total Credits = 23 **Hours: 28** **Cumulative Credits= 117**

Elective 1:- 1. EC361 Digital System Design
2. EC363 Optimization Techniques
3. EC365 Biomedical Engineering
4. EC360 Soft Computing

BRANCH: Electronics & Communication Engineering
SEMESTER - 6

Course Code	Course Name	L-T-P	Credits	Exam Slot
EC302	Digital Communication	4-0-0	4	A
EC304	VLSI	3-0-0	3	B
EC306	Antenna & Wave Propagation	3-0-0	3	C
EC308	Embedded Systems	3-0-0	3	D
EC312	Object Oriented Programming	3-0-0	3	E
	Elective 2	3-0-0	3	F
EC332	Communication Engg Lab (Analog & Digital)	0-0-3	1	S
EC334	Microcontroller Lab	0-0-3	1	T
EC352	Comprehensive Exam	0-1-1	2	U

Total Credits = 23 Hours: 27 Cumulative Credits= 140

Elective 2:-

1. EC362 Modelling & Simulation of Communication Systems
2. EC364 Computer Vision
3. EC366 Real Time Operating Systems
4. EC368 Robotics
5. EC370 Digital Image Processing

BRANCH: Electronics & Communication Engineering
SEMESTER - 7

Course Code	Course Name	L-T-P	Credits	Exam Slot
EC401	Information Theory & Coding	4-0-0	4	A
EC403	Microwave & Radar Engineering	3-0-0	3	B
EC405	Optical Communication	3-0-0	3	C
EC407	Computer Communication	3-0-0	3	D
EC409	Control Systems	3-0-0	3	E
	Elective	3 3-0-0	3	F
EC451	Seminar & Project Preliminary	0-1-4	2	S
EC431	Communication Systems Lab (Optical & Microwave)	0-0-3	1	T

Total Credits = 22 Hours: 27 Cumulative Credits= 162

Elective 3:-

1. EC461 Microwave Devices and Circuits
2. EC463 Speech and Audio Processing
3. EC465 MEMS
4. EC467 Pattern Recognition
5. EC469 Opto Electronic Devices

BRANCH: Electronics & Communication Engineering

SEMESTER - 8

Course Code	Course Name	L-T-P	Credits	Exam Slot
EC402	Nano electronics	3-0-0	3	A
EC404	Advanced Communication Systems	3-0-0	3	B
	Elective 4	3-0-0	3	C
	Elective 5 (Non Departmental)	3-0-0	3	D
EC492	Project		6	

Total Credits = 18 Hours: 30 Cumulative Credits= 180

Elective 4:-

1. EC462 Mixed Signal Circuit Design
2. EC464 Low Power VLSI Design
3. EC466 Cyber Security
4. EC468 Secure Communication
5. EC472 Integrated Optics & Photonic Systems

BRANCH: Mechanical Engineering

SEMESTER - 3

Course Code	Course Name	L-T-P	Credits	Exam Slot
MA201	Linear Algebra & Complex Analysis	3-1-0	4	A
ME201	Mechanics of Solids	3-1-0	4	B
ME203	Mechanics of Fluids	3-1-0	4	C
ME205	Thermodynamics	3-1-0	4	D
ME210	Metallurgy and Materials Engineering	3-0-0	3	E
HS200/ HS210	Business Economics/Life Skills	3-0-0/ 2-0-2	3	F
ME231	Computer Aided Machine Drawing Lab	0-0-3	1	S
CE230	Material Testing Lab	0-0-3	1	T

Total Credits = 24 Hours: 28/29 Cumulative Credits= 71

BRANCH: Mechanical Engineering
SEMESTER - 4

Course Code	Course Name	L-T-P	Credits	Exam Slot
MA202	Probability Distributions, Transforms and Numerical Methods	3-1-0	4	A
ME202	Advanced Mechanics of Solids	3-1-0	4	B
ME204	Thermal Engineering	3-1-0	4	C
ME206	Fluid Machinery	2-1-0	3	D
ME220	Manufacturing Technology	3-0-0	3	E
HS210/ HS200	Life Skills/Business Economics	2-0-2/ 3-0-0	3	F
ME232	Thermal Engineering Lab	0-0-3	1	S
ME230	Fluid Mechanics & Machines Lab	0-0-3	1	T

Total Credits = 23 Hours 28/27 Cumulative Credits= 94

BRANCH: Mechanical Engineering
SEMESTER - 5

Course Code	Course Name	L-T-P	Credits	Exam Slot
ME301	Mechanics of Machinery	3-1-0	4	A
ME303	Machine Tools & Digital Manufacturing	3-0-0	3	B
ME305	Computer Programming & Numerical Methods	2-0-1	3	C
EE311	Electrical Drives & Control for Automation	3-0-0	3	D
HS300	Principles of Management	3-0-0	3	E
	Elective 1	3-0-0	3	F
ME341	Design Project	0-1-2	2	S
EE335	Electrical and Electronics Lab	0-0-3	1	T
ME331	Manufacturing Technology Lab I	0-0-3	1	U

Total Credits = 23 Hours: 28 Cumulative Credits= 117

Elective 1:- 1. ME361 Advanced Fluid Mechanics
2. ME363 Composite Materials and Mechanics
3. ME365 Advanced Metal Casting
4. ME367 Non-Destructive Testing
5. ME369 Tribology
6. ME371 Nuclear Engineering
7. ME373 Human Relations Management

BRANCH: Mechanical Engineering

SEMESTER - 6

Course Code	Course Name	L-T-P	Credits	Exam Slot
ME302	Heat & Mass Transfer	3-1-0	4	A
ME304	Dynamics of Machinery	2-1-0	3	B
ME306	Advanced Manufacturing Technology	3-0-0	3	C
ME308	Computer Aided Design and Analysis	3-0-0	3	D
ME312	Metrology and Instrumentation	3-0-0	3	E
	Elective	2 3-0-0	3	F
ME332	Computer Aided Design & Analysis Lab	0-0-3	1	S
ME334	Manufacturing Technology Lab II	0-0-3	1	T
ME352	Comprehensive Exam	0-1-1	2	U

Total Credits = 23 Hours: 27 Cumulative Credits= 140

Elective 2:-
1. ME362 Control System Engineering
2. ME364 Turbo Machinery
3. ME366 Advanced Metal Joining Technology
4. ME368 Marketing Management
5. ME372 Operations Research
6. ME374 Theory of Vibration
7. ME376 Maintenance Engineering

BRANCH: Mechanical Engineering

SEMESTER - 7

Course Code	Course Name	L-T-P	Credits	Exam Slot
ME401	Design of Machine Elements I	3-1-0	4	A
ME403	Advanced Energy Engineering	3-0-0	3	B
ME405	Refrigeration and Air Conditioning	2-1-0	3	C
ME407	Mechatronics	3-0-0	3	D
ME409	Compressible Fluid Flow	2-1-0	3	E
	Elective 3	3-0-0	3	F
ME451	Seminar & Project Preliminary	0-1-4	2	S
ME431	Mechanical Engineering Lab	0-0-3	1	T

Total Credits = 22 **Hours: 27** **Cumulative Credits= 162**

Elective 3:-

1. ME461 Aerospace Engineering
2. ME463 Automobile Engineering
3. ME465 Industrial Hydraulics
4. IE306 Supply Chain and Logistics Management
5. ME467 Cryogenic Engineering
6. ME469 Finite Element Analysis
7. ME471 Optimization Techniques

BRANCH: Mechanical Engineering

SEMESTER - 8

Course Code	Course Name	L-T-P	Credits	Exam Slot
ME402	Design of Machine Elements II	3-0-0	3	A
ME404	Industrial Engineering	3-0-0	3	B
	Elective	4 3-0-0	3	C
	Elective 5 (Non Departmental)	3-0-0	3	D
ME492	Project		6	

Total Credits = 18 **Hours: 30** **Cumulative Credits= 180**

Elective 4:-

1. ME462 Propulsion Engineering
2. ME464 Robotics and Automation
3. ME466 Computational Fluid Dynamics
4. ME468 Nanotechnology
5. ME472 Failure Analysis and Design
6. ME474 Micro and Nano Manufacturing
7. ME476 Material Handling & Facilities Planning

Syllabus
Life Skills
Business Economics
Principles of Management

2016

Course No.	Course Name	L-T-P Credits	Year
MA 201	Linear Algebra and Complex Analysis	3-1-0-4	2016

Prerequisite : **Nil**

Course Objectives

COURSE OBJECTIVES

* To equip the students with methods of solving a general system of liner equations.
* To familiarize them with the concept of Eigen values and diagonalization of a matrix which have many applications in Engineering.
* To understand the basic theory of functions of a complex variable and conformal Transformations.

Syllabus

Analyticity of complex functions - Complex differentiation - Conformal mappings- Complex integration- System of linear equations - Eigen value problem

Expected Outcome.

At the end of the course students will be able to

(i) solve any given system of linear equations
(ii) find the Eigen values of a matrix and how to diagonalize a matrix
(iii) identify analytic functions and Harmonic functions.
(iv) evaluate real definite Integrals as application of Residue Theorem
(v) identyfy conformal mappings (vi) find regions that are mapped under certain Transformations

Text Book :

Erwin Kreyszing : Advanced Engineering Mathematics, 10th ed. Wiley

References:

1. Dennis Zill & Patric D Shanahan - A first Course in Complex Analysis with Applications - Jones & Bartlet Publishers
2. B. S. Grewal. Higher Engineering Mathematics, Khanna Publishers, New Delhi.
3. Lipschutz, Linear Algebra, 3e (Schaums Series) McGraw Hill Education India 2005
4. Complex variables introduction and applications - second edition - Mark. J. Owitz - Cambridge Publication

Course Plan

Module	Contents	Hourse	Sem. Exam Marks
I	Complex differentiation Text 1 [13. 3, 13.4] Limit, continuty and derivative of complex functions	3	
	Analytic Functions	2	
	Cauchy - Riemann Equation (Proof of sufficient condition of analyticity & C R Equations in polar form not required) - Laplace's Equation	2	
	Harmonic functions, Harmonic conjugate	2	15%
	Conformal mapping: Text 1 [17. 1- 17.4]		
II	Geometry of Analytic functions Conformal Mapping,	1	
	Mapping $w = z^2$ conformality of $w = e^{=}$	2	15%
	The mapping $w = z + {}^{1}/z$		
	Porperties of $w = {}^{1}/z$	1	
	Circles and straight lines, extended complex plane, fixed points	3	
	Conformal mapping by $w = \sin z$ & $w = \cos z$	3	
	(Assignment: Application of analytic functions in Engineering)		
	FIRST INTERNATIONAL EXAMINATION		
III	Complex Integration. Text 1 [14.1 - 14.4] [15.4 & 16.1]		15%
	Definition Complex Line integrals, First Evaluation Method, Second Evaluation Method	2	
	Cauchy's Integral Theorem (without proof), Independence of path (without proof), Cauchy's Integral Theorem for Multiply Connected Domains (without proof)	2	15%
	Cauchy's Integral Formula - Derivatives of Analytic Functions (without Proof) Application of derivative of Analytical Functions	2	

	Taylor and Maclaurin series (without proof), Power series as Taylor Series, Practical methods (without proof) Laurent's series (without proof) Residue Integration Text 1 [16.2-16.4] Singularities, Zeros, Poles, Essential Singularity, Zeros of analytic functions Residue Integration Method, Formulas for Residues, Several Singularities inside the contour Residue Theorem. Evaluate of Real Integrals (i) Integrals of rational functions of sinq and cosq (ii) Integrals of the type $\int f(x)\,dx$ (Type I, Integrals from 0 to ∞) (Assignment : Application of complex integration in Engineering)	2 2 2 4 3	15%
	SECOND INTERNAL EXAMINATON		
V	Linear system of Equations Text 1 (7.3- 7.5) Linear systems of Equations, Coefficient Matrix, Augmented Matrix Gauss Elimination and back substitution, Elementary row operations, Row equivalent systems, Gauss elimination - Three possible cases, Row Echelon from and Information from it. Linear independence - rank of a matrix Vector Space - Dimension - Basis - Vector space R^3 Solution of linear systems, Fundamental theorem of non - homogeneous linear systems (Without Proof) - Homogeneous linear systems (Theory only)	1 5 2 1	

	Matrix Eigen value Problem Text 1. (8.1, 8.3 & 8.4)		20%
VI	Determination of Eigen values and Eigen Vectors - Eigen Space	3	
	Symmetric, Skew Symmetric and Orthogonal simple properties (without proof)	2	
	Basis of Eigen vectors - Similar matrices Diagonalization of a matrix Quadratic forms - Principal axis theorem (without proof)	4	
	(Assingnment - Some applications of Eigen values (8.2) END SEMESTER EXAM		

QUESTION PAPER PATTERN:

Maximum Marks : 100 Exam Duration: 3 hours

The question paper will consist of 3 parts.
Part A will have 3 questions of 15 marks each uniformly covering modules I and II. Each question may have two sub questions.

Part B will have 3 questions of 15 marks each uniformly covering modules III and IV. Each question may have two sub questions.

Part C will have 3 questions of 20 marks each uniformly civering modules V and VI. Each question may have three sub questions.

Any two questions from each part have to be answered.

Course No.	Course Name	L-T-P Credits	Year
HS210	LIFE SKILLS	2-0-2	2016

Course Objectives

- To develop communication competence in prospective engineers. To enable them to convey thoughts and ideas with clarity and focus.
- To develop report writing skills.
- To equip them to face interview & Group Discussion.
- To inculcate critical thinking process.
- To prepare them on problem solving skills.
- To provide symbolic, verbal, and graphical interpretations of statements in a problem description.
- To understand team dynamics & effectiveness.
- To create an awareness on Engineering Ethics and Human Values.
- To instill Moral and Social Values, Loyalty and also to learn to appreciate the rights of others.
- To learn leadership qualities and practice them.

Syllabus

Communication Skill: Introduction to Communication, The Process of Communication, Barriers to Communication, Listening Skills, Writing Skills, Technical Writing, Letter Writing, Job Application, Report Writing, Non-verbal Communication and Body Language, Interview Skills, Group Discussion, Presentation Skills, Technology-based Communication.

Critical Thinking & Problem Solving: Creativity, Lateral thinking, Critical thinking, Multiple Intelligence, Problem Solving, Six thinking hats Mind Mapping & Analytical Thinking.

Teamwork: Groups, Teams, Group Vs Teams, Team formation process, Stages of Group, Group Dynamics, Managing Team Performance & Team Conflicts.

Ethics, Moral & Professional Values: Human Values, Civic Rights, Engineering Ethics, Engineering as Social Experimentation, Environmental Ethics, Global Issues, Code of Ethics like ASME, ASCE, IEEE.

Leadership Skills: Leadership, Levels of Leadership, Making of a leader, Types of leadership, Transactions Vs Transformational Leadership, VUCA Leaders, DART Leadership, Leadership Grid & leadership Formulation.

Expected outcome

- Communicate effectively.
- Make effective presentations.
- Write different types of reports.
- Face interview & group discussion.
- Critically think on a particular problem.
- Solve problems.
- Work in Group & Teams
- Handle Engineering Ethics and Human Values.
- Become an effective leader.

References:

- Barun K. Mitra; (2011), *"Personality Development & Soft Skills*", First Edition; Oxford Publishers.
- Kalyana; (2015) "*Soft Skill for Managers*"; First Edition; Wiley Publishing Ltd.
- Larry James (2016); "*The First Book of Life Skills*"; First Edition; Embassy Books.
- Shalini Verma (2014); *"Development of Life Skills and Professional Practice"*; First Edition; Sultan Chand (G/L) & Company
- John C. Maxwell (2014); "The 5 Levels of Leadership", Centre Street, A division of Hachette Book Group Inc.

Course Plan

Module	Contents	Hours L-T-P		Sem. Exam
		T	P	Marks
	Need for Effective Communication, Levels of communication; Flow of communication; Use of language in communication; Communication networks; Significance of technical communication, Types of barriers; Miscommunication; Noise; Overcoming measures,	2		
	Listening as an active skill; Types of Listeners; Listening for general content; Listening to fill up information; IntensiveListening; Listening for specific information; Developing effective listening skills; Barriers to effective listening skills. **Technical Writing:** Differences between		2	

	technical and literary style, Elements of style; Common Errors, **Letter Writing:** Formal, informal and demi-official letters; business letters, **Job Application**: Cover letter, Differences between bio-data, CV and Resume, **Report Writing:** Basics of Report Writing; Structure of a report; Types of reports.		4	
	Non-verbal Communication and Body Language: Forms of non-verbal communication; Interpreting body-language cues; Kinesics; Proxemics; Chronemics; Effective use of body language	3		
	Interview Skills: Types of Interviews; Ensuring success in job interviews; Appropriate use of non-verbal communication, **Group Discussion**: Differences between group discussion and debate; Ensuring success in group discussions, **Presentation Skills**: Oral presentation and public speaking skills; business presentations, **Technology-based Communication:** Netiquettes: effective e-mail messages; power-point presentation; enhancing editing skills using computer software.		**4**	
II	Need for Creativity in the 21st century, Imagination, Intuition, Experience, Sources of Creativity, Lateral Thinking, Myths of creativity	2		
	Critical thinking Vs Creative thinking, Functions of Left Brain & Right brain, Convergent & Divergent Thinking, Critical reading & Multiple Intelligence.		2	
	Steps in problem solving, Problem Solving Techniques, Problem Solving through Six Thinking Hats, Mind Mapping, Forced Connections.	2		

	Problem Solving strategies, Analytical Thinking and quantitative reasoning expressed in written form, Numeric, symbolic, and graphic reasoning, Solving application problems.		2	3
III	Introduction to Groups and Teams, Team Composition, Managing Team Performance, Importance of Group, Stages of Group, Group Cycle, Group thinking, getting acquainted, Clarifying expectations.	3		
	Group Problem Solving, Achieving Group Consensus.		2	
	Group Dynamics techniques, Group vs Team, Team Dynamics, Teams for enhancing productivity, Building & Managing Successful Virtual Teams. Managing Team Performance & Managing Conflict in Teams.	3		
	Working Together in Teams, Team Decision-Making, Team Culture & Power, Team Leader Development.		2	
IV	Morals, Values and Ethics, Integrity, Work Ethic, Service Learning, Civic Virtue, Respect for Others, Living Peacefully.			
	Caring, Sharing, Honesty, Courage, Valuing Time, Cooperation, Commitment, Empathy, Self-Confidence, Character,			
	Spirituality, Senses of 'Engineering Ethics', variety of moral issued, Types of inquiry, moral dilemmas, moral autonomy, Kohlberg's theory, Gilligan's theory, Consensus and controversy, Models of Professional Roles, Theories about right action, Self-interest, customs and religion, application of ethical theories.			

	Engineering as experimentation, engineers as responsible experimenters, Codes of ethics, Balanced outlook on.	3		
	The challenger case study, Multinational corporations, Environmental ethics, computer ethics,		2	
	Weapons development, engineers as managers, consulting engineers, engineers as expert witnesses and advisors, moral leadership, sample code of Ethics like ASME, ASCE, IEEE, Institution of Engineers(India), Indian Institute of Materials Management, Institution of electronics and telecommunication engineers(IETE), India, etc.	3		
V	Introduction, a framework for considering leadership, entrepreneurial and moral leadership, vision, people selection and development, cultural dimensions of leadership, style, followers, crises.	4		
	Growing as a leader, turnaround leadership, gaining control, trust, managing diverse stakeholders, crisis management		2	
	Implications of national culture and multicultural leadership Types of Leadership, Leadership Traits.	2		
	Leadership Styles, VUCA Leadership, DART Leadership,Transactional vs Transformational Leaders, Leadership Grid, Effective Leaders, making of a Leader, Formulate Leadership		2	
	END SEMESTER EXAM			

EVALUATION SCHEME

Internal Evaluation

(Conducted by the College)

Total Marks: 100

Part – A

(To be started after completion of Module 1 and to be completed by 30th working day of the semester)

1. Group Discussion – Create groups of about 10 students each and engage them on a GD on a suitable topic for about 20 minutes. Parameters to be used for evaluation is as follows;

(i) Communication Skills – 10 marks
(ii) Subject Clarity – 10 marks
(iii) Group Dynamics – 10 marks
(iv) Behaviors & Mannerisms – 10 marks

(Marks: 40)

Part – B

(To be started from 31st working day and to be completed before 60th working day of the semester)

2. Presentation Skills – Identify a suitable topic and ask the students to prepare a presentation (preferably a power point presentation) for about 10 minutes. Parameters to be used for evaluation is as follows;

(i) Communication Skills* - 10 marks
(ii) Platform Skills** - 10 marks
(iii) Subject Clarity/Knowledge - 10 marks

(Marks: 30)

* Language fluency, auditability, voice modulation, rate of speech, listening, summarizes key learnings etc.

** Postures/Gestures, Smiles/Expressions, Movements, usage of floor area etc.

Part – C

(To be conducted before the termination of semester)

3. Sample Letter writing or report writing following the guidelines and procedures. Parameters to be used for evaluation is as follows;
(i) Usage of English & Grammar - 10 marks
(ii) Following the format - 10 marks
(iii) Content clarity - 10 marks

(Marks: 30)

External Evaluation

(Conducted by the University)

Total Marks: 50 Time: 2 hrs.

Part – A

Short Answer questions

There will be one question from each area (five questions in total) will be asked for the examination. Each question should be written in about maximum of 400 words. Parameters to be used for evaluation are as follows;
(i) Content Clarity/Subject Knowledge
(ii) Presentation style
(iii) Organization of content

(Marks: 5 x 6 = 30)

Part – B
Case Study

The students will be given a case study with questions at the end the students have to analyze the case and answer the question at the end. Parameters to be used for evaluation are as follows;

(i) Analyze the case situation
(ii) Key players/characters of the case
(iii) Identification of the problem (both major & minor if exists)
(iv) Bring out alternatives
(v) Analyze each alternative against the problem
(vi) Choose the best alternative
(vii) Implement as solution
(viii) Conclusion
(ix) Answer the question at the end of the case *(Marks: 1 x 20 =20)*

Course Number	Course Name	L-T-P	Credits	Year of introduction
HS200	**Business Economics**	**3-0-0**	**3**	**2016**

Course Objectives

- To familiarize the prospective engineers with elementary Principles of Economics and Managerial Economics;.
- To acquaint the students with tools and techniques that are useful in theirprofession in Managerial Decision Making which will enhance their employability;
- To gain understanding of some Macroeconomic concepts to improve their ability to understand the business climate;
- To prepare and understand balance sheet at an elementary level.

Syllabus

Nature of economics. Demand and Supply Analysis, demand curve, supply curve and equilibrium price determination. Production economics, economies of Scale, optimal quantity determination, Production and Cost functions, the law of Diminishing Marginal Productivity, Costs, Break-Even Analysis Chart Preparation and Cost-Volume-Profit Analysis. Market Structure and Price-Output Decisions under various competition situations and Collusion/Cartel formations in the real life situation. Monetary theory, functions of RBI and NI. Computation and some aspects of macro economics. Capital Budgeting decisions, forecasting techniques and elementary Balance Sheet..

Expected Outcome

A student who has undergone this course

- *would be able to make investment decisions based on capital budgeting methods in alignment with microeconomic and macroeconomic theories.*
- *would be able to analyse the profitability of the firm, economy of operation, determination of price under various market situations with good grasp on the effect of trade cycles in business.*
- *would gain knowledge on Monetary theory, measures by RBI in controlling interest rate and emerging concepts like Bit Coin.*
- *would gain knowledge of elementary accounting concepts used for preparing balance sheet and interpretation of balance sheet*

Course Plan

Unit	Topics	Hours Allotted	Percentage Marks
I	**Nature of Economics** Definitions of Economics and their limitations, Economic Problems (2 Hrs.), Economic Systems, meaning of Business or Managerial Economics (2 Hrs.)and its role and relevance in managerial decision making in an industrial setting (2 Hrs).	6	15%
II	**Demand and Supply Analysis** Demand Curve, Demand function (2 Hrs.), Elasticity of demand and its estimation (2 Hrs.), Supply curve, equilibrium price and price mechanism (2 Hrs).	6	15%
	FIRST INTERNAL EXAM		
III	**Production Economics** Economies of Scale and Diseconomies of Scale (1 Hr.), Production and Cost Functions. Factors of Production (2 Hrs.), Law of Diminishing marginal Productivity. Construction and analysis of Break Even Charts (3 Hrs.)	6	15%
IV	**Market Structure and Price-Output Decisions** Price and output determination under Perfect Competition, Monopoly and Monopolistic Competition (3 Hrs.). Collusion and Cartel, Nash Equilibrium (3 Hrs.).	6	15%

	SECOND INTERNAL EXAM		
V	**Money, National Income and Taxation** Money, Emerging Bit Coin concept, Quantity Theory of Money, Interest Rate Management (2 Hrs), Open Market Operations by RBI, Selective Credit Controls, SLR, CRR (2 Hrs), Definition & Measurement of National Income, methods, sectors of economy (3 Hrs), inflation, deflation, trade cycles- Value- Added Tax (2 Hrs).	9	20%
VI	**Investment Decisions and Balance Sheet Analysis** Capital Budgeting, Investment Analysis – NPV, IRR, Profitability Index, ARR, Payback Period (3 Hrs), Depreciation, Time value of money. Business Forecasting– Elementary techniques (2 Hrs). Balance sheet preparation principles and interpretation (4 Hrs)	9	20%

END SEMESTER EXAM

Text Book

Yogesh, Maheswari, *Management Economics* , PHI learning, NewDelhi, 2012

References

1. Dornbusch, Fischer and Startz, Macroeconomics, McGraw Hill, 11th edition, 2010.
2. Khan M Y, Indian Financial System, Tata McGraw Hill, 7th edition, 2011.
3. Samuelson, Managerial Economics, 6th edition, Wiley
4. Snyder C and Nicholson W, Fundamentals of Microeconomics, Cengage Learning (India), 2010.
5. Truett, Managerial Economics: Analysis, Problems, Cases, 8th Edition, Wiley Welch, Economics: Theory and Practice 7th Edition, Wiley

Course Number	Course Name	L-T-P	Credits	Year of introduction
HS300	**Principles of Management**	**3-0-0**	**3**	**2016**

Course Objectives

- To develop ability to critically analyse and evaluate a variety of management practices in the contemporary context;
- To understand and apply a variety of management and organisational theories in practice;
- To be able to mirror existing practices or to generate their own innovative management competencies, required for today's complex and global workplace;
- To be able to critically reflect on ethical theories and social responsibility ideologies to create sustainable organisations.

Syllabus

Definition, roles and functions of a manager, management and its science and art perspectives, management challenges and the concepts like, competitive advantage, entrepreneurship and innovation. Early contributors and their contributions to the field of management Corporate Social Responsibility. Planning, Organizing, Staffing and HRD functions, Leading and Controlling form the core content of this course. Decision making under certainty, uncertainty and risk, creative process and innovation involved in decision making..

Expected Outcome

A student who has undergone this course

- would be able to manage people and organisations
- would be able to critically analyse and evaluate management theories and practices
- would be able to plan and make decisions for organisations
- would be able to do staffing and related HRD functions

Course Plan

Unit	Topics	Hours Allotted	Percentage Marks
I	**Introduction to Management**: definitions, managerial roles and functions; Science or Art perspectives- External environment-global, innovative and entrepreneurial perspectives of Management (3 Hrs.)– Managing people and organizations in the context of New Era- Managing for competitive advantage - the Challenges of Management (3 Hrs.)	6	15%

II	**Early Contributions and Ethics in Management**: Scientific Management- contributions of Taylor, Gilbreths, Human Relations approach-contributions of Mayo, McGregor's Theory, Ouchi's Theory Z (3 Hrs.) Systems Approach, the Contingency Approach, the Mckinsey 7-S Framework Corporate Social responsibility- Managerial Ethics. (3 Hrs)	6	15%
	FIRST INTERNAL EXAM		
III	**Planning:** Nature and importance of planning, - types of plans (3 Hrs.)- Steps in planning, Levels of planning - The Planning Process. –MBO (3 Hrs.).	6	15%
IV	**Organising for decision making:** Nature of organizing, organization levels and span of control in management Organisational design and structure –departmentation, line and staff concepts (3 Hrs.) Limitations of decision making- Evaluation and non selecting from alternatives- programmed and programmed decisions - decision under certainty, uncertainty and risk-creative process and innovation (3 Hrs.)	6	15%
	SECOND INTERNAL EXAM		
V	**Staffing and related HRD Functions:** definition, Empowerment, staff – delegation, decentralization and recentralisation of authority – Effective Organizing and culture-responsive organizations –Global and entrepreneurial organizing (3 Hrs.) Manager inventory chart-matching person with the job-system approach to selection (3 Hrs.) Job design-skills and personal characteristics needed in managers-selection process, techniques and instruments (3 Hrs.)	9	20%
VI	**Leading and Controlling:** Leading Vs Managing – Trait approach and Contingency approaches to leadership -Dimensions of Leadership (3 Hrs.) - Leadership Behavior and styles – Transactional and Transformational Leadership(3 Hrs.) Basic control process- control as a feedback system – Feed Forward Control – Requirements for effective control – control techniques – Overall controls and preventive controls – Global controlling (3 Hrs.)	9	20%
	END SEMESTER EXAM		

Text Book

Harold Koontz and Heinz Weihrich, Essentials of Management, McGraw Hill Education, 10th Edition.

References

1. Daft, New era Management, 11th Edition, Cengage
2. Griffin, Management Principles and Applications, 10th Edition, Cengage
3. Heinz Weirich, Mark V Cannice and Harold Koontz, Management: a Global, Innovative and Entrepreneurial Perspective, McGraw Hill Education, 14th Edition
4. Peter F Drucker, *The Practice of Management*, McGraw Hill, New York
5. Robbins and Coulter, Management, 13th Edition, 2016, Pearson Education

Course code	Course Name	L-T-P Credits	Year of Introduction
CS201	DISCRETE COMPUTATIONAL STRUCTURES	3-1-0-4	2016

Pre-requisite: NIL

Course Objectives

1. To introduce mathematical notations and concepts in discrete mathematics that is essential for computing.
2. To train on mathematical reasoning and proof strategies.
3. To cultivate analytical thinking and creative problem solving skills.

Syllabus

Review of Set theory, Countable and uncountable Sets, Review of Permutations and combinations, Pigeon Hole Principle, Recurrence Relations and Solutions, Algebraic systems (semigroups, monoids, groups, rings, fields), Posets and Lattices, Prepositional and Predicate Calculus, Proof Techniques.

Expected Outcome:

Students will be able to

1. identify and apply operations on discrete structures such as sets, relations and functions in different areas of computing.
2. verify the validity of an argument using propositional and predicate logic.
3. construct proofs using direct proof, proof by contraposition, proof by contradiction and proof by cases, and by mathematical induction.
4. solve problems using algebraic structures.
5. solve problems using counting techniques and combinatorics.
6. apply recurrence relations to solve problems in different domains.

Text Books

1. Trembly J.P and Manohar R, “Discrete Mathematical Structures with Applications to Computer Science”, Tata McGraw–Hill Pub.Co.Ltd, New Delhi, 2003.
2. Ralph. P. Grimaldi, “Discrete and Combinatorial Mathematics: An Applied Introduction”, 4/e, Pearson Education Asia, Delhi, 2002.

References:

1. Liu C. L., “Elements of Discrete Mathematics”, 2/e, McGraw–Hill Int. editions, 1988.
2. Bernard Kolman, Robert C. Busby, Sharan Cutler Ross, “Discrete Mathematical Structures”, Pearson Education Pvt Ltd., New Delhi, 2003
3. Kenneth H.Rosen, “Discrete Mathematics and its Applications”, 5/e, Tata McGraw – Hill Pub. Co. Ltd., New Delhi, 2003.
4. Richard Johnsonbaugh, “Discrete Mathematics”, 5/e, Pearson Education Asia, New Delhi, 2002.
5. Joe L Mott, Abraham Kandel, Theodore P Baker, “Discrete Mathematics for Computer Scientists and Mathematicians”, 2/e, Prentice-Hall India, 2009.

Course Plan			
Module	**Contents**	**Hours (54)**	**End Sem Exam Marks**
I	**Review of elementary set theory** : Algebra of sets – Ordered pairs and Cartesian products – Countable and Uncountable sets **Relations** :- Relations on sets –Types of relations and their properties – Relational matrix and the graph of a relation – Partitions – Equivalence relations - Partial ordering- Posets – Hasse diagrams - Meet and Join – Infimum and Supremum ***Functions*** *:-* *Injective, Surjective and Bijective functions - Inverse of a function- Composition*	3 6 1	15 %
II	Review of Permutations and combinations, Principle of inclusion exclusion, Pigeon Hole Principle, **Recurrence Relations**: Introduction- Linear recurrence relations with constant coefficients– Homogeneous solutions – Particular solutions – Total solutions **Algebraic systems**:- Semigroups and monoids - Homomorphism, Subsemigroups and submonoids	3 4 2	15 %
FIRST INTERNAL EXAM			
III	**Algebraic systems (contd…)**:- Groups, definition and elementary properties, subgroups, Homomorphism and Isomorphism, Generators - Cyclic Groups, Cosets and Lagrange's Theorem Algebraic systems with two binary operations- rings, fields-sub rings, ring homomorphism	6 2	15 %
IV	**Lattices and Boolean algebra** :- Lattices –Sublattices – Complete lattices – Bounded Lattices - Complemented Lattices – Distributive Lattices – Lattice Homomorphisms. Boolean algebra – sub algebra, direct product and homomorphisms	7 3	15 %
SECOND INTERNAL EXAM			
V	**Propositional Logic**:- Propositions – Logical connectives – Truth tables Tautologies and contradictions – Contra positive – Logical	2 3	20 %

	equivalences and implications Rules of inference: Validity of arguments.	 3	
VI	**Predicate Logic**:- Predicates – Variables – Free and bound variables – Universal and Existential Quantifiers – Universe of discourse. Logical equivalences and implications for quantified statements – Theory of inference : Validity of arguments. **Proof techniques:** Mathematical induction and its variants – Proof by Contradiction – Proof by Counter Example – Proof by Contra positive.	3 3 3	20 %
END SEMESTER EXAM			

Question Paper Pattern:

1. There will be *five* parts in the question paper – A, B, C, D, E
2. Part A
   a. Total marks : 12
   b. *Four* questions each having *3* marks, uniformly covering module I and II; All *four* questions have to be answered.
3. Part B
   a. Total marks : 18
   b. *Three* questions each having *9* marks, uniformly covering module I and II; T*wo* questions have to be answered. Each question can have a maximum of three subparts
4. Part C
   a. Total marks : 12
   b. *Four* questions each having *3* marks, uniformly covering module III and IV; All *four* questions have to be answered.
5. Part D
   a. Total marks : 18
   b. *Three* questions each having *9* marks, uniformly covering module III and IV; T*wo* questions have to be answered. Each question can have a maximum of three subparts
6. Part E
   a. Total Marks: 40
   b. *Six* questions each carrying 10 marks, uniformly covering modules V and VI; *four* questions have to be answered.
   c. A question can have a maximum of three sub-parts.

7. There should be at least 60% analytical/numerical questions.

ACADEMIC CALENDAR 2016 – 2017

JULY 2016

Fri	1	
Sat	2	
Sun	3	
Mon	4	
Tue	5	
Wed	6	Id-ul-Fitr (Ramadan)
Thu	7	
Fri	8	
Sat	9	2nd Saturday
Sun	10	
Mon	11	
Tue	12	
Wed	13	
Thu	14	
Fri	15	
Sat	16	
Sun	17	
Mon	18	
Tue	19	
Wed	20	
Thu	21	
Fri	22	
Sat	23	
Sun	24	
Mon	25	
Tue	26	
Wed	27	Registration Starts
Thu	28	
Fri	29	
Sat	30	
Sun	31	

ACADEMIC CALENDAR 2016 – 2017

AUGUST 2016

Mon	1	Commencement of Class
Tue	2	Karkadaka Vavu-Holiday
Wed	3	
Thu	4	
Fri	5	Course Committee/Class Committee Meeting
Sat	6	
Sun	7	
Mon	8	
Tue	9	Registration Ends
Wed	10	Report Registration details to KTU
Thu	11	
Fri	12	
Sat	13	2nd Saturday
Sun	14	
Mon	15	Independence Day
Tue	16	
Wed	17	
Thu	18	
Fri	19	
Sat	20	
Sun	21	
Mon	22	
Tue	23	
Wed	24	Sri Krishna Jayanthi
Thu	25	
Fri	26	
Sat	27	
Sun	28	Birthday of Ayyankali
Mon	29	
Tue	30	
Wed	31	

ACADEMIC CALENDAR 2016 – 2017

SEPTEMBER 2016

Thu	1	Publish Attendance
Fri	2	
Sat	3	
Sun	4	
Mon	5	
Tue	6	
Wed	7	Test 1 to be completed
Thu	8	
Fri	9	
Sat	10	Onam Vacation Begins
Sun	11	
Mon	12	Bakrid
Tue	13	First Onam
Wed	14	Thiruvonam
Thu	15	Third Onam
Fri	16	Sree Narayana Guru Jayanthi
Sat	17	
Sun	18	
Mon	19	Re-Opening
Tue	20	Course Committee/Class Committee Meeting
Wed	21	Sree Narayana Guru Samadhi Day
Thu	22	Publish Test 1 Marks
Fri	23	
Sat	24	
Sun	25	
Mon	26	
Tue	27	
Wed	28	
Thu	29	
Fri	30	

ACADEMIC CALENDAR 2016 – 2017

OCTOBER 2016

Sat	1	
Sun	2	Gandhi Jayanthi
Mon	3	
Tue	4	
Wed	5	
Thu	6	
Fri	7	Publish Attendance
Sat	8	
Sun	9	
Mon	10	Mahanavami
Tue	11	Vijaya Dashami
Wed	12	Muharam
Thu	13	
Fri	14	
Sat	15	
Sun	16	
Mon	17	
Tue	18	
Wed	19	
Thu	20	
Fri	21	Test 2 to be completed
Sat	22	
Sun	23	
Mon	24	
Tue	25	
Wed	26	
Thu	27	
Fri	28	Publish Test 2 Marks
Sat	29	Deepavali
Sun	30	
Mon	31	

ACADEMIC CALENDAR 2016 – 2017

NOVEMBER 2016

Tue	1	
Wed	2	
Thu	3	
Fri	4	
Sat	5	
Sun	6	
Mon	7	
Tue	8	
Wed	9	
Thu	10	
Fri	11	
Sat	12	
Sun	13	
Mon	14	
Tue	15	
Wed	16	
Thu	17	
Fri	18	
Sat	19	College Level Arts Festival to be Completed
Sun	20	
Mon	21	Course Committee/Class Committee Meeting
Tue	22	
Wed	23	Last date for evaluation of Jury/Practicals
Thu	24	Classes End, Publish Internal Marks
Fri	25	Publish Attendance
Sat	26	
Sun	27	
Mon	28	Forward Attendance & Internal Marks to KTU
Tue	29	
Wed	30	

ACADEMIC CALENDAR 2016 – 2017

DECEMBER 2016

Thu	1	
Fri	2	SI/S3 Exam
Sat	3	
Sun	4	
Mon	5	S3/S1 Exam
Tue	6	
Wed	7	S3/S1 Exam
Thu	8	
Fri	9	S3/S1 Exam
Sat	10	
Sun	11	
Mon	12	Milad-e-Sherif
Tue	13	
Wed	14	S3/S1 Exam
Thu	15	
Fri	16	S3/S1 Exam
Sat	17	
Sun	18	
Mon	19	
Tue	20	Arts & Tech Fests Week
Wed	21	
Thu	22	
Fri	23	
Sat	24	Christmas Vacation Begins
Sun	25	Christmas
Mon	26	
Tue	27	
Wed	28	
Thu	29	
Fri	30	
Sat	31	

ACADEMIC CALENDAR 2016 – 2017

JANUARY 2017

Sun	1	
Mon	2	Mannam Jayanthi
Tue	3	Registration Starts
Wed	4	Commencement of S2 & S4 Classes
Thu	5	
Fri	6	
Sat	7	
Sun	8	
Mon	9	Course Committee/Class Committee Meeting
Tue	10	
Wed	11	Registration Ends
Thu	12	
Fri	13	Tech Fest
Sat	14	Tech Fest
Sun	15	
Mon	16	
Tue	17	
Wed	18	
Thu	19	
Fri	20	
Sat	21	
Sun	22	
Mon	23	
Tue	24	
Wed	25	
Thu	26	Republic Day
Fri	27	
Sat	28	
Sun	29	
Mon	30	
Tue	31	Publish Attendance

ACADEMIC CALENDAR 2016 – 2017

FEBRUARY 2017

Wed	1	
Thu	2	
Fri	3	
Sat	4	
Sun	5	
Mon	6	
Tue	7	
Wed	8	
Thu	9	Test 1 to be completed
Fri	10	Course Committee/Class Committee Meeting
Sat	11	
Sun	12	
Mon	13	
Tue	14	
Wed	15	Publish Test 1 Marks
Thu	16	
Fri	17	
Sat	18	
Sun	19	
Mon	20	
Tue	21	
Wed	22	
Thu	23	
Fri	24	Maha Shivaratri
Sat	25	
Sun	26	
Mon	27	
Tue	28	

ACADEMIC CALENDAR 2016 – 2017

MARCH 2017

Wed	1	
Thu	2	
Fri	3	
Sat	4	
Sun	5	
Mon	6	
Tue	7	
Wed	8	
Thu	9	
Fri	10	Test 2 to be completed
Sat	11	
Sun	12	
Mon	13	
Tue	14	
Wed	15	
Thu	16	Publish Test 2 Marks
Fri	17	
Sat	18	
Sun	19	
Mon	20	
Tue	21	
Wed	22	
Thu	23	
Fri	24	
Sat	25	
Sun	26	
Mon	27	
Tue	28	
Wed	29	
Thu	30	
Fri	31	

ACADEMIC CALENDAR 2016 – 2017

APRIL 2017

Sat	1	
Sun	2	
Mon	3	
Tue	4	
Wed	5	
Thu	6	
Fri	7	
Sat	8	College Level Sports Meet to be completed
Sun	9	
Mon	10	
Tue	11	
Wed	12	Course Committee/Class Committee Meeting
Thu	13	Maundy Thursday
Fri	14	Good Friday, Vishu, Dr. Ambedkar Jayanthi
Sat	15	
Sun	16	Easter
Mon	17	Publish Internal Marks, Summer Course Registration
Tue	18	
Wed	19	
Thu	20	Last date for evaluation of Jury/Practicals
Fri	21	Classes End, Publish Attendance
Sat	22	
Sun	23	
Mon	24	Forward Attendance & Internal Marks to KTU
Tue	25	
Wed	26	
Thu	27	S4 Exam
Fri	28	S2 Exam
Sat	29	
Sun	30	

ACADEMIC CALENDAR 2016 – 2017

MAY 2017

Mon	1	May day
Tue	2	S4 Exam
Wed	3	S2 Exam
Thu	4	S4 Exam
Fri	5	S2 Exam
Sat	6	
Sun	7	
Mon	8	S2 Exam
Tue	9	S4 Exam
Wed	10	S2 Exam
Thu	11	S4 Exam
Fri	12	S2 Exam
Sat	13	
Sun	14	
Mon	15	S4 Exam
Tue	16	S2 Exam
Wed	17	S2 Exam
Thu	18	
Fri	19	
Sat	20	Sports Week
Sun	21	
Mon	22	
Tue	23	Summer Course Starts for S1, S2, S3 & S4
Wed	24	
Thu	25	
Fri	26	
Sat	27	
Sun	28	
Mon	29	
Tue	30	
Wed	31	

ACADEMIC CALENDAR 2016 – 2017

JUNE 2017

Thu	1	
Fri	2	
Sat	3	
Sun	4	
Mon	5	
Tue	6	
Wed	7	
Thu	8	
Fri	9	
Sat	10	
Sun	11	
Mon	12	Registration for Supplementary Examination
Tue	13	
Wed	14	
Thu	15	
Fri	16	Registration for Supplementary Examination Ends
Sat	17	
Sun	18	
Mon	19	
Tue	20	
Wed	21	
Thu	22	
Fri	23	Report eligibility of students attendance Summer Course to KTU
Sat	24	
Sun	25	
Mon	26	Id-ul-Fitr
Tue	27	
Wed	28	
Thu	29	Supplementary Examination Starts
Fri	30	

ACADEMIC CALENDAR 2016 – 2017

JULY 2017

Sat	1	
Sun	2	
Mon	3	
Tue	4	
Wed	5	
Thu	6	
Fri	7	
Sat	8	
Sun	9	
Mon	10	
Tue	11	
Wed	12	
Thu	13	
Fri	14	
Sat	15	
Sun	16	
Mon	17	
Tue	18	
Wed	19	
Thu	20	
Fri	21	
Sat	22	
Sun	23	Karkadaka Vavu
Mon	24	
Tue	25	
Wed	26	
Thu	27	
Fri	28	
Sat	29	
Sun	30	
Mon	31	

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